Sex Differences in Mate Preferences: An In-Depth Exploration of Evolutionary and Social-Economic Theories

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Statement of Authorship and Sources

This thesis contains no material published elsewhere or extracted in whole or in part from a thesis by which I have qualified for or been awarded another degree or diploma. No parts of this thesis have been submitted towards the award in any other tertiary institution. No other person's work has been used without due acknowledgment in the main text of the thesis. All research procedures reported in the thesis received the approval of the relevant Ethics Committee.

Name: Evita Maree March

Date: 03/03/16

Signed: 

For My Father, Dominic March,

04/08/1946 – 09/12/2014

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Abstract

Extensive research has documented the sex differences that exist in men's and women's mate preferences. Specifically, men desire the physical attractiveness of a potential mate more than women do, and women desire the status and resources of a potential mate more than men do. These sex differences in mate preferences are often attributed to evolutionary and/or social-economic origins. However, to date, research has only examined the different factors of social-economic theory independently without acknowledging the potential interactive effects between these variables. Therefore, the aim of this dissertation was to explore, for the first time, the individual and conjunctive effects of the different elements of social-economic theory (gender roles and socio-economic status) on characteristics men and women consider a necessity in long-term and short-term mates. To explicitly study characteristics men and women consider a necessity in a mate; the dissertation employed the trade-off methodology proposed by Li, Bailey, Kenrick, and Linsenmeier (2002). This methodology is a mate budget designed to examine the characteristics men and women consider a necessity (initially important) in a mate, and the characteristics men and women consider a luxury in a mate (the characteristics that become important once necessities are satisfied). As this methodology is relatively novel, to determine the validity of this measure the aim of Experiment 1 was to replicate the studies of Li and colleagues (2002) and Li and Kenrick (2006), and assess if the same characteristics men and women considered necessities in both long-term and short-term relationships could be established. Participants ($N = 1635$) were recruited from an Australian University campus and the wider community, and completed an online mate budget questionnaire. Results supported Li and Kenrick (2006), showing that both men and women consider the physical attractiveness of a short-term mate a necessity (although men did consider the physical attractiveness of a short-term mate significantly more of a necessity

than women). In addition, Experiment 1 provided support for Li and colleagues (2002), showing that men consider the physical attractiveness of a long-term mate a necessity (and significantly more of a necessity then women do). However, Experiment 1 did not find that women considered the social level of a long-term mate a necessity, thus not providing support for Li and colleagues (2002). In addition, women did not consider the social level of a long-term mate significantly more of a necessity compared to men. Based on these findings, it was discussed that men's and women's necessity of a long and short-term mate's physical attractiveness and social level might be influenced by social variables and contexts. As such the aim of Experiments 2 and 3 was to extend previous research on social-economic theory of sex differences in mate preferences by considering the independent and interactive effects different social factors have on the characteristics men and women consider necessities in long-term and short-term mates, respectively.

Experiment 2 examined the independent and interactive effects of an individual's gender role and socio-economic status (SES) on characteristics considered a necessity in a *long-term mate*. Participants ($N = 854$) were recruited from an Australian University campus and the wider community and completed an online mate budget questionnaire (e.g., Li et al., 2002; Li & Kenrick, 2006), the Bem Sex Role Inventory (BSRI) short-form (Choi, Fuqua, & Newman, 2009), and provided demographic information. Although other main effects and interactions were found, of significant interest was that results showed a significant interactive effect of SES and gender roles on men's necessity for a long-term mate's physical attractiveness. In addition, results showed a significant interactive effect of SES and gender roles on women's luxury for a long-term mate's physical attractiveness. There was however a lack of clarity regarding men's and women's preference for a long-term mate's social level. As such, Experiment 2b was conducted to unpack the categorical variable of SES, examining

the independent and interactive effects of current employment, weekly income and education obtained on men's and women's long-term mate preferences. Results showed current employment, weekly income and education attained all influenced men's preference for a long-term mate's physical attractiveness and social level. However, none of these variables were found to influence women's preference for a long-term mate's physical attractiveness and social level. Results of Experiment 2 and Experiment 2b are discussed in relation to evolutionary theory, social-economic theory, and in addition, social-exchange theory.

Research concerning sex differences in mate preferences has also highlighted, alongside further exploration of origin theories, the importance of differentiating preferences for a long-term mate and preferences for a short-term mate. Therefore, the aim of Experiment 3 was to examine the combined effects of an individual's gender role and socio-economic status (SES) on characteristics considered a necessity in a *short-term mate*. Participants (N = 781) were recruited from an Australian university campus and the wider community and completed an online mate budget questionnaire, the BSRI short-form, and provided demographic information. As research has not yet examined the effects of gender roles and SES on characteristics men and women desire in a short-term mate, exploratory questions were generated instead of hypotheses. Results showed a significant interactive effect of SES and gender roles on men's necessity for a short-term mate's physical attractiveness, and interactive effects of SES and gender roles on men's and women's preference for a short-term mate's physical attractiveness and social level in general (i.e., not categorised as a necessity or a luxury).

Experiment 3b also explored the independent and interactive effects of the variables of SES (i.e., current employment, weekly income and education obtained) on men's and women's necessity scores of a short-term mate's physical attractiveness and social level.

Results showed effects of current employment and weekly income on men's preference for a short-term mate's social level, and effects of weekly income and education obtained on women's preference for a short-term mate's physical attractiveness. Once again, results of Experiment 3 and Experiment 3b are discussed in relation to evolutionary theory and social-economic theory, but particular emphasis is paid to strategic pluralism theory (Gangestad & Simpson, 2000) and sexual strategies theory (Buss & Schmitt, 1993).

Overall, results of the current dissertation showed that factors of social-economic theory (gender roles and SES) have independent and interactive effects on men and women's long-term and short-term mate preferences. This result significantly adds to the body of research on sex differences in mate preferences, as research has not yet considered the interactive effects of gender roles and SES. However, results also show that the relation between social-economic theory and evolutionary theory of sex differences in mate preferences is dynamic and interchangeable, and not one origin theory can adequately account for these preferences alone.

To adjust for this interactive nature of evolutionary theory and social-economic theory, and to acknowledge the addition of social-exchange theory on men's and women's long and short-term mate preferences, the current dissertation proposes a biosocial-exchange model. Hypotheses proposed by the biosocial-exchange model adds to the research body of sex differences in long-term mate preferences by proposing a new model that will elucidate these sex differences and account for interaction between different theories.

Chapter One – Sex Differences in Mate Preferences[1]

"The mystery of love is greater than the mystery of death"

— Oscar Wilde

1.1 Overview of Chapter

This chapter introduces the topic of sex differences in mate preferences. Specifically, the history of research on mate preferences is discussed and the sex differences that have emerged from this research. Additionally, this chapter discusses the importance of continuing to study sex differences in mate preferences, and the theoretical and practical benefits of this continued research.

1.2 Introduction to the Topic of Sex Differences in Mate Preferences

A longstanding theme of social psychology is the attempt to understand different factors that influence individuals entering and maintaining romantic relationships (Lewandowski, Aron, & Gee, 2007). Considering the large role romantic relationships play in people's social life and life choices, understanding these influences is said to have great theoretical and practical importance (Lewandowski et al., 2007), and indeed, mate choice is a particularly important decision for more than 90% of the adult population (Buss & Barnes, 1986). Unsurprisingly then, mate selection processes and influences has long been of research interest (Feingold, 1992), particularly in Western cultures (Chang & Chan, 2007). A specific research task has been to identify the characteristics men and women prefer in a potential romantic partner (Buss & Barnes, 1986).

1.3 Sex Differences in Mate Preferences

Empirical research has long studied the multifaceted mechanisms involved in human mate selection, specifically, the characteristics that men and women place emphasis on in a

[1]Note: In the following paper, following the advice of Wood and Eagly (2002), the term 'sexes' denotes the grouping of people into male and female categories. The terms 'sex differences' and 'sex similarities' are applied to describe the results of comparing these two groups. The term 'gender' refers to the meanings that societies and individuals ascribe to male and female categories

potential romantic partner (e.g., Buss & Barnes, 1986). Furthermore, research has sought to investigate specific sex differences that emerge when considering the preference of these characteristics (e.g., Badahdah & Tiemann, 2005). To clarify, sex differences in mate preferences are the characteristics of potential mates that women place more emphasis on than men do, and that men place more emphasis on than women do (Buss & Barnes, 1986).

Generally, studies find considerable consistency in the characteristics men and women prefer in a potential romantic partner (Marlowe, 2004). When considering characteristics men and women desire in a potential long-term mate, both sexes consider the characteristics of kindness, understanding, having an exciting personality, and intelligence as the most important and desirable traits for a potential romantic partner to possess (Buss & Barnes, 1986; Cottrell, Neuberg, & Li, 2007; Kurzban & Weeden, 2005; Regan, 1998b). However, substantial evidence also exists for sex differences in the importance and desirability of other characteristics (Greitemeyer, 2007; Moore & Cassidy, 2007). Namely, sex differences exist in the importance and desirability of a potential mate's physical attractiveness and status and resources.

Physical attractiveness and status and resources are important characteristics to both sexes when considering a potential long-term mate (Schulte-Hostedde, Eys, & Johnson, 2008). However, a robust, consistent pattern that has emerged from research on sex differences in mate preferences is that men place greater importance on the physical attractiveness of a potential long-term mate than women do whereas women place greater importance on the status and resources of a potential long-term mate than men do (Badahdah & Tiemann, 2005; Cottrell et al., 2007; Greitemeyer, 2007; Howard, Blumstein, & Schwartz, 1987; Lewandowski et al., 2007; Moore & Cassidy, 2007; Moore, Cassidy, & Perrett, 2010; Scheib, 2001; Shackelford, Schmitt, & Buss, 2005a; Townsend & Roberts, 1993). To date, numerous studies have documented these sex differences in mate preferences across many

populations using a variety of methods (Pillsworth, 2008). In 1936, Baber (as cited in Badahdah & Tiemann, 2005) conducted one of the earliest studies on men's and women's mate selection criteria, and reported that 79% of women versus 32% of men were willing to marry someone who was not good looking. Meanwhile, 76% of men said they would marry someone less intelligent or educated than themselves, compared with only 18% of women.

Decades of research have established the presence of these sex differences in mate preferences regarding a potential mate's physical attractiveness and status and resources (Eastwick & Finkel, 2008), that these sex differences in mate preferences are reliable (Perilloux, Fleischman, & Buss, 2011), and also that the sex differences exist across cultures (Jonason, Li, & Cason, 2009). In fact, Pillsworth (2008) stated that so often has research found that men consider the physical attractiveness of a potential mate more important than women do, and women consider the status and resources of a potential mate more important than men do, that these sex differences are beginning to be regarded as "truisms"(p. 1).

1.4 The Importance of Studying Sex Differences in Mate Preferences

A particularly noteworthy reason as to why research on mate preferences should be continued is that the choice of a romantic mate may have a significant physical and psychological impact on the chooser's subsequent environment (Jensen-Campbell, Graziano, & West, 1994). Research has reported links between overall well-being and physical health and an individual's relationship (Bloom, Asher, & White, 1978). Furthermore, positive correlations have been established between men's and women's mate preferences and relationship satisfaction (Shackelford et al., 2005a), meaning that these mate preferences may have important implications when studying relationship satisfaction. For example, women's relationship satisfaction is affected by their mate's level of social status, whereas men's relationship satisfaction is affected by their mate's level of physical attractiveness (Kenrick, Neuberg, Zierk, & Krones, 1994). However, women's relationship satisfaction is not affected

by their mate's level of physical attractiveness, and men's relationship satisfaction is not affected by their mate's level of social status (Kenrick et al., 1994).

Longitudinal research has shown a higher amount of similarity between a person's ideal mate characteristics and their mate's actual characteristics are a predictor of relationship satisfaction (Zentner, 2005). Fletcher, Simpson, and Thomas (2000) also reported a positive correlation between participants' relationship quality and the extent to which their current mate matched their partner ideals. It appears that relationship satisfaction increases the more a current partner matches partner ideals (Campbell, Simpson, Kashy, & Fletcher, 2001).

Additionally, research has reported negative correlations between likeliness to end one's relationship and the extent to which one's current mate matches one's ideals (Fletcher et al., 2000). Eastwick, Finkel, and Eagly (2011) found for both men and women the degree of similarity between ideals of a mate's traits and a mate's actual traits predicted positive relational outcomes, such as "greater passion, bondedness, satisfaction, and commitment" (p. 1026.)

However, the importance of studying these sex differences in mate preferences has been called into question, as some researchers have reported that when it comes to relationships in the real world context, these sex differences in mate preferences disappear (e.g., Conley, Moors, Matsick, Ziegler, & Valentine, 2011). Indeed, researchers who have investigated sex differences in mate preferences in a real world context have produced conflicting results. For example, Eastwick and Finkel (2008) hosted a series of speed-dating events, and results of the speed-dating events showed that participants' initial ideal mate preferences were not actually related to whom they decided to date, either at the event itself, or even during the following month. If these sex differences in mate preferences seem to abate when individuals are faced with mating choices in a real world context, rather than in the confines of a questionnaire of laboratory session, the legitimacy of sex differences in

mate preferences is obviously questionable. However, research suggests that although these sex differences in mate preferences may be less pronounced during the initial stages of dating (as assessed in Eastwick & Finkel, 2008), these preferences do not abate and may even be responsible for maintaining long-term relationship satisfaction. For example, Shackelford and colleagues (2005a) performed a longitudinal study, assessing the relationship quality of a small sample ($N = 54$) of married couples during their first year of marriage, then again during their fourth year of marriage. The researchers asked participants to complete a questionnaire, responding how important they considered potential mate characteristics (i.e., 'good looks', 'good financial prospects', 'pleasing disposition') to be in a married partner. Results showed that these mate preferences were found to be stable across the assessment period. In particular, there was no decrease in the importance men and women ascribed to good financial prospects and good looks, respectively, over the four year period of marriage. Therefore, a possible conclusion is that although these ideal mate preferences may not emerge during the initial stages of a romantic relationship, mate preferences may however be responsible for maintaining and satisfying a relationship over the long-term.

To further corroborate this premise of temporal stability of mate preferences, Fletcher and colleagues (2000) reported that the extent the relative level of participants' ideals across several traits matched the relative level of those same traits in a current romantic partner the more likely participants were to report passion in and satisfaction with the relationship. In sum, although an individual's mate preferences may not predict initial dating behaviour, an individual's mate preferences may indicate long-term relationship satisfaction.

Another particularly important reason for continuing research in this particular area is the differing origin theories of sex differences on mate preferences. Early studies of sex differences in mate preferences (e.g., Powers, 1971) did not attempt to explain these sex differences in a theoretical framework (Feingold, 1992). However, contemporary literature on

sex differences in mate preferences generally attributes sex differences to evolutionary or social-economic origins. Rather than considering these two origin theories inherently different, it would be of theoretical interest to establish how these theories work in tandem when producing these sex differences in mate preferences. These origin theories of sex differences in mate preferences will be discussed in depth in Chapter Four (evolutionary) and Chapter Five (social-economic).

1.5 Summary of Chapter

This chapter introduced the topic of the dissertation: Sex differences in mate preferences. Specifically, this chapter briefly outlined the history of studying mate preferences, and the sex differences that have emerged from this research. Specifically, that men desire the physical attractiveness of a potential mate more than women do, and women desire the status and resources of a potential mate more than men do. Finally, the chapter discussed the theoretical and practical benefits of continuing research to explore these sex differences in mate preferences. The next chapter will present a comprehensive exploration of previous research that has assessed sex differences in mate preferences.

Chapter Two – Previous Research of Sex Differences in Mate Preferences

2.1 Overview of Chapter

This chapter presents an in-depth literature review of previous empirical research that has explored sex differences in mate preferences. Methodology and results of empirical studies will be discussed extensively. This chapter will present research on sex differences in mate preferences in the following order: Research in Western cultures (questionnaires and experimental designs), cross-cultural research, research in Hunter-Gatherer societies, and research in observational settings (literature and personal advertisements). Finally, this chapter discusses the potential confounds of assessing sex differences in mate preferences in individuals of different age cohorts.

2.2 Previous Research on Sex Differences in Mate Preferences

Sex differences in mate preferences have been examined in a range of empirical studies employing a range of different methodologies, ranging from experimental designs to observational settings. Although studies have used different approaches, consistent sex differences in mate preferences have been found (Gustavsson, Johnsson, & Uller, 2008).

2.2.1 Research, Research Methodology, and Sex Differences in Mate Preferences

2.2.1.1 Research in Western cultures.

2.2.1.1.1 Questionnaires. Earlier studies of sex differences in mate preferences sought to elucidate which particular mate characteristics were preferred by men in comparison to women. Buss and Barnes (1986) examined the major dimensions along which preferences in mate selection differ, the most valued characteristics in potential mates, and how men and women differed in their selection preferences. One hundred and eighty four individuals (92 married couples) completed a mate preferences questionnaire, which asked participants to rate the desirability of 76 characteristics (e.g., dominant, intelligence, physically attractive) that a potential mate may possess. In comparison to men, women tended to prefer the mate

characteristics of good earning capacity, and being ambitious and career oriented. Meanwhile, in comparison to women, men preferred the mate characteristics of physical attractiveness and being good looking. To assess whether these results extended to individuals who were not married, 100 unmarried individuals participated in a second study and completed the same questionnaire. Once again, results showed that men desired the mate characteristic of physical attractiveness significantly more than women, and women desired the mate characteristics of good earning capacity and college degree significantly more than men.

Campbell and colleagues (2001) also used a mate questionnaire to assess the relation between relationship satisfaction and mate preferences. The authors assessed the ideal mate standards of 239 undergraduate students from a university in Texas, and how flexible these participants were regarding these standards. Participants were asked to respond to how well traits accurately described their ideal partner on a 7-point Likert scale (1 = *strongly disagree*, 7 = *strongly agree*). The scale contained items which corresponded to three different dimensions: warmth/trustworthiness, vitality/attractiveness, and status/resources. Participants then rated themselves (compared to others of the same sex) on the same attributes on a 7-point Likert scale (1 = *I score much lower on this attribute*, 7 = *I score much higher on this attribute*). Participants then compared their current partner to their ideal partner standards on a 7-point Likert scale (1 = *does not match my ideal at all*, 7 = *completely matches my ideal*), and also indicated on a 10-point Likert scale the extent to which a potential mate would have to match their ideal partner standards in order for them to experience a successful and happy relationship (0 = *0 – 10% of my ideal partner*, 9 = *91% to 100% of my ideal partner*). Finally, three measures were used to assess participants' relationship quality. Results showed that participants who rated themselves higher on the dimensions of warmth/trustworthiness, vitality/attractiveness, and status/resources held higher ideal standards for a potential mate,

were less flexible regarding a potential mate matching their ideals, and reported higher relationship quality the more their current partner matched their ideal partner.

The use of mate characteristic questionnaires is a popular methodology choice when assessing sex differences in mate preferences. Sprecher, Sullivan, and Hatfield (1994) analysed data collected from single adults in the American National Survey of Families and Households (NSFH). The sample consisted of 1,329 respondents (51% women, 49% men) and was predominantly Caucasian (64%). Participants completed a questionnaire which required them to indicate how willing they would be to marry someone who embodied particular characteristics. A list of 12 characteristics was given, including statements such as 'was not likely to hold a steady job', 'would earn less than you', 'was not good-looking' and 'had more education than you'. Participants indicated their willingness to marry someone with this characteristic on a 7-point Likert scale (1 = *not at all*, 7 = *very willing*). Women were more willing than men to marry someone who was not good looking, someone who earned more and someone who had more education. Men were more willing than women to marry someone who was not likely to have a steady job, someone who earned less, and someone who had less education.

Lippa (2007) employed a forced-choice questionnaire, which required participants to identify which, out of 23 characteristics, they considered first, second and third most important for a partner to possess. The information was gathered through an online survey conducted by the British Broadcasting Corporation (BBC), and 218,195 individuals (98,462 women, 119, 733 men) participated. Participants were of a variety of nationalities, but the majority of participants came from Western cultures of the United Kingdom (45%) and the United States (29%). Across both sexes, the most important mate traits were intelligence, humour, honesty, kindness, overall good looks, face attractiveness, values, communication skills and dependability. However, these traits were then ranked for each sex in order of mean

importance, and results showed differences existed in the ordering of these traits. Men's top three characteristics in a partner were intelligence, good looks and humour, whereas women's top three characteristics in a partner were humour, intelligence and honesty. It is interesting to note that women did not rate status and resources in the top three traits of a potential mate. However, when considering the continued rankings, women's preference for a mate's status and resources was still significantly higher compared to men's preference.

Buunk, Dijkstra, Fetchenhauer, and Kenrick (2002) assessed a Dutch population of different age cohorts and asked participants to indicate their preferences with respect to, among other traits, a potential mate's income, education, and physical attractiveness on a scale ranging from 'much less than me' to 'much more than me'. Participants were asked to consider a person of the opposite sex in different degrees of relationship involvement: Sexually fantasise about/ have a casual affair with/ fall in love with/ have a serious relationship with/ marry this person. Participant sex, age, and level of involvement were the manipulated variables, and potential mate characteristics (i.e., income, education, physical attractiveness) were the measured variables. Regarding income, results showed a main effect of sex, specifically that women desired a potential mate who had a higher income than themselves whereas men in general desired a potential mate who hardly differed in income. Regarding education, there was also a main effect of sex, specifically women desired a potential mate who had a higher level of education than themselves, whereas men in general desired a potential mate who hardly differed in educational level. In addition, there was a main effect of participant age, where participants aged 40 years and up desired a potential mate whose educational level was somewhat higher than their own, whereas younger participants desired a potential mate with an educational level more similar to (though still higher than) their own. Furthermore, there was a main effect of relationship involvement, as participants' preference for a highly educated mate gradually decreased as relationship

involvement became lower. Regarding physical attractiveness, there was also a main effect of sex, as men more than women desired mates who were more physically attractive than themselves. Furthermore, unlike education preferences, participants' preference for a physically attractive mate increased as relationship involvement became lower.

Feingold (1992) conducted a meta-analysis on 26 questionnaire studies, examining 32 independent samples, to determine if there was a consistent difference between men's and women's ratings of importance of socio-economic status (SES) and ambitiousness in a mate (Feingold conceptualised status and resources as an individual's SES). Feingold reported that women, significantly more than men, considered SES and ambitiousness important in a mate, with a medium to large effect size.

2.2.1.1.2 Experimental. Other studies have expanded on the method of a questionnaire in an effort to gain a greater understanding of sex differences in mate preferences. To investigate the emphasis placed on a potential mate's SES and physical attractiveness by both men and women, Greitemeyer (2007) performed three experimental studies. Experiment 1 included 99 participants (58 women and 41 men) from the community of Munich, Germany. On a questionnaire, participants indicated the importance they placed on the physical attractiveness, income, and education of a short-term mate (i.e., a one night stand) and a long-term romantic partner. These were scaled on a 10-point Likert scale (1 = *not at all important*, 10 = *very important*), and order of characteristics and term of relationship were counterbalanced. When considering a long-term mate, men considered physical attractiveness significantly more important than women did, and women considered income and education significantly more important than men did. This interaction between sex and desired characteristics was not found for short-term relationships.

For Experiment 2 (Greitemeyer, 2007), the aim was to assess whether men would report less likelihood of romantic contact with a potential mate with high SES. Participants

were 96 (46 women, 50 men) individuals recruited from the community of Munich, Germany. Male participants read one of the two following descriptions: (1) *Karin (the person on the attached photograph) works as an industrial manager for an annual salary of 18000 Euro (approximately $23,000). She is interested in pursuing a relationship with you;* or (2) *Lisa (the person on the attached photograph) works as a medical doctor for an annual salary of 58,000 Euro (approximately $75,000). She is interested in pursuing a relationship with you.* Female participants read a similar profile, except the names were male sex. Attached to these descriptions was a black and white photograph. Photographs were obtained from a website (www.binichsexy.de.) where photographs are rated for attractiveness (1 = *not attractive*, 10 = *very attractive*). Photographs with a mean rating of 5 – 6 were selected for medium physical attractiveness, and photographs with a mean rating of 8 – 10 were selected for high physical attractiveness. Photographs were balanced across conditions (i.e., one person might receive a medium SES paragraph with a high physical attractiveness person whereas another might receive a high SES paragraph with a high physical attractiveness person). Upon viewing the vignette, participants were asked "what is the likelihood of you having sexual intercourse with the potential partner (short-term relationship)?" and "what is the likelihood of you entering into a long-term romantic relationship with the potential partner?" Answers were completed on a 10-point Likert scale (1 = *not at all*, 10 = *very*). Women were more likely to report romantic contact with a potential mate of high SES (in both short-term and long-term relationships), whereas men were more likely to report romantic contact with a potential partner of medium SES (in both short-term and long-term relationships). Results did not report an interaction between physical attractiveness and SES.

Experiment 3 (Greitemeyer, 2007) introduced categories of low SES and low attractiveness. There were 97 participants (51 women and 46 men) from the community of Munich, Germany. Male participants were also given the following paragraph to read: *Katja*

(the person on the attached photograph) works as a cashier for an annual salary of 12,000 Euro (approximately $15,500). She is interested in pursuing a relationship with you. Female participants read a similar description with the name changed to a male name. Photographs were again obtained from www.binichsexy.de. Photographs with a mean between 1 and 3 were categorised as low physical attractiveness, photographs with a mean between 5 and 6 were categorised as medium physical attractiveness, and photographs with a mean between 8 and 10 were categorised as high physical attractiveness. Men reported being significantly less likely to enter into a long-term relationship with a person of high SES than of persons with medium or low SES, with no significant difference between medium and low SES. Conversely, women were significantly more likely to enter into a long-term relationship with a person of high SES than of persons with medium and low SES, with no significant difference between medium and low SES. No interaction between physical attractiveness and SES was reported. In sum, results of this study suggested that although previous research indicates that men are less concerned with a potential mate's SES than women are, when required to indicate preference, men exhibit greater preference for romantic contact with a mate of low and medium SES, rather than high SES. Meanwhile, women continue to express preference for potential mates of high SES.

To investigate how men and women differ when conducting judgments of attractiveness of potential mates, Jankowiak, Hill, and Donovan (1992) assessed the sexes' variability of attractiveness ratings, and whether men and women (regardless of sexual orientation) would perceive attractiveness on the same terms. There were 52 Caucasian participants (13 heterosexual men, 13 homosexual men, 13 heterosexual women, 13 homosexual women). Participants were shown photographs of members of the same and opposite sex and asked to rank each set of photographs according to how 'good-looking' and 'socially-attractive' they were. For the purpose of their study, Jankowiak and colleagues used

the term ‘sex objects’ to indicate a mate of sexual interest. For example, for heterosexual men and homosexual women, their ‘sex objects’ were women, and for homosexual men and heterosexual women, their ‘sex objects’ were men. According to testimonies of male participants (regardless of sexual orientation), the ‘good looks’ of a sex objects were marked by *wide eyes*, *full hair*, *youth*, *nice complexion*, and whether men reported that they were *sexually aroused and wanted to make love to that person*. These labels were generated by the participants, not the experimenters. Meanwhile, although women stated they had ranked the photographs according to their relative looks, they reported the reasons for their decisions (regardless of their own sexual orientation) involved personality attributions, not physical descriptions. For example, women reported that ‘good looks’ were associated with photographs of people who looked *happy*, *thoughtful*, *smart and upbeat*, or *fun to play with*. These results suggest that women interpret the attractiveness of a potential mate on terms other than physical characteristics, whereas men are more inclined than women to focus on physical characteristics to determine attractiveness.

Fletcher, Tither, O’Loughlin, Friesen, and Overall (2004) conducted a study on Western university students to analyse men’s and women’s mate preferences at three levels of relationship involvement: Causal relationship, short-term relationship, and long-term relationship. Participants were presented with a pair of hypothetical partners and forced to perform trade-offs between the characteristics of physical attractiveness, status and resources and intrinsic characteristics. For example, participants were asked to choose between a warm, trustworthy mate, or an attractive, fit mate (i.e. intrinsic characteristics versus physical attractiveness). Both men and women chose a hypothetical partner with a high level of intrinsic characteristics and traded off high levels of status and resources. Additionally, both men and women chose hypothetical partners with a high level of warmth/trustworthiness and traded off physical attractiveness. However, men chose high levels of physical attractiveness

and traded off status and resources, whereas women chose high levels of status and resources and traded off physical attractiveness. Furthermore, the authors concluded that these sex differences in mate preferences were the greatest when participants were considering a long-term relationship.

2.2.1.2 Research in non-Western cultures. Feingold (1992) noted that the consistency of sex differences in mate preferences are even more remarkable when considering the diversity of methodologies employed, and the consistency of these results, as similar results continue to be found in both Western and non-Western cultures.

In a large scale cross-cultural study, Buss and colleagues (1990) explored characteristics men and women desire in a potential long-term mate. Participants from over 37 cultures from 33 countries located on six continents and five islands participated in the study. In total, there were 10,047 participants, with an average of 272 participants from each of the 37 cultures. Across cultures, women generally, significantly more than men, desired 'good financial prospect' in a potential mate. Additionally, Buss and colleagues found that women also desired qualities that are linked to resource acquisition, such as ambition and social status. However, across cultures men generally, more than women, desired partners who were 'good looking' and 'physically attractive'.

In 1995, Hatfield and Sprecher compared men's and women's mate preferences from three different countries: the United States (an individualistic culture), Russia (an individualistic/collectivistic culture) and Japan (a collectivistic culture). College students were recruited from universities in the United States, Russia and Japan, with a total of 1,519 (885 women and 634 men) participating. In total, 970 participants were from the United States, 327 participants were from Russia, and 222 participants were from Japan. Participants completed a questionnaire titled 'traits desired in a partner', and were asked to score different characteristics (e.g., physical attractiveness, ambitious, money status and position, shows

potential for success) on a 5-point Likert scale (1 = *it does not matter to me if my partner has this characteristic*, 5 = *this would be a necessity; I would not even consider a person as a marriage partner if he/she did not have this characteristic*). Across cultures, men considered the physical attractiveness of a potential mate more important than did women, and women considered intelligence, ambition, potential for success, money, status and position to be more important than did men. Additionally, results also showed that women had higher minimum criteria for a mate and thus were more selective of a mate than compared to men. Considering cultural differences, Japanese participants were found to consider the physical attractiveness of a mate significantly less important than American and Russian participants, with no significant difference between American and Russian participants. Regarding the traits of intelligence, ambition and potential for success, American participants considered these traits significantly more important than did Russian and Japanese participants, with no significant differences between Russian and Japanese participants. Finally, for the trait of 'money, status and position', American and Russian participants considered this trait significantly more important than Japanese participants, with no significant difference between American and Russian participants. These results indicated that sex differences in mate preferences might be consistent across cultures, but the degree of importance of these traits can fluctuate between cultures.

Shackelford, Schmitt, and Buss (2005b) sought to identify the universal dimensions of long-term mate preferences by using an archival database of preference ratings provided by 9,809 (5310 women and 4499 men) participants from 37 cultures located on six continents and five islands. The authors also employed an age cut-off of 30 years old. Participants completed questionnaire where they were required to rate the importance of 18 mate characteristics on a 4-point Likert scale (0 = *irrelevant or unimportant*, 3 = *indispensable*). Principal component factor analyses were performed on the traits, and four components

(eigenvalues above 1) emerged. Each component included at least one preference that loaded positively and one that loaded negatively; therefore each component was described as a trade-off between different preferences. The components found were as follows: Love (positive loading) vs. Status/Resources (negative loading), Dependable/Stable (positive loading) vs. Good looks/Health (negative loading), Education/Intelligence (positive loading) vs. Desire for Home/Children (negative loading), and Sociability (positive loading) vs. Similar Religion (negative loading). Component scores were higher for men than for women on Love vs. Status/Resources, indicating that women more than men valued social status and financial resources in a long-term mate. Furthermore, women have higher component scores than men on Dependable/Stable vs. Good Looks/Health, and on Education/Intelligence vs. Desire for Home/Children. These results suggest that women around the world value dependability, stability, education and intelligence in a long-term mate more than men do, whereas men more than women value good looks and a desire for home and children in a long-term mate.

Khallad (2005) contributed to research of sex differences in mate selection in non-Western cultures by administering a translated mate selection questionnaire to a sample of 288 university students in Jordan, a traditional non-Western culture. This questionnaire required participants to scale a list of 17 characteristics in terms of their importance when considering a potential mate on a 4-point Likert scale (0 = *Irrelevant/Unimportant*, 3 = *Indispensible*). Following this, a shorter list of trait was presented and participants were asked to rank traits from most desirable to least desirable. Results showed that men indicated greater importance for mates who are physically attractive, and women indicated greater importance for mates who have high levels of status, resources, and education. Additionally, men's top three mate characteristics (according to rankings) were kind and understanding, religious, and physically attractive, whereas women's top three mate characteristics were kind and understanding, religious, and exciting personality.

Li, Valentine, and Patel (2011) sought to establish if similar mate preference priorities could be found in both American and Singaporean contexts. Specifically, if women consider social level a necessity in a long-term relationship and physical attractiveness a necessity in a short-term relationship; in addition, if men consider physical attractiveness a necessity in both a long-term and a short-term relationship. Participants were 207 university undergraduates from an American university and 200 university undergraduates from a Singapore university. In the American sample, there were 125 women and 83 men, and most students identified as Caucasian (77.8%). In the Singapore sample, there were 126 women and 74 men, and most participants identified as Chinese (83%). Participants completed a questionnaire which required them to 'create' an ideal long-term mate and an ideal short-term mate. For long-term mates, both American and Singaporean men prioritised physical attractiveness and American and Singaporean women prioritised social status. Furthermore, for short-term mates, American and Singaporean men and women all prioritised physical attractiveness.

Pearce, Chuikova, Ramsey, and Galyautdinova (2010) contributed to examined differences (and similarities) in mate preferences of Russian and American students. The American sample consisted of 156 (114 women and 42 men) university students, and most students identified as Caucasian (79.8%). The Russian sample consisted of 132 (109 women and 23 men) university students, and most identified as Asian (59.1%) or Caucasian (40.2%). Participants were given a questionnaire that consisted of 37 traits (e.g., dependability, financial stability, attractiveness, happiness) a potential partner may possess. Participants were asked to score how important each trait was using a 5-point Likert scale (1 = *unimportant,* 5 =*indispensable*). Women in both cultures considered financial stability significantly more important than did men. Culturally, there was no difference between American participants and Russian participants when considering the importance of a mate's

financial security or physical attractiveness. However, Americans were found to consider the ambition of a partner significantly more important than did Russians. Interestingly, Russians considered a high social status of a partner significantly more important than did Americans.

2.2.1.3 Research in hunter-gatherer societies. Studies of sex differences in mate preferences studies have also been conducted on participants who live in traditional hunter-gatherer societies. Marlowe (2004) studied sex differences in mate preferences in one of the few remaining hunter-gatherer societies, the Hadza of Tanzania. The Hadza live in a Savanna-woodland habitat in northern Tanzania and number about 1000 in population. The researcher interviewed adults, verbally asking participants what traits were considered important in a spouse. This open ended question revealed a wide range of traits, which were later condensed into the variables of foraging, looks, character, fertility, fidelity, intelligence, and youth. When considering appearance (combining the variables of fertility, looks and youth), results showed that men valued appearance significantly more than women, who placed great importance on a mate's foraging ability and intelligence.

Pillsworth (2008) also assessed sex differences in mate preferences in a modern hunter-horticulturalist population in Amazonian Ecuador. Participants from three Shuar villages were shown two index cards, and each index card had a mate characteristic written in their native Shuar language. Participants were asked to indicate which trait (out of the two presented) they felt was more important in a long-term romantic partner or spouse. As a comparison, the same questions were asked of a population of undergraduate Californian students. Results found that among the Californian participants, men ranked physical attractiveness as significantly more important in a long-term partner compared with women. However, among the Shuar participants, no sex difference in preference for physical attractiveness was found. Regarding resources, Californian women considered resources significantly more important than did Californian men. Among the Shuar participants, no sex

difference in preference for resources was found. These non-significant sex difference results in the Shuar population are quite discrepant to previous research that assessed sex differences in mate preferences in traditional cultures. To further these analyses, Pillsworth assessed Shuar participants who were not currently involved in a relationship. This time, women did consider a mate's resources significantly more important than did men. However, once again, there was no significant sex difference regarding importance of physical attractiveness. Although it is noted that this was a highly selective sample, the inability to replicate these sex differences in mate preferences, particularly in a traditional culture (i.e., hunter-gatherer), suggests instances that sex differences in mate preferences may not be universal, and may vary depending on the local culture and ecology.

2.2.1.4. Observational methodology in Western and non-Western cultures. Sex differences in mate preferences have also been considered in purely observational designs, including literature and personal advertisements. Gottschall, Martin, Quish, and Rea (2004) conducted an original study in which traditional folklores from 48 different cultures as well as plot and character summaries from Western literature were analysed for sex differences in mate preferences. Men in traditional folklores were more likely than women to value the physical attractiveness of a mate, whereas women in traditional folklores were more likely than men to value the wealth and social status of a mate. Examination of Western plot and character summaries yielded similar findings. Additionally, although both men and women placed importance on kindness, most female characters placed greater emphasis on kindness in a mate than male characters.

Eastwick and Finkel (2008) assessed the mate preferences of participants involved in speed dating activities. Before the speed dating event began, questionnaire results showed that men (more than women) reported the characteristic 'physically attractive' was important in an ideal romantic partner, and would matter in their decision to say yes to a speed date.

Meanwhile, women (more than men) considered the characteristic 'earning prospects' was important in an ideal romantic partner, and would matter in their decision to say yes to a speed date. However, interestingly, dates from the speed dating event did not align with the pre-event characteristics participants stated they desired. Stated preferences were largely independent of actual associations. For example, a participant who claimed to value physical attractiveness highly in a potential mate was not significantly more likely than other participants to like, feel chemistry with, or even say yes to dates they found physically attractive. However, a potential limitation of this study was that participants were all willing to engage and take part speed dating, an activity that may not relate to everyone.

2.2.1.4.1 Personal advertisements. Men's and women's personal advertisements have received a large amount of research attention when examining sex differences in mate preferences. Badahdah and Tiemann (2005) analysed the content of over 500 personal advertisements placed by Muslims, and found that women were more likely than men to offer information about their physical attractiveness. Additionally, women preferred financially secure partners significantly more than men. Interestingly, the authors found no significant sex difference in seeking a physically attractive mate. However, the authors speculated that this particular non-significant result could be attributed to Islamic teachings which greatly emphasise personal modesty, thus seeking a physically attractive mate might be considered inappropriate.

Other research examining personal advertisements have found that men often seek descriptions of potential mate's physical attractiveness. Gil-Burmann, Peláez, and Sánchez (2002) examined over 7000 Spanish personal advertisements and found that the trait most sought by women was SES, whereas the trait most sought by men was physical attractiveness. Baize and Schroeder (1995) examined sex differences in mate preferences using 240 heterosexual personal advertisements, and found that men's income and education

was positively related to number of responses received, whereas content given indicating physical characteristics was positively related to women receiving more responses. Furthermore, Feingold (1992) also conducted a meta-analysis on eight different samples of American personal advertisements, and reported that women more frequently than men sought a mate's socio-economic status.

Waynforth and Dunbar (1995) discovered, upon examining Lonely Hearts advertisements in four different American newspapers, that men were more likely than women to offer status and resource information and seek physical attractiveness whereas women were more likely than men to offer cues of physical attractiveness. Greenlees and McGrew (1994) also examined 1000 Lonely Hearts advertisements and found that, men, more than women, sought physical attractiveness, whereas women, more than men, sought ability to acquire resources (i.e., actual and potential status and resources) and willingness to provide resources. Additionally, both sexes offered information that was sought by the opposite sex (i.e., women offered information about their physical appearance and men offered information about their status and resources).

In Sweden, Gustavsson and colleagues (2008) studied personal advertisements in both traditional newspapers and internet dating services, and found that men offered information about their resources more often than did women, and women requested information about a mate's resources more often than men did. However, Gustavsson and colleagues reported no significant differences between the sexes in offering and requesting physical attractiveness information.

Deaux and Hanna (1984) conducted examinations on personal advertisements, collecting personal advertisements from four different publications. In total, there were 200 advertisements for heterosexual men seeking heterosexual women, and 200 advertisements for heterosexual women seeking heterosexual men. Men were significantly more likely than

women to seek physical attractiveness and to offer information about their occupation and financial assets. Women, compared to men, were more likely to seek financial security status and occupation information. Kurzban and Weeden (2005) analysed survey data collected from HurryDate, a commercial firm that caters to single men and women trying to meet other singles for romantic relationships. Data were collected from 12,892 people, and analysed for factors that contributed to the desirability of particular targets, and the selectivity of the chooser. Kurzban and Weeden found that overall, women were more selective than men (i.e., had higher minimum criteria for a mate). Additionally, results suggested that physically desirable women (specifically women with a low BMI) end up matched with men of a higher income, suggesting that men of a higher income were more selective than men of a lower income. Interestingly, these results suggest that a man's own level of personal worth (i.e., income) can influence their selectivity when it comes to choosing potential mate. This effect can also be seen for women, as de Sousa Campos, Otta, and de Oliveria Siqueria (2002) showed that older women required less information about wealth and social status about a potential mate, presumably due to their own decline in physical attractiveness (a resource considered desirable by men). Combined, these results suggest that individuals who possess higher levels of traits desired by the opposite sex become more selective when choosing a potential mate.

2.3 The Effects of Age on Sex Differences in Mate Preferences

Studies have also reported that these sex differences in mate preferences fluctuate corresponding to an individual's age (de Sousa Campos et al., 2002). de Sousa Campos and colleagues (2002) found that older women required less information about wealth and social status in a mate's personal advertisement than did younger women, and the authors theorised this was due to older women's own decline in their feature for exchange (i.e., physical attractiveness). This proposition has been supported, as the importance that men place on

physical attractiveness has been shown to increase over time with the increasing age of women (Shackelford et al., 2005a). This increasing importance may be attributed to woman's age being a significant predictor of both fertility and future reproductive potential (Pawlowski & Dunbar, 1999). Essentially, women and men of increasing age may exhibit different mate preferences than those expressed by women and men of younger ages.

2.4 Summary of Chapter

This chapter presented a range of research that has found support for sex differences in mate preferences. These studies ranged in methodology, sample size, and sample culture. A consistent theme that emerged from the results of these studies is that men desire the physical attractiveness of a potential mate more than women do, and women desire the status and resources of a potential mate more than men do. Finally, this chapter discussed that sex differences in mate preferences have been found to dissipate as individuals' age, and therefore experiments for the current dissertation will be conducted on men and women aged 18 – 30 years. The next chapter will discuss limitations with previous research, introduce the relatively novel 'mate budget' paradigm (e.g., Li, Kenrick, Bailey, & Linsenmeier, 2002), and present Experiment 1.

Chapter Three – The Mate Budget Paradigm and Experiment 1

3.1 Overview of Chapter

This chapter will discuss limitations with previous research on sex differences in mate preferences, and introduces and discusses the methodology employed by Li and colleagues (2002) and Li and Kenrick (2006). Experiment 1 is then presented to validate and replicate the relatively unused mate-budget methodology of Li and colleagues and Li and Kenrick. The results of Experiment 1 are then discussed in relation to sex differences and in terms of relationships.

3.2 Limitations of Previous Methodology on Sex Differences in Mate Preferences

As noted in Chapter Two, research has consistently shown sex differences in mate preferences, specifically that men place more emphasis on a potential mate's physical attractiveness than women do, and women place more emphasis on a potential mate's status and resources than men do. However, Li and colleagues (2002) argue that by allowing participants to rate characteristics one at a time, methodology of previous research using scales (e.g., Likert scales) that allow participants to rate the desirability of each trait may be flawed. Specifically, this methodology may not accurately reveal the trade-offs that are normally made when people select mates. Previous research using mate selection questionnaires often requires men and women to consider the importance (e.g., Greitemeyer, 2007) or desirability (e.g., Hatfield & Sprecher, 1995) of potential mate characteristics, often requiring individuals to rate the importance/desirability of these characteristics on a Likert. It is assumed that by asking individuals to rate the desirability/importance of mate characteristics one at a time, this will reveal an individual's perception of ideal mate. However, this ideal mate may be unrealistic, as finding a mate who possesses a high degree of every trait is unlikely (Bryan, Webster, & Mahaffey, 2011). For example, if asked to consider how important/desirable the traits of 'physical attractiveness' and 'college graduate'

are on a Likert scale, a person might consider both of these traits very important. However, these ratings do not indicate the trade-offs people may make between these traits. Although one might consider physical attractiveness perhaps less important/desirable than college graduate, this method does not allow researchers to assess whether one would trade off the characteristic of physically attractiveness for the characteristic of high obtained education. Li and colleagues introduced a methodology that would assess the trade-offs on characteristics made by participants when considering the traits of physical attractiveness, creativity, kindness, liveliness and social level (i.e., status and resources). By employing this methodology, Li and colleagues were able to establish which characteristics men and women consider a necessity for potential mates to possess, by assessing which characteristics were traded off. Due to the limitations of employing unrestricted mate selection questionnaires, the current dissertation employed methodology proposed by Li and colleagues (2002).

Elaborating on limitations that may exist in previous research of sex differences in mate preferences, Li and colleagues (2002) suggested that the importance of a particular trait may depend on other traits (i.e., the importance of a mate being physically attractive may depend on a mate's intelligence), and participants considering characteristics in isolation may simply assume acceptable levels on other desirable traits. Li and colleagues theorise that this may be because in actual mating environments, people's field of eligible mates may consist of those who already meet minimal standards of variables such as social status and physical attractiveness. For example, a female university student may normally interact with males of equal or upper SES. Therefore, when completing a mate preferences questionnaire, she may not fully consider the status and resources of a mate, as most men she encounters are within the range she already considers sufficient. Essentially, Li and colleagues contend that one's mating environment (i.e., the type of potential mates they frequently encounter) may influence their subsequent ratings of mate characteristics. This "mating market" (e.g., the

potential mates in one's environment; Li et al., 2002, p. 948) may lead one to assume a certain amount of characteristic has already been secured. For example, an individual surrounded by potential mates who are all physically attractive may assume they have already secured the trait of physical attractiveness. Therefore, the methodology designed by Li and colleagues sought to overcome the effects of an individual's common mating market.

3.3 Mate Budget Methodology and Utility

To address the limitations of previous research which has not taken into account the effects of mating environments and trade-offs made between various mate characteristics, Li and colleagues (2002) developed a methodology consisting of a mate budget, where individuals would be given "mate dollars" (p. 949) to spend when designing an ideal mate. The authors proposed that the mate characteristics participants spent more mate dollars on when given a low budget are considered necessities, whereas the mate characteristics participants spent more mate dollars on when given a high budget are considered luxuries. Li and colleagues (2002) suggest that requiring participants to design a hypothetical mate using these mate dollars will account for any preconceived notions participants have regarding characteristics a potential mate may already possess. For example, an individual may assume they have already secured a physically attractive mate according to their mating market, whereas the mate design paradigm requires participants to construct a mate from scratch using mate dollars.

Li and colleagues (2002) defined a necessity as an essential consumption item that tends to be favoured when mate budgets are low (e.g., only 10 mate dollars to spend) and as such, choices are relatively constrained. However, a necessity remains a necessity only until sufficient levels of the characteristic are obtained. For example, as previous research (e.g., Buss et al., 1990) has established women consider a mate's status and resources desirable, it could be assumed that that women are inclined to obtain as much status in a mate as possible,

even at the expense of other traits. However, women may prioritise status until sufficient levels have been reached, and beyond that the importance of obtaining other mate characteristics may become more important. In contrast to a necessity, a luxury tends to be a relatively unimportant factor when participants are given a relatively low budget, but begins to receive an increasing percentage of mate dollars as the budget increases. Therefore, characteristics considered to be a necessity will receive a high percentage of mate dollars when the budget is low, and characteristics considered to be a luxury will receive a greater percentage of mate dollars when the budget is high. Essentially, mate characteristics that receive the highest percentage of mate dollars when budgets are low are characteristics that are considered a necessity. Finally, a characteristic may continue to be considered a necessity at all levels (i.e., a characteristic that is prioritised at both low and high budgets).

Li and colleagues (2002) hypothesised that women would consider characteristics related to social status and resources as necessities, as women seek a mate with status or resources before being concerned with other mate characteristics. For example, the authors suggested that a mate with sufficient status to generate a modest but steady flow of resources will be considered far more promising than a mate who is destitute; whereas the gap between a mate who can generate a modest but steady flow of resources and a mate of very high status is not as large. Specifically, it appears that when considering trade-offs individuals make when considering a potential mate, there are threshold effects. Additionally, if women themselves personally have less access to resources, then ensuring that a mate possesses sufficient status and resources should be more important than ensuring a mate possesses physical attractiveness. Women with less access to resources may view a physically attractive but financially impoverished man as less viable for a successful family, whereas a physically unattractive man with reasonable status and resources will increase the prospects of a successful family (This assumption will be discussed at length in Chapter Four). For men, Li

and colleagues hypothesised that a mate's physical attractiveness would be considered a necessity, and men would be more concerned with securing a physically attractive mate before being concerned with other characteristics. Appealing to an evolutionary framework (to be discussed in detail in Chapter Four), women should consider the status and resources of a potential mate a necessity, as the reproductive gain going from a financially destitute man to a man with sufficient status and resources is considered great. For men, the reproductive gain going from an infertile mate to a fertile mate is great, whereas the reproductive gain going from a fertile mate to a 'more' fertile mate is not as large. Observable physical features (such as waist-to-hip ratio, clear skin, white teeth) are considered significant indicators of fertility (Buss, 2006), and thus men will consider at least a moderate level of physical attractiveness a necessity.

Li and colleagues (2002) assessed the trade-offs made by women and men when selecting a mate and the characteristics considered necessities through three studies. In study one, 71 American participants (female $n = 37$, male $n = 34$) of varying ethnicity were given a mate budget questionnaire and asked to design their ideal marriage partner. Ten characteristics were presented (physical attractiveness, creativity, friendliness/sociability, intelligence, work ethic, interesting personality, romance, sense of humour, special non-work related talents, yearly income) and each characteristics had a range of 0 – 100th percentile (measured in 10ths). Participants were told that the 100th percentile for a characteristic meant their mate was higher on this trait than 100% of the population. Each percentile level clearly corresponded to a numerical value of 0 to 10, which was the cost of obtaining the percentile in mate dollars. Specifically, the scale of percentiles started at 0 and increased in intervals of 10 until 100. Every interval of 10 corresponded to 1 mate dollar. For example, participants could spend 2 mate dollars on a potential mate's physical attractiveness, which would mean their mate was more attractive than 20% of the population. Alternatively, participants could

spend 9 mate dollars on a potential mate's physical attractiveness, which would mean their mate was more attractive than 90% of the population. There were three mate design scenarios: the first scenario had a low budget (20 mate dollars); the second scenario has a medium budget (40 mate dollars); and the third scenario had a high budget (60 mate dollars). The presentation of characteristics and mate budgets were counter balanced.

Li and colleagues (2002) found that women spent the highest proportion of their low budget on intelligence and yearly income, and men spent the highest proportion of their low budget on physical attractiveness and intelligence. Thus, Li and colleagues argued that these traits were considered necessities for women and men, respectively. Further analyses revealed that women spent significantly more on yearly income than did men and men spent significantly more on physical attractiveness than did women. Additionally, the authors found that as mate budgets increased, these sex differences decreased. Specifically, these sex differences between yearly income and physical attractiveness disappeared at the high budget. The most highly valued characteristics in the low budget (necessities) dropped in relative importance at the highest budget level (luxuries). Overall, results of the first study showed that women considered a mate's yearly income and intelligence a necessity, and men considered a mate's physical attractiveness a necessity.

Li and colleagues' (2002) second study employed the same method, but this time simplified the design by only employing five mate characteristics: physical attractiveness, creativity, social level, liveliness and kindness. The term 'social level' encompassed the traits of yearly income along with social status, amount of resources, and ambition. Participants were 178 university undergraduate students (female $n = 95$, male $n = 83$), and results showed women spent the highest proportion of their low budget on social level and kindness, whereas men spent the highest proportion of their low budget on physical attractiveness. Again,

results showed that the major sex differences were on social level and physical attractiveness at the low budget.

Finally, Li and colleagues (2002) conducted a third study to assess the theoretical applicability of these results. Specifically, if men do consider physical attractiveness a necessity and if women consider social level a necessity, the authors proposed that these traits should be the first piece of information men and women seek in a dating partner. Fifty-eight participants (female $n = 32$, male $n = 26$) were presented with profiles of potential dating partners, and the enquiries participants made about these potential dating partners were recorded. The authors examined these enquiries, and found that women evaluating a potential partner most often enquired first about social level, whereas men evaluating a potential partner most often enquired first about physical attractiveness. Collectively, results of the research conducted by Li and colleagues suggests that women consider social level (i.e., status and resources) of a long-term mate a necessity, and men consider physical attractiveness of a long-term mate a necessity. Furthermore, these characteristics appear to be initial considerations when women and men are evaluating potential dating partners. However, the research of Li and colleagues only considered long-term relationships, and as such necessities of short-term mate characteristics were not assessed. As research showed men and women's mate preferences differ depending on the term of relationship (e.g., Eastwick & Finkel, 2008), the results of characteristics considered a necessity in a long-term mate could not just be assumed to reflect short-term mating.

3.4 Mate Budget Methodology, Utility, and Short-Term Relationships

Li and Kenrick (2006) sought to build on the results found by Li and colleagues (2002) by studying the mate characteristics men and women deem necessities and luxuries in a short-term relationship, compared to a long-term relationship, by collecting new data assessing short-term relationships and comparing this to the previous long-term relationship

data Li and Kenrick considered that men and women have developed strategies when considering a short-term mating partner. The authors hypothesised that, as a mechanism to avoid key adaptive constraints such as infertility and poor gene quality, both men and women would consider the physical attractiveness of a short-term mate a necessity. According to strategic pluralism theory (Gangestad & Simpson, 2000), women view short-term relationships as a mechanism through which to mate with mates of high hereditary value. Consistent with strategic pluralism theory, Li and Kenrick theorised that women would consider the physical attractiveness of a short-term mate a necessity. However, Li and Kenrick also considered sexual strategies theory, which predicts that women may assess short-term relationships as potential long-term relationships. Specifically, sexual strategies theory (Buss & Schmitt, 1993) states that women use short-term mating as a mechanism to assess short-term mates as potential long-term mates. Thus, Li and Kenrick also hypothesised that, according to sexual strategies theory, women would consider social level (i.e., status and resources), not physical attractiveness, a necessity in a potential short-term mate. Therefore, the authors approached this question from two perspectives: if women are engaging in short-term relationships to gain immediate access to a mate's good genes (strategic pluralism theory), then physical attractiveness should be considered a necessity in a short-term relationship. However, if women engaging in short-term relationships are using these relationships to assess a potential mate for a long-term relationship (sexual strategies theory), then social level resources should be continued to be considered a necessity. For men, however, the authors hypothesised that physical attractiveness will continue to be a necessity in a short-term relationship, as men would still consider a short-term mate's hereditary value a necessity.

Li and Kenrick (2006) employed the same methodology used in Li and colleagues' (2002) study. One hundred and seventy-eight participants (female $n = 95$, male $n = 83$) were

given the five-characteristic mate budget paradigm and asked to allocate mate dollars to characteristics they desired a potential one night stand mate to possess. Characteristics were physical attractiveness, social level (status and resources), kindness, liveliness, and creativity. Results showed that, for short-term relationships, both men and women prioritised the physical attractiveness of a short-term mate and considered this trait a necessity. Analyses also showed that men's necessity for a short-term mate's physical attractiveness was stronger than women's, as more of men's mate dollars were spent on physical attractiveness in the low budget. Additionally, women's necessity for a short-term mate's social level was stronger than men's, as more of women's mate dollars were spent on social level in the low budget.

In sum, Li and Kenrick (2006) found that both men and women considered the physical attractiveness of a short-term mate a necessity, however men continued to have higher necessity ratings of physical attractiveness than women, and women had higher necessity ratings of social level than men. When the authors compared these results to previous results of long-term mate preferences (e.g., Li et al., 2002), they concluded that compared to long-term mates, both men and women considered physical attractiveness significantly more of a necessity in a short-term mate. Furthermore, women considered social level significantly less of a necessity in a short-term mate compared to a long-term mate (however, their necessity of the social level of a short-term mate was still significantly higher than men's necessity of the social level of a short-term mate). Thus, when considering a short-term mate, men and women were more similar in their necessities as both sexes tended to value physical attractiveness. Li and Kenrick concluded that on average, physical attractiveness was considered a necessity for short-term mates and this result supports strategic pluralism theory. However, results also indicated that some men and women may be viewing their short-term mates as possible long-term mates. Although this result may support sexual strategies theory, the authors suggested that since women continued to consider the

physical attractiveness of a short-term mate a necessity, results were more consistent with strategic pluralism theory than sexual strategies theory.

3.5 The Effects of Age on Sex Differences in Mate Preferences

Chapter Two discussed that women and men of increasing age may exhibit different mate preferences than those expressed by women and men of younger ages. For these reasons, the current dissertation has placed a limit on the age of the participants in an attempt to eliminate variance caused by age differences in mate selection. Using mean participant ages in prior studies as a guide (e.g. Buss, 1989; Buss et al., 1990; Tadinac & Hromatko, 2006), this study collected information from men and women aged 18 – 30 years. Employing an age range of 18 – 30 years will hopefully eliminate potential fluctuations in mate preferences as a result of age.

3.6 Aim and Hypotheses

Due to the limitation of previous research not accounting for trade-offs that are made when selecting a mate and the effects of an individual's "mating market", the current dissertation sought to employ methodology that would address these limitations. As a result, the current dissertation entailed methodology designed by Li and colleagues (2002) to explore which characteristics men and women would spend a higher percentage of mate dollars on when budgets were constrained (low) and when budgets were unconstrained (high). However, limited research has replicated the methodology introduced by Li and colleagues (2002). Considering this methodology is purported to overcome the limitations of previous research (such as using a scale to rate desirability of traits with no constraints) it seems pertinent that the results of Li and colleagues (2002) should be established as replicable. Therefore, as the mate dollars paradigm will be employed in additional analyses in this dissertation, it was necessary to first establish if these results are replicable. If these results are replicable, this will show these results extend beyond the sample used in these

previous studies using a paradigm that is designed to overcome methodological shortcomings of previous studies on sex differences in mate preferences.

Therefore, the aim of Experiment 1 was to replicate the study of Li and colleagues (2002), in an effort to establish whether men would continue to consider a long-term mate's physical attractiveness a necessity, and whether women would continue to consider a long-term mate's social level a necessity, and the relative difference in these necessity ratings between men and women. An additional aim of Experiment 1 was also to establish whether men and women would consider the physical attractiveness of a short-term mate a necessity, and whether women would consider the social level of a short-term mate a necessity.

Based on the results of Li and colleagues (2002) and Li and Kenrick (2006), the following hypotheses were generated.

1. Men will consider the physical attractiveness of a long-term mate a necessity (i.e., a higher percentage of mate dollars will be spent in the low budget compared to the high budget)
2. Women will consider the social level of a long-term mate a necessity (i.e., a higher percentage of mate dollars will be spent in the low budget compared to the high budget)
3. Men will allocate more mate dollars in the low budget to a long-term mate's physical attractiveness compared to women
4. Women will allocate more mate dollars in the low budget to a long-term mate's social level compared to men
5. According to strategic pluralism theory, both men and women will consider physical attractiveness a necessity in a short-term mate (i.e., a higher percentage of mate dollars will be spent in the low budget compared to the high budget)

6. According to sexual strategies theory, women will consider social level a necessity in a short-term mate (i.e., a higher percentage of mate dollars will be spent in the low budget compared to the high budget)

3.7 Method

3.7.1 Participants

Based on selection criteria proposed by Buss et al. (1990) inclusion for the study was based on an age range between 18 – 30 years. The authors suggested this age range is where sex differences in mate preferences are most prominent.

Participants (N = 1635) included 515 men and 1120 women with a mean age of 21.83 years (SD = 3.58). Regarding sexual orientation, 1443 participants identified as heterosexual, 85 identified as homosexual, 96 identified as bisexual, and 11 identified as other. Seven hundred and seventy-two participants indicated their current relationship status as single, 255 were currently dating, 503 were currently in a long-term relationship, 96 were married, and 9 were separated/divorced. Regarding current education, 1004 were currently enrolled in a university undergraduate course, 101 were currently enrolled in a vocational course, 243 were currently enrolled in a university postgraduate course, 286 participants were not currently studying, and one participant did not supply information.

3.7.2 Materials

Materials were an online questionnaire (Appendices A and B), which included a demographics section and the mate budget paradigm (Li et al., 2002).

3.7.2.1 Demographics. Participants were asked to supply the following information: age in years, biological sex, whether English was their primary language, sexual orientation (heterosexual, homosexual, or bisexual), current romantic relationship status (single, dating, long-term relationship, married, separated/divorced), and if other than single, the duration of the relationship.

3.7.2.2 Mate budget paradigm. The mate budget paradigm developed by Li and colleagues (2002) was administered. Participants were randomly assigned to one of two questionnaires. One questionnaire asked participants to consider a long-term relationship and 848 (52.1%) participants completed the long-term relationship questionnaire. The other questionnaire asked participants to consider a short-term relationship, and 781 (47.9%) participants completed the short-term questionnaire. The mate budget paradigm consists of three different parts.

3.7.2.2.1 Part one: Introduction to budget. First, an introduction informed participants that they will be asked to indicate characteristics they would desire in a long/short-term partner to possess by using percentiles. Participants were told that the characteristics would range from 0 to 100 percentiles and would move change in increments of 10. Each 10^{th} percentile would equate to 1 mate dollar (for example, if they choose 0 this would mean that no mate dollars were spent, and if they chose the 20^{th} percentile this would mean that 2 mate dollars were spent). Next, the introduction gave a brief example of percentiles using height as an example:

> If we could rank all the women by their height, then the tallest woman would be at the 100^{th} percentile of height (she is taller than 100% of all the women). The woman at the 50^{th} percentile is of median or roughly average height (she is taller than 50% of women). The shortest woman is at the 0^{th} percentile of height (she is taller than 0% of women).

3.7.2.2.2 Part two: Low budget. The low budget required participants to design their ideal long-term/short-term mate by indicating a percentile level for five characteristics (physical attractiveness, creativity, kindness, liveliness, social level). The first budget required that only 10 ‘mate dollars’ are spent, so participants must be sure that the percentiles for each of the characteristics will, at the end, equal 10.

3.7.2.2.3 Part three: High budget. The high budget required participants to design their ideal long/short-term mate by indicating a percentile level for the five characteristics. The high budget allowed participants to spend 30 'mate dollars'. For the high budget, participants were asked to ensure that the percentiles for each of the characteristics will, at the end, equal 30. For the current study, low and high budget presentation was counterbalanced - 776 participants received the high budget first, whereas 859 participants received the low budget first.

3.7.3 Design

The design of Experiment 1 was mixed-design, with sex of participants (between-subjects; 2 levels: Men and women) and mate budget (within-subjects; 2 levels: Low and high) as the independent variables. The dependent variables were percentage of budget spent on each characteristic (physical attractiveness, creativity, kindness, liveliness and social level).

3.7.3.1 Calculating whether a trait is a necessity. To assess necessities, the current study followed calculations employed Li et al. (2002) and Li and Kenrick (2006). To estimate whether physical attractiveness, creativity, kindness, liveliness and social level were considered necessities, percentage (out of 100%) of the given mate budget spent on a characteristic was calculated for both the low and high budget conditions. These two percentages were then statistically compared using adjusted pairwise comparisons, and if the percentage spent on a characteristic was significantly higher in the low budget condition compared to the high budget condition, this characteristic was defined as a necessity (e.g., Li et al., 2002).

3.7.4 Procedure

Participants were students recruited on the Australian Catholic University Brisbane Campus by the researcher, and in the wider community using the snowball technique.

Participants on campus were contacted during class time and participants off campus were contacted through the means of social media. Participants were informed this study was voluntary and anonymous and would take approximately 20–30 minutes of their time (Information letter and consent forms are presented in Appendix C). Participants were given the online address to access the study. As participants were asked to access the questionnaire in their own time, there was no way to ascertain the number of participants who declined to participate in the study. The questionnaire was completed using a secure data collection website (www.surveymonkey.com). Participants who were undergraduate students of the Australian Catholic University School of Psychology were offered credit towards their course work by participating in the research.

3.7.4.1. Ethics approval. Ethics approval for the project was sought from the Human Research Ethics Committee, and approval was granted with the registered code of Q201109 (Appendix D).

3.8 Results

3.8.1 Long-term and Short-term Data Combined

3.8.1.1 Data screening. Data was firstly split by term of relationship, and missing value analyses were conducted on the dependent variables (low and high budget physical attractiveness, creativity, kindness, liveliness and social level) at each level of each independent variable (sex). No missing cases amounted to more than 5% of the total amount.

Regarding long-term relationships, removing univariate outliers for both men and women on the dependent variables generally improved violations of normality. However, for inferential analyses, univariate outliers were included. The decision to include univariate outliers in the main analyses was based on the following factors. Firstly, based on the design of the questionnaire (e.g., Li et al., 2002), in a low budget participants are expected to average a score of 2 (out of 10), and in a high budget, participants are expected to average a

score of 6 (out of 10). Thus, although this would produce a rather leptokurtic distribution (with these average scores pulling this point of the distribution upwards), and positively skewed for physical attractiveness and negatively skewed for social level, this distribution is in fact meaningful and reflective of the design. Secondly, as the *F* test is considered somewhat robust to violations of normality (Keppel & Wickens, 2004), the violations of normality after removal of outliers were considered minor. As a final check, inferential statistics were run with and without inclusion of the univariate outliers, and results of the analyses did not differ. Based on these reasons, univariate outliers were retained. See Appendix E for complete data screening of normality and univariate outliers. The assumption of sphericity was met, as the within-subjects variable of budget did not have more than two levels (Field, 2005).

3.8.2 Establishing Necessities

To establish which characteristics were considered a necessity in a long-term and short-term mate for men and women, percentages of budget spent in low budget were compared to percentages of budget spent in high budget. See Table 3.1 for summary of percentages of budget spent on characteristics in the low and high budget for men and women. Highlights of Table 3.1 include men and women spending significantly more mate dollars on a short-term and long-term mate's physical attractiveness in the low budget. See Figure 3.1 for a graphical depiction of means and standard errors.

Table 3.1

Percentage (out of 100%) of Budget Spent on Characteristics in Low Budget Compared to High Budget

	Men			Women		
	Low	High	Difference	Low	High	Difference
Long-term						
Physical Attractiveness	27.59%	22.61%	4.98***	21.41%	20.00%	1.41***
Creativity	14.91%	16.98%	-2.08***	14.75%	16.34%	-1.59***
Kindness	25.19%	23.44%	1.76**	29.54%	25.17%	4.38***
Liveliness	15.82%	18.65%	-2.83***	17.36%	19.34%	-1.98***
Social Level	15.78%	17.37%	-1.60***	16.42%	18.98%	-2.56***
Short-term						
Physical Attractiveness	36.14%	25.25%	10.89***	29.51%	23.24%	6.28***
Creativity	12.34%	16.15%	-.38***	12.01%	14.79%	-2.78***
Kindness	20.15%	20.13%	.03	25.49%	23.78%	1.717***
Liveliness	17.05%	20.03%	-2.98***	16.88%	19.31%	-2.43***
Social Level	12.62%	16.75%	-4.13***	16.06%	18.34%	-2.28***

* $p < .05$, ** $p < .01$, ***$p < .001$

For men, physical attractiveness and kindness were considered necessities in a long-term mate, whereas creativity, liveliness and social level were considered luxuries. For women, physical attractiveness and kindness were considered necessities in a long-term mate, whereas creativity, liveliness and social level were considered luxuries. Regarding short-term mates, men considered physical attractiveness a necessity, whereas creativity, liveliness and social level were luxuries. Women considered physical attractiveness and kindness a necessity, and creativity, liveliness and social level luxuries.

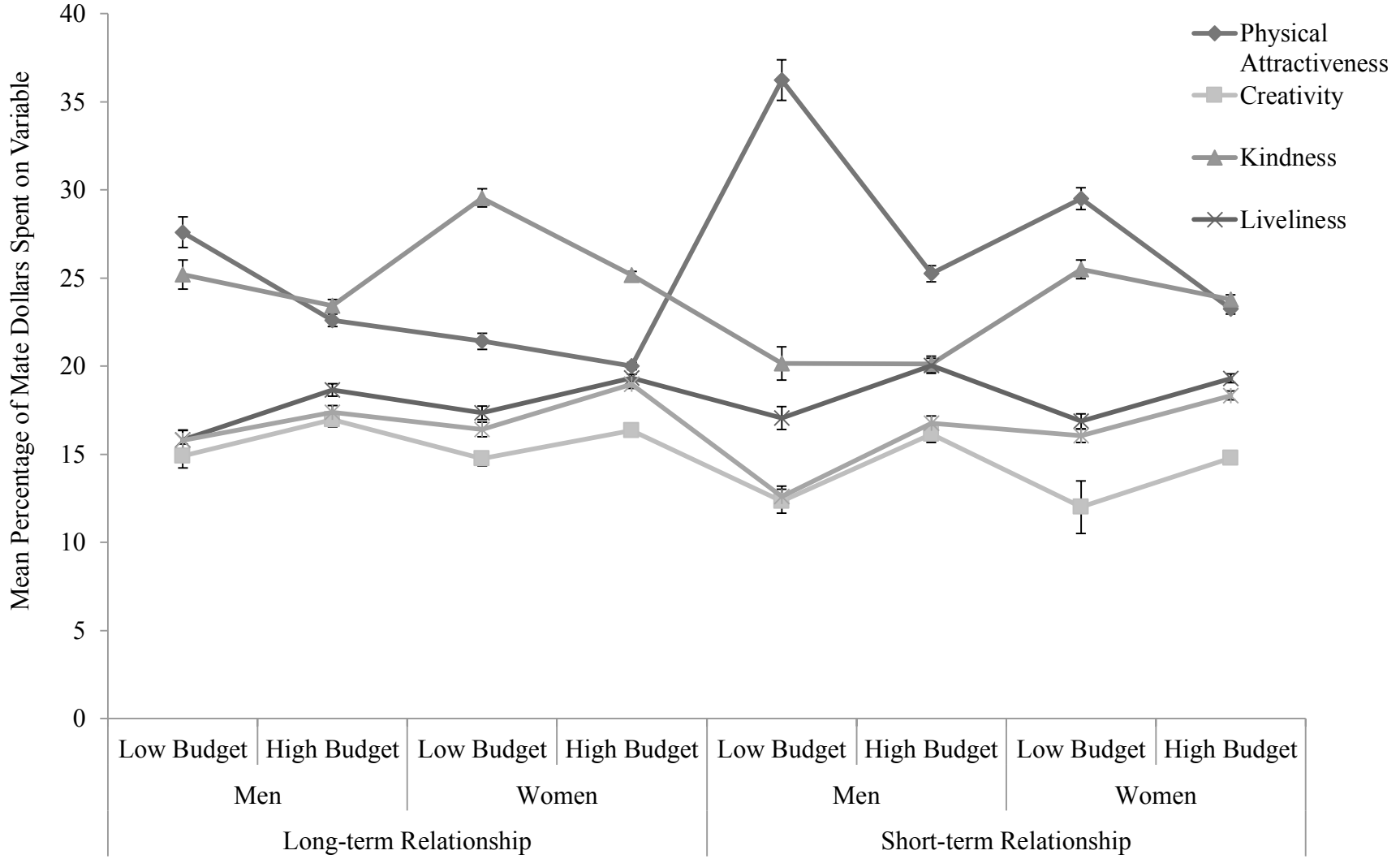

Figure 3.1. Men's and women's mean percentage of budget spent on a long-term and short-term mate's physical attractiveness, creativity, kindness, liveliness and social level in the low and high budgets. Errors bars represent standard error.

3.8.3 Sex Differences

To test whether there was a significant difference between men and women's allocations of budget money to the characteristics of physical attractiveness, creativity, kindness, liveliness and social level when they were asked to consider a long-term or a short-term mate, mixed-design multivariate factorial ANOVAs were undertaken, with two separate analyses for long-term data and short-term data. As long-term mate and short-term mate necessities and luxuries were assessed in independent studies (i.e., Li et al., 2002 and Li & Kenrick, 2006, respectively), data in the current study was split by term of relationship.

3.8.3.1 Long-term data. A 2 x 2 mixed-design multivariate factorial ANOVA was run with sex (2 levels: Men and women) as one IV and budget (2 levels: Low and high) as the other IV. The dependent variables were percentages of budget (out of 100%) spent on each characteristic. Results showed a main effect of sex, Pillais Trace = .09, $F(5,845) = 15.65$, $p = .001$, $\eta p^2 = .09$. There was also a main effect of budget, Pillais Trace = .20, $F(5,845) = 42.80$, $p = .001$, $\eta p^2 = .20$. Finally, there was a significant interaction of sex and budget, Pillais Trace = .04, $F(5,845) = 6.79$, $p = .001$, $\eta p^2 = .04$. Table 3.2 shows pairwise comparisons (with Bonferroni corrections) for the significant interaction.

Table 3.2

Pairwise Comparisons (with Bonferroni Corrections) for Sex and Budget Interaction (Long-Term Data)

	Low Budget			High Budget		
	Men	Women	Difference	Men	Women	Difference
Physical Attractiveness	27.59%	21.41%	6.18***	22.61%	20.00%	2.61***
Creativity	14.91%	14.75%	.15	16.98%	16.34%	.64
Kindness	25.19%	29.54%	-4.34***	23.44%	25.17%	-1.73***
Liveliness	15.82%	17.36%	-1.53*	18.65%	19.34%	-.69
Social Level	15.78%	16.42%	-.64	17.37%	18.98%	1.61***

* $p < .05$, ** $p < .01$, ***$p < .001$

Pairwise comparisons with Bonferroni corrections showed that in the low budget (where necessities are expected to appear), men spent a significantly higher percentage of mate dollars on physical attractiveness, compared to women. Meanwhile, women spent a significantly higher percentage of mate dollars on kindness and liveliness, compared to men. There were no significant differences between men's and women's preference for creativity and social level. In the high budget (where luxuries are expected to appear), men spent a significantly higher percentage of mate dollars on physical attractiveness and social level, compared to women. Women however spent a significantly higher percentage of mate dollars on kindness, compared to men. There were no significant differences between men's and women's preferences for creativity and liveliness.

3.8.3.2 Short-term data. A 2 x 2 mixed-design multivariate factorial ANOVA was run with sex (2 levels: Men and women) as one IV and budget (2 levels: Low and high) as the other IV. The dependent variables were percentages of budget (out of 100%) spent on each characteristic. Results showed a main effect of sex, Pillai's Trace = .11, $F(5,778) = 19.44$, $p =$

.001, $\eta p^2 = .11$. There was also a main effect of budget, Pillai's Trace = .32, $F(5,778) = 73.49$, $p = .001$, $\eta p^2 = .32$. Finally, there was a significant interaction of sex and budget, Pillai's Trace = .03, $F(5,778) = 4.76$, $p = .001$, $\eta p^2 = .03$. Table 3.3 shows pairwise comparisons (with Bonferroni corrections) for the significant interaction.

Table 3.3

Pairwise Comparisons (with Bonferroni Corrections) for Sex and Budget Interaction (Short-Term Data)

	Low Budget			High Budget		
	Men	Women	Difference	Men	Women	Difference
Physical Attractiveness	36.14%	29.51%	6.63***	25.25%	23.24%	2.02***
Creativity	12.34%	12.01%	.33	16.15%	14.79%	1.36**
Kindness	20.15%	25.49%	-5.34***	20.13%	23.78%	-3.65***
Liveliness	17.05%	16.88%	.17	20.03%	19.31%	.72
Social Level	12.62%	16.06%	-3.44***	16.75%	18.34%	-1.59***

* $p < .05$, ** $p < .01$, ***$p < .001$

Pairwise comparisons with Bonferroni corrections showed that in the low budget (where necessities are expected to appear), men spent a significantly higher percentage of mate dollars on physical attractiveness, compared to women. Meanwhile, women spent a significantly higher percentage of mate dollars on kindness and social level, compared to men. There were no significant differences between men's and women's preference for creativity and liveliness. In the high budget (where luxuries are expected to appear), men spent a significantly higher percentage of mate dollars on physical attractiveness and creativity, compared to women. Women spent a significantly higher percentage of mate dollars on kindness and social level, compared to men. There was no significant difference between men's and women's preferences for liveliness.

3.9 Discussion

The aim of Experiment 1 was to replicate the results of Li and colleagues (2002) and Li and Kenrick (2006). It was predicted that men would consider the physical attractiveness of a long-term mate a necessity (i.e., a higher percentage of mate dollars would be spent in the low budget compared to the high budget), and results supported this prediction, corroborating previous results of Li and colleagues (2002). It was also predicted that women would consider the social level of a long-term mate a necessity (i.e., a higher percentage of mate dollars would be spent in the low budget compared to the high budget). Results did not support this prediction, and this result does not corroborate previous research of Li and colleagues (2002).

It was also predicted that men would allocate more mate dollars in the low budget to a long-term mate's physical attractiveness compared to women, and results supported this hypothesis, thus corroborating previous results of Li and colleagues (2002). Additionally, it was predicted that women would allocate more mate dollars in the low budget to a long-term mate's social level compared to men. Results however did not support this prediction, therefore not supporting previous research of Li and colleagues (2002).

It was also hypothesised that, according to strategic pluralism theory (Gangestad & Simpson, 2000), both men and women would consider physical attractiveness a necessity in a short-term. This hypothesis was supported, as results showed both men and women spent significantly more mate dollars on physical attractiveness in the short-term mate low budget than a long-term mate low budget. This result aligns with previous research of Li and Kenrick (2006). Finally, the current study predicted that, according to sexual strategies theory (Buss & Schmitt, 1993), women would consider social level a necessity in a short-term mate. This hypothesis was not supported, as women did not spend significantly more mate dollars on a short-term mate's social level in the low budget. This supports previous research of Li and

Kenrick (2006), but does not support the premise of sexual strategies theory. Strategic pluralism theory and sexual strategies theory will be discussed extensively in Chapter Seven.

In sum, results of Experiment 1 show support for the previous findings that men consider the physical attractiveness of a long-term mate a necessity, and men show relative preference for the physical attractiveness of a long-term mate compared to women. In addition, both men and women consider the physical attractiveness of a short-term mate a necessity. Furthermore, results of experiment 1 show further support for strategic pluralism theory over sexual strategies theory, with the finding that women do consider the physical attractiveness of a short-term mate a necessity, but do not consider the social level of a short-term mate a necessity.

However, results from Experiment 1 do not support some previous findings, specifically that women consider the social level of a long-term mate a necessity, and that women, compared to men, did not show relative preference in the low budget for a long-term mate's social level. These results diverge from previous results of Li and colleagues (2002). As only a small body of research has examined the necessities in mate preferences, characteristics considered a necessity in a long-term mate cannot be considered established. Due to the limited amount of research that has tested which mate preferences are considered necessities and luxuries, results of the current study that do not corroborate this research should not just be considered a result of methodological problems. The current study suggests that there are conflicting results for women considering the social level of a long-term mate a necessity. It should be noted that the current results do not suggest that women do not care about the social level of a mate (nor do they suggest that men do not care about the social level of a mate), but simply may not consider this characteristic a necessity.

Previous research has indicated that there are many factors that may have an effect on a woman's desire for a mate to possess significant status and resources (e.g., Moore et al.,

2010; Eagly, Eastwick, & Johannesen-Schmit, 2009). Considering the divergence of results of women's necessity of a long-term mate's social level, it is of interest to consider other factors and their subsequent influence on how much of a necessity women consider the social level of a long-term mate. It may be that these untested factors (e.g., gender roles, level of income, level of education), influence how much money women spend in a low budget when considering a long-term mate's social level. These factors will be extensively discussed in Chapters Four and Five.

3.10 Summary of Chapter

This chapter presented potential methodological flaws with previous studies, such as not considering trade-offs and an individual's mating environment. As a result, the novel approach of a mate budget design (e.g., Li et al., 2002) was constructed to explicitly examine trade-offs made when selecting a mate. Experiment 1 was presented, which was conducted to replicate the results of Li and colleagues (2002) and Li and Kenrick (2006). Results of Experiment 1 were discussed in relation to results of these previous experiments, and results provided partial support for previous research. The next chapter introduces origin theories of sex differences in mate preferences, specifically focusing on evolutionary theory.

Chapter Four – Sex Differences in Mate Preferences and Evolutionary Origin Theory

"We're all mad here, I'm mad, you're mad."

"How do you know I'm mad?" said Alice.

"You must be," said the Cat, "Or else you wouldn't have come here."

— Lewis Carroll, *Alice in Wonderland*

4.1 Summary of Chapter

Research has attempted to explain sex differences in mate preferences by appealing to different origin theories. Two dominant schools of thought are evolutionary theory and social-economic theory. This chapter presents and discusses evolutionary theory of sex differences in mate preferences, specifically discussing natural selection, inclusive fitness theory sexual selection theory (defining intrasex and intersex selection, with particular focus on intersex selection), parental investment theory, and reproductive potential.

4.2 Origin Theories of Sex Differences in Mate Preferences

To explain sex differences in mate preferences, researchers have often appealed to evolutionary and/or social-economic origins (Goodwin & Tinker, 2002). Both evolutionary theory and social-economic theory offer explanations of sex differences in mate preferences where behaviour is adjusted to environmental conditions (Eagly & Wood, 1999). In an evolutionary approach to psychology, behaviour and mental processes of modern humans are considered to reflect inherited and adaptive behaviour and mental processes (Bernstein et al., 2013). In an attempt to understand human mating psychology, researchers consider selection pressures that occurred in our ancestral past (Gangestad & Simpson, 2000). Evolutionary theory attempts to understand the adaptive nature of the human brain, and how the brain adapted to problems faced in ancestral environments (Jeon & Buss, 2006). DeBruine, Jones, Crawford, Welling, and Little (2010) stated that the human brain is comprised of problem solving devices (also referred to as modules; Braisby & Gellatly, 2012), and these devices

allowed our ancestors to address particular concerns including social interactions and reproduction. From an evolutionary perspective, understanding survival and reproduction of our ancestors can shed light on the way modern humans think, feel and behave (Michalski & Shackelford, 2010).Therefore, modern humans' dating behaviours and attitudes are theorised to reflect evolved adaptations that originated in response to reproductive obstacles and constraints faced in our ancestral past (Stanik & Ellsworth, 2010).

One of the most important tasks a sexually reproductive species can perform is choosing an adequate mate to perpetuate reproduction (Stanik, Kurzban, & Ellsworth, 2010), and evolutionary models state that individuals act on distal mechanisms that evolved to enhance and maximise ancestors' genetic fitness (Kenrick, Groth, Trost, & Sadalla, 1993). In sum, evolutionary theory proposes that contemporary mate preferences are a function of solving adaptive problems (Greitemeyer, 2007). Additionally, these preferences do not necessarily operate at a conscious level, but are innate responses which have been ingrained through the process of evolution (Braun & Bryan, 2006).

4.3 Evolutionary Origins of Sex Differences in Mate Preferences

4.3.1 Survival and Natural Selection

Evolutionary considerations of sex differences in mate choice can be traced back to Charles Darwin's initial work on evolution and natural selection (Buss & Barnes, 1986). Darwin's theory of natural selection, as discussed in his book *'On the origins of species'*, is comprised of three important elements: Variation, heritability and adaptation (Hampton, 2009). Variation refers to the considerable disparity that exists among organisms of a species. Specifically, no two organisms of a species are physically (with exception of monozygotic relations) and behaviourally identical. Heritability refers to the inheritance of these variations in organisms among species. Finally, adaptation refers to the ability of an organism to adjust to the environment. In sum, Darwin believed through these processes, members of species

were able to genetically transmit characteristics that enhanced survival, a process he referred to overall as *natural selection* (Hampton, 2009). However, two observations proved to be problematic for Darwin's theory of natural selection. Firstly, the natural selection should promote the survival of the individual organism, whereby the organism acts in their own self-interest (Hampton, 2009). As such, observed acts of altruism in the environment were not adequately explained by natural selection. Secondly, features of organisms were not always able to be explained by natural selection, such as features that appeared to impede survival (Buss, 2006). These two notable concerns regarding natural selection were eventually explained through inclusive fitness theory (Hamilton, 1964) and sexual selection theory (Darwin, 1871).

4.3.2 Survival and Inclusive Fitness Theory

As stated above, acts of altruism between organisms seemed to be at odds with the theory of natural selection, and this limitation of natural selection was not adequately addressed until 1964, when William Hamilton proposed inclusive fitness theory (also called kin selection theory). Put simply, inclusive fitness theory proposes acts of altruism may be favoured by natural selection, but this is dependent on genetic relatedness (Gardner & West, 2014). Hamilton (1964) provided a mathematical equation (called Hamilton's rule) to explain the evolutionary advantage of altruistic acts: $rb - c > 0$. In words, "altruistic cooperation can therefore be favoured if the benefits to the recipient (b), weighted by the genetic relatedness of the recipient to the actor (the organism performing the behaviour; r), outweigh the costs to the actor (c)" (West, Griffin, & Gardner, 2007, p. 662). Put simply, providing the cost to the organism helping is not greater than the benefit of the organism being helped, altruistic acts can benefit natural selection as the gene for altruism can spread if the altruistic act is directed towards a related organism (Hamilton, 2009). As such, the fact that natural selection can therefore favour altruistic acts between organisms means that natural selection is not simply

concerned with individual personal fitness and survival (Gardner & West, 2014). Inclusive fitness theory was eventually expanded on by Robert Trivers (1971), who proposed reciprocal altruistic behaviour, a model that explains altruistic acts among unrelated organisms. Essentially, the theory proposed altruistic acts occur among unrelated individuals because there is the expectation that act will be 'repaid' in the future (Trivers, 1971). Reciprocal altruistic behaviour explains how social behaviour (i.e., psychological traits) can evolve in the same manner as phenotypes/genotypes (Trivers, 1971). The evolution of psychological traits also lead to the formation of parental investment theory (Trivers, 1972), which will be discussed below (see section 4.3.4).

4.3.3 Survival and Sexual Selection

In addition to the problem of altruistic acts, natural selection was also limited when explaining features of evolutionary change on the basis of survival selection (Michalski & Shackelford, 2010). Specifically, natural selection cannot account for heritable characteristics that are typical of species but jeopardise their survival. Buss (2006) presented a clear précis of these concerns, noting that Darwin was puzzled by features of animals that seemed to have no survival value, such as the "brilliant plumage of peacocks, flamboyant features of cardinals, and enormous antlers of deer" (p. 2). It was particularly concerning that these physical features might *enhance* the possibility of being noticed by predators. In addition, a further confound to natural selection theory was that in different species, males often varied considerably from females in relation to size and shape. "Male elephant seals, for example, weigh roughly 4,000 pounds, whereas female elephant seals weigh only 1,000 pounds; male baboons are twice the size of females and in the human species, males are 12-percent taller than females, on average" (Buss, 2006, p. 2). According to natural selection, males and females of all species should have similar survival strategies. As such, differences in size and shape are unable to be explained by natural selection.

These contradictions to the tenets of the theory of natural selection and survival eventually led Darwin to write '*The descent of man and selection in relation to sex'* (Darwin, 1871), where the concept of sexual selection was proposed. Favouring reproductive success over general longevity, sexual selection was considered to be a secondary process to manage evolutionary change (Buss & Barnes, 1986). Darwin's theory of sexual selection addressed evolutionary changes that did not appear to address survival advantage (Buss, 2006). Specifically, sexual selection theory refers to the existence of traits that may appear to disadvantage longevity (i.e., physical characteristics that make an organism more visible to predators), but promote reproductive success (i.e., physical characteristics that make an organism more visible to predators, but at the same time make the organism more visible to potential mates) (Hampton, 2009).

4.3.3.1. Sexual selection theory: Intrasex selection and intersex selection. The theory of sexual selection was further described by Darwin as consisting of two processes: *Intrasex selection* and intersex selection (Buss, 2006; Gangestad, 1993). Intrasex selection refers to the direct competition among organisms of the same sex for access to organisms of the opposite sex. In intrasex selection, traits might evolve because they aid individuals of the same sex when competing with each other for sexual access to an individual of the opposite sex (Geher, 2013). The larger size and shape of males might be attributed to intrasex selection (Hamilton, 2009), as this size and shape allows males to overcome other males and win access to fertile females.

Intersex selection refers to members of one sex possessing evolved preferences for members of the other sex (Gangestad, 1993). The theory of intersex selection states that preferences for particular characteristics/traits/qualities in members of the opposite sex have a substantial influence on evolutionary change, and this change can be examined through either an increase in desired qualities, or a decrease in undesirable qualities (Buss, 2006). Sexual

selection results in preferences for specific traits in a mate and these preferred traits will be pursued by members of the opposite sex (DeBruine et al., 2010).Essentially, there may be consensus among one sex about desirable mate qualities and as a result, members of the opposite sex who possess these characteristics will have a considerable mating advantage over other members of the same sex who do not possess these characteristics (Bleske-Rechek & Buss, 2006). Sexual selection theory also proposes that females (of all species), compared to males, tend to be more selective of their mates (Archer, 1996; Schulte-Hostedde et al., 2008).Indeed, Darwin noted that intrasex selection was more typical among males, whereas intersex selection was typically 'female's choice' (Hamilton, 2009).

The mating context of different species also has a considerable influence on sexual selection (Darwin, as cited in Buss & Barnes, 1986; Kokko & Rankin, 2006). For example, in Western societies, significant sexual selection can occur as the sex ratio does not substantially deviate from 1:1 (Buss & Barnes, 1986). In mating contexts where there is a considerable choice of different mates criteria for mating may become more stringent, compared to contexts where there is little choice. Therefore, mating contexts with low mate availability are associated with women being less selective (Kokko & Monaghan, 2001). Alternatively, in mating contexts where there are far more women than men, mating strategies may adhere to men's desires (Schmitt, 2005).

Sexual selection theory (particularly intersex selection) has often been applied by evolutionary psychologists to elucidate the mating strategies of males and females (Hill & Reeve, 2004). The theory of intersex selection proposes that evolutionary strategies influence the different mate traits that males and females value. In particular, research has focused on two particular areas of traits that are valued: Traits associated with promoting offspring survival through possession of superior genetic traits, and traits promoting offspring survival by providing resources (Kenrick et al., 1993).

4.3.4 Parental Investment Theory

As posited by Archer (1996) and Schulte-Hostedde and colleagues (2008), Darwin observed that women were the choosier sex during the process of sexual selection. However, the question of why women were the choosier sex was not adequately addressed until Trivers (1972) introduced his theory of parental investment. To reiterate, Trivers originally proposed the theory of reciprocal altruism (e.g., Trivers, 1971), a theory that elucidated how psychological traits (i.e., altruism) have evolved. Parental investment theory is another theory that highlights the evolution of psychological traits in relation to mate selection.

For humans, parental investment theory has two predictions. Firstly, both sexes are more selective about relationships that may lead to children (Woodward & Richards, 2005). Secondly, the sex that invests more in potential offspring will be the more selective sex (Buss, 2006; Hamilton, 2009). Trivers (as cited in Howe, 1976) defined parental investment as "any investment by the parent in an individual offspring that increases the offspring's chance of survival and hence reproductive success at the cost of the parents' ability to invest in other offspring" (p. 1). The theory of parental investment conjectures that the sex differences present in mate selection are a direct product of the sexes' unequal amount of reproductive investment (Schulte-Hostedde et al., 2008).

In most species, females bear greater reproductive costs than males do (Li et al., 2009). Furthermore, in some species females may even be the sole provider of parental care (Schulte-Hostedde et al., 2008). Therefore, women are assumed to be more selective when evaluating potential mates because women have more to invest in potential offspring (Kenrick et al., 1993; Szepsenwol, Mikulincer, & Birnbaum, 2013). Further supporting parental investment theory are studies of sex-role reversal (e.g., Kokko & Jennions, 2008; Jones & Avise, 2001). Specifically, in species where males parental investment is considerably higher than females (e.g., pipefish and seahorses), males are the choosier sex

while females compete more for access to reproductive mates (Jones & Avise, 2001; Trivers, 1985). Instances such as these provide support that parental investment, rather than biological sex, motivates sexual selection (Buss & Schmitt, 1993).

Regardless of some males investing more in offspring compared to females, females of most species are considered to invest significantly more in offspring compared to men (Li et al., 2009). This higher investment is a result of reproductive costs such as large gametes (i.e., reproductive cells), internal gestation, and lactation, and also the investment cost of extended parental care (Moore & Cassidy, 2007). As a result of these factors, female reproduction is considered costly and therefore considered to outweigh the minimum parental investment required of men. Furthermore, in most species, males are not generally required to provide parental care (Schulte-Hostedde et al., 2008). Although human males do often invest more in their offspring than males of other species (Geary, 2005), this amount of investment of human males is highly variable (Woodward & Richards, 2005). Men's parental investment can even be as low as the duration of time and physical energy involved in the act of sexual intercourse (Buunk et al., 2002; Gutierres, Kenrick, & Partch, 1999; Jonason, Li, & Cason, 2009; Kenrick et al., 1993; Pedersen, Miller, Putcha-Bhagavatula, & Yang, 2002). Additionally, Kruger and Fisher (2008) stress that whereas women are limited to one pregnancy at a time, men can simultaneously father many offspring through multiple sexual partners. These factors combined imply that men, on average, have a lower minimum level of investment in offspring compared to women, and therefore have a lower level of parental investment (Bleske-Rechek, Remiker, Swanson, & Zeug, 2006). As a result of this disparate reproductive investment, men and women have come to value different mate characteristics (Buunk et al., 2002; Kenrick, Keefe, Bryan, Barr, & Brown, 1995).

A potential assumption resulting from evolutionary framework is that men might in fact obtain heightened reproductive benefits from engaging in a series of short-term sexual

encounters rather than investing in long-term relationships. Short-term relationships offer men the opportunity to sire many offspring simultaneously with a range of potentially high genetic quality mates. Evolutionary theory has proposed that short-term mating has played a considerable role in the development of species' mating strategies (Miller, Putcha-Bhagavatula, & Pedersen, 2002). However, research does suggest there are benefits of both men and women of engaging in long-term committed relationships, particularly for offspring that may develop from these unions (Maner, Rouby, & Gonzaga, 2008). Human offspring benefit from high levels of investment from both parents (Lucas et al., 2008), with higher education opportunities and lower likeliness of living in poverty (Shackelford, Weekes-Shackelford, & Schmitt, 2005) and mortality (Hurtado & Hill, 1992). Women benefit from long-term relationships as they offer the opportunity for ongoing support and resource investment (Pillsworth & Haselton, Therefore, maintaining long-term committed relationships result in personal benefits, as well as increased advantages for offspring (Maner et al., 2008). Next, mate characteristics proposed by evolutionary theory to be important to men and women in a long-term committed mate will be explored.

4.3.5 Sexual Strategies Theory

According to an evolutionary framework, producing and rearing offspring to independence is the overall goal of mating (Scheib, 2001). Research shows evidence that although contemporary contraceptive methods are now available, thus sexual intercourse is no longer synonymous with reproduction; evolutionary mechanisms continue to guide human sexual behaviour (Gangestad & Thornhill, 1997).

As the task of producing and rearing offspring to independence requires considerable parental investment (Scheib, 2001), women and men have evolved to prefer characteristics in a mate that will contribute to this goal. These preferences for specific characteristics have been conceptualised by *sexual strategies theory* (Buss & Schmitt, 1993). It should be noted

that the term strategies carries no implication that these preferences operate at a conscious level (Buss & Schmitt, 1993), and are rather innate psychological responses which have been ingrained through the process of evolution (Braun & Bryan, 2006).

Sexual strategies theory proposes that men's and women's mating strategies are employed to solve problems of human mating behaviour. For example, because ancestral women benefited from a mate's supply of resources to promote offspring survival, modern-day women may seek ambitious, wealthy and high status men (Kasser & Sharma, 1999). As women have a considerably higher level of parental investment than men, women have evolved to be relatively choosier about their mates (Urbaniak & Kilmann, 2006), are less willing to engage in sex, desire fewer sexual partners, and have higher standards for sex partners (Michalski & Shackelford, 2010). Specifically, research indicates that women prefer long-term, committed relationships with mates (Jonason, Li, & Cason, 2009) who possess resources to invest in potential offspring (Gangestad, 1993) because selecting a mate who has the ability and willingness to invest resources in offspring will lead to an increased chance of women's reproductive success (Buss, 2006). Resources can be defined as tangible beneficial factors that can be offered to a mate, such as money and food (Hill & Reeve, 2005). Furthermore, women will be more conscious of a potential mate's resource limitations, and will pay more attention to a potential mate's social status which is linked to the ability to provide resources (Regan, 1998b; Symons, 1979; VonRueden, Gurven, & Kaplan, 2010).

According to evolutionary theory, the characteristics men have come to value in a potential mate have resulted from reproductive constraints that men have faced throughout evolutionary history. As men's reproductive success is constrained by access to fertile women (Greitemeyer, 2007; Tadinac, 2010), men have come to value a potential mate's qualities that reflect reproductive potential (Montoya, 2005). Specifically, Pillsworth (2008) states that men have evolved to value physical cues that indicate a mate's physical ability to

reproduce. As a result, a woman's reproductive value is closely related to her health and fertility (Pan & Houser, 2011) and research shows that men, compared to women, are more concerned with a mate's physical characteristics considered to be attractive and indicative of a woman's fertility (Gustavsson et al., 2008; Herz & Inzlicht, 2002).The theory of men valuing the physical reproductive potential of a mate is corroborated by men focusing their attention selectively on body regions known to provide reproductive information (e.g., breasts and buttocks) (Suschinsky, Elias, & Krupp, 2007). This attention to the physical appearance of a potential mate is proposed to maximise the fitness of any potential offspring, and will additionally purge any potential genetic mutations (Haselton & Miller, 2006). The physical attributes attended to by men are considered to be cues that are closely associated with fertility and health, and these characteristics include unblemished skin, lustrous hair, low ratio waist to hips ratio (WHR), symmetrical features, full lips, clear skin, and facial femininity (Buss, 2006). Buss and Barnes (1986) suggest that men who display a preference for these physical characteristics have had an evolutionary advantage in producing healthy offspring. In sum, reproductive limitations have led men to value a potential mate's signals of health and fertility, and as a result men have an evolved preference for the physical attractiveness of a potential mate (Maner et al., 2008).

An incorrect assumption, however, would be that women do not value the physical attractiveness of a potential mate. Albeit less so than men (Feingold, 1991), women do consider the physical reproductive potential of a potential mate to be important (Gangestad & Simpson, 2000). Research has even suggested that women who do not value a mate's status and resources and physical attractiveness may even experience lower reproductive success, compared to women who do (Waynforth, 2001). Thus, a mate's physical attractiveness, such as facial symmetry, is still an important consideration when women are considering mates (Scheib, 2001; Thornhill & Gangestad, 1993).

Although a mate's physical attractiveness is an important factor for both men and women, what is considered to be physically attractive and reproductively viable varies between the sexes (Kenrick et al., 1993). Women are predicted to prefer masculine physical traits over feminine physical traits, as masculine physical characteristics in men are associated with measures of long-term health (Quist et al., 2012) and reproductive success (DeBruine et al., 2010). Characteristics of men considered to serve as important cues of heightened fertility include height, upper body musculature, beard growth, jaw size, brow ridge size, and facial attractiveness (Haselton & Miller, 2006). Research has validated the attractiveness of these traits, as women find men with athletic physiques to be more attractive than men with average physiques (Schulte-Hostedde et al., 2008). Interestingly, research has also shown that women prefer a man whose body shape communicates positive information about his dominance, specifically his ability and willingness to protect (Braun & Bryan, 2006). Furthermore, male stature may also signal the possession of desirable non-physical qualities, as stature has been found to be associated with socioeconomic status (SES) and access to resources (Brewer & Riley, 2009).

Therefore, physical qualities still play an important role for women in mate selection (DeWall, 2008; Maner et al., 2008) because physical characteristics are considered to be a valid depiction of an individual's reproductive capabilities and quality (Braun & Bryan, 2006). Additionally, research has shown an association between the overall health of a country and women's preference for a potential mate's masculine physical attributes (e.g., DeBruine et al., 2010). DeBruine and colleagues (2010) found that women's mate preferences can be influenced by their own inference about local, cultural conditions (such as prevalence of disease). Results showed that women from countries with high mortality rates, lower life expectancies, and higher levels of disease showed an increase in preference for men's masculine features in comparison to women from countries with lower mortality rates,

higher life expectancies, and lower levels of disease. These results suggest that physical attributes of men associated with masculinity (such as height, jaw size and muscle) may implicitly convey information about their health and reproductive ability. This proposal is strengthened when considering that fertile women, compared to non-fertile women, prefer higher levels of masculinity in faces (Provost, Troje, & Quinsey, 2008). Interestingly, women's preference for masculine traits is strongest during the most fertile stage of the menstrual cycle (DeBruine et al., 2010).

For both men and women, an ideal mate would, theoretically, possess both high gene quality and a high amount of resources to invest in offspring (i.e., status and resources) (Fisher & Cox, 2010; Fletcher & Simpson, 2000). However, although the physical attractiveness (especially physical masculinity) of a potential mate is important to women, women's high level of parental investment (and as a result, higher standards for a mate) has resulted in women giving less attention to a mate's physical attractiveness than men (Maner, Gailliot, & DeWall, 2007). Thus, research continues to find that physical attractiveness is weighed more heavily in mating-related judgments by men than by women (DeWall, 2008). Haselton and Miller (2006) theorised that the propensity for women , as compared to men, to consider physical attractiveness less important can be attributed to trade-offs that are made when selecting a long-term mate. Specifically, due to reproductive constraints and higher level of parental investment, women are considered to trade off cues indicating genetic quality in the search to secure cues that are indicative of a mate's ability to invest in the survival of the offspring (Pillsworth, 2008). As individuals are considered to seek particular mates to solve specific adaptive problems (Buss & Barnes, 1986; Greitemeyer, 2007) women have therefore evolved to exhibit a higher preference for a mate who has the status and resources necessary to ensure an offspring's survival and less preference for a mate's physical attributes (Townsend & Roberts, 1993). Meanwhile, men have evolved to exhibit a

preference for a mate's physical attractiveness (Szepsenwol et al., 2013) associated with genetic quality and a higher level of fertility (Cramer, Schaefer, & Reid, 1996; Townsend & Roberts, 1993). In sum, a woman's reproductive success depends on the resources necessary to raise offspring, whereas a man's reproductive success is related to a mate's physical reproductive potential (Zentner & Mitura, 2012).

Evolutionary models also propose that sex differences in human mate preferences will be cross-cultural (Buss, 1989), and cross-cultural studies corroborate that women's higher preference for status and resources in a mate, and men's higher preferences for a mate's physical attractiveness, are indeed generally universal (Buss et al., 1990; Kenrick et al., 1993). Such results have led researchers to conclude that men's and women's mate preferences may be attributed to evolutionary processes, as cultural influences seem relatively small (Kasser & Sharma, 1999).

4.4 Potential Limitations of Evolutionary Theory

Zentner and Mitura (2012) pointed out that although these sex differences in mate may be found to be universal the magnitude of this effect does vary substantially across cultures. For example, sex differences in mate preferences are found to be smaller in Scandinavian countries and greater in Africa and the Middle East (Zentner & Mitura, 2012). These preferences can also vary depending on local cultural conditions; such as poor health and high pathogens (DeBruine et al., 2010) and resource scarcity (Lee & Zietsch, 2011). These results have led researchers to consider whether such variations in culture can be accommodated in an evolutionary framework (Zentner & Mitura, 2012). Furthermore, research has suggested that men's and women's preferences for particular characteristics may be dependent on the specific roles and responsibilities of each sex in different societies (i.e., provider or carer) (Pillsworth, 2008). In fact, Moore and colleagues (2010) stated that variations in human mating strategies across different populations suggest that human mating

behaviour cannot be explained by biological sex constraints alone, and that these decisions instead appear to be context dependent. For example, women have exhibited stronger preference for good genes when these qualities are considered to outweigh the benefits of status and resources (Moore et al., 2010). This stronger preference is exhibited particularly when women are considering short-term relationships, which will be discussed in detail in Chapter Seven.

4.5 Summary of Chapter

This chapter entailed a discussion of evolutionary theory for sex differences in mate preferences. Evolutionary theory proposes that sex differences in mate preferences are a product of distal mechanisms, evolved to overcome reproductive obstacles of past ancestry. This chapter defined evolutionary psychology, and provided a background of evolution including natural selection, inclusive fitness theory and theory of sexual selection. Sexual selection received particular emphasis, defining intrasex and intersex selection (with particular focus on intersex selection), parental investment theory, and reproductive potential. Finally, potential limitations of evolutionary theory were considered, such as variations in preferences for physical attractiveness and status and resources across cultures. Next, Chapter Five will further consider these variations across cultures by introducing the social-economic theory of sex differences in mate preferences.

Chapter Five –Sex Differences in Mate Preferences and Social-Economic Theory

5.1 Overview of Chapter

Chapter Four discussed previous researchers that attempted to explain sex differences in mate preferences by attributing these to evolutionary and social-economic origins. Furthermore, Chapter Four discussed evolutionary theory of sex differences in mate preferences, including parental investment theory and reproductive potential. This chapter entails a discussion of the different elements of social-economic theory. Specifically, the argument that sex differences in mate preferences are largely attributable to gender roles and economic constraints is explored. Additionally, this chapter will highlight limitations of previous research, including that previous research has only explored the variables of gender roles and SES independently, and thus the interactive effects of these elements is unknown. Chapter Five concludes that social-economic theory of sex differences in mate preferences has not been properly explored.

5.2 Social-Economic Origins of Sex Differences in Mate Preferences

Evolutionary theory and social-economic theory both highlight the importance of adjusting to the environment (Eagly & Wood, 1999) and are not considered inherently incompatible (Buss & Barnes, 1986; Feingold, 1990; Howard et al., 1987). For example, evolutionary theory proposes that sex differences in mate preferences have emerged due to men and women facing different adaptive challenges during evolution (Eagly & Wood, 1999). However, although evolutionary theory acknowledges the impact of the environment on evolved characteristics, limited attention is often given to individual, situational and cultural conditions influencing sex differences in mate preferences (Eagly & Wood, 1999). As a result, evolutionary research has been criticised for a heavy focus on between-sex differences in mate preferences, rather than within-sex differences in mate preferences (Walter, 1997; Gangestad & Simpson, 2000). Some authors suggest that the effects of culture

on mate preferences may be even greater than that of biological sex (Stone, Shackelford, & Buss, 2008).

Social origin theories of sex differences in mate preferences propose that variation in men's and women's mate preferences result from social frameworks, such as differing social structures (Eagly & Wood, 1999); and these social structures are explored in contemporary and historical cultural settings (Regan, 1998b). Kenrick and colleagues (1993) posited that characteristics that have been socially valued by (and for) each sex have become sex-typical mate preferences. For example, because men have traditionally been valued for their economic success and women have traditionally been valued for their physical attractiveness (Kenrick et al., 1993), these values have become stereotypic of the sexes. As each sex seeks the characteristics that society deems valuable in a mate, sex differences in mate preferences are proposed to be a product of socialisation pressures (Kenrick et al., 1993). In addition to socialisation pressures, social origin theories contend that these sex differences in mate preferences are also a product of the social positions held by men and women; commonly known as social role theory (Eagly & Wood, 1999). Finally, social-economic theory also posits that these sex differences are a result of sex specific economic constraints, where each sex attempts to maximise resources (Moore & Cassidy, 2007). Each of these different elements of social-economic theory (i.e., gender roles and economic constraints) of sex differences in mate preferences will now be discussed in detail.

5.2.2 Gender Roles, Social Role Theory and Sex Differences in Mate Preferences

5.2.2.1 Definition of gender roles. Gender roles are considered to be a social construct in which behaviour of biological sexes are interpreted (Newman, 2002). Gender roles are considered prescriptive (Holt & Ellis, 1998) and societies use gender roles to define appropriate behaviour for men and women (Prentice & Carranza, 2002). Gender is one of the earliest and strongest forms of group identity to develop (Glick & Fiske, 1996). Furthermore,

people are more likely to categorise others on the basis of gender rather than age or race (Glick & Fiske, 1996).

Social role theory (Eagly & Wood, 1999; Eagly, Wood, & Diekman, 2000) contends that historical divisions of labour of the sexes have led to men and women being categorised into differing social roles. Social role theory differs from gender roles, as gender roles are considered to be a broader context of men's and women's behaviour, whereas social role theory is more concerned with roles pertaining to families and work (Dulin, 2007). Therefore, as social role theory can be conceptualised through gender roles (Eagly & Wood, 1999), and as gender roles are considered to encompass more dimensions of men's and women's behaviour than social role theory, the current dissertation will be concerned with the association between gender roles and sex-typed differences in mate preferences.

Gender roles are believed to develop from men and women occupying different social roles from one another (Eagly & Steffen, 1984), and refer to the behaviours or occupations in which each sex is expected to engage (Fischer & Anderson, 2012). As a result, sex differences in behaviour of men and women are attributed to the tendency for men and women to behave in accordance with their gender role (Regan & Sprecher, 1995).These roles mediate the expectations of sex-specific behaviour and the activities undertaken by both sexes in society (Eagly & Wood, 1999). When men, more-so than women, occupy positions in society that require agentic, dominant behaviours, these behaviours and characteristics then become associated with the male gender role (Eagly & Wood, 1999). Meanwhile, when women, more-so then men, occupy positions in society that require communal, subordinate behaviours, these behaviours and characteristics become associated with the female gender role (Eagly & Wood, 1999). Gender-stereotypic expectations are communicated socially, and may both directly and indirectly encourage men and women to engage in behaviour expected of their sex (Eagly & Wood, 1999). This is further defined as a reciprocal relationship, where

engaging in behaviours consistent with expectations increases future expectations of that behaviour occurring.

In contemporary American society, as in many societies, women have less power and status than men and control fewer resources (Eagly & Wood, 1999). Additionally, greater societal power and status are often associated with a man's social roles (Wood & Eagly, 2002). Due to this typical societal division of power, Eagly and Wood (1999) stated that men are more accustomed to roles of power and status, whereas women are more accustomed to roles of lesser power and status. As a result of social power imbalance and traditional sex role expectations, women are theorised to express a preference for men of high status (Kenrick et al., 1993). Thus, socialisation pressures and expectations of men and women's behaviour have led to particular sex differences in mate preferences. Specifically, as society has traditionally valued men for their economic success, and women for their physical attractiveness (Kenrick et al., 1993), these particular characteristics may be valued by each sex when considering a mate (Buss & Barnes, 1986; Regan, 1998b). As a result, the mate preferences men and women exhibit may be considered a product of social beliefs regarding sex-appropriate behaviour and attitudes (Regan, 1998a).

5.2.2.2 Conceptualisation of and engaging in gender roles. A conceptualisation of gender is the distinction of masculine traits and feminine traits (Abele, 2003). Masculine traits are considered to be agency (agentic)-instrumental traits (e.g., active, decisive) and feminine traits are considered to be communal-expressive traits (e.g., caring, emotional) (Abele, 2003). Generally, men are considered to encompass more masculine/agentic traits (e.g., confidence, aggressiveness, self-direction), and women are considered to encompass more feminine/communal traits (e.g., kindness, concern for others, warmth, gentleness) (Erchull, Liss, Axelson, Staebell, & Askari, 2010). Men's gender role is associated with being dominant and assertive, whereas women's gender role is associated with being

affectionate and nurturing (Fischer & Anderson, 2012). Femininity and masculinity may be thought of as related yet distinct constructs (Kasen, Chen, Sneed, Crawford, & Cohen, 2006). In fact, Bem (1977) extended her original dichotomous classification of gender roles as masculine and feminine by introducing the constructs of androgynous and undifferentiated. Bem defined the gender roles of masculinity, femininity, androgyny and undifferentiated as follows: Individuals high on both masculine and feminine traits are considered to be androgynous, individuals high on masculine traits but low on feminine traits are considered masculine, individuals high on feminine traits but low on masculine traits are considered feminine, and finally individuals low on both masculine and feminine traits are considered undifferentiated.

Kasen and colleagues (2006) argued that a healthy human personality expresses combinations of both masculine and feminine characteristics. However, research still shows that both men and women engage in daily behaviours that are more gender-stereotypical than gender-atypical (Good & Sanchez, 2010). Furthermore, when individuals are asked to describe themselves as well as typical others, both men and women are found to over-emphasise the presence of stereotypical masculine traits in men and stereotypical feminine traits in women (Erchull et al., 2010). Good and Sanchez (2010) theorised that the fear of negative social consequences may result in men and women being less inclined to employ behaviours that are considered atypical of their particular gender. Furthermore, individuals who strongly endorse traditional gender roles reported that behaving in accordance with their specific gender role leads to higher levels of positive feelings (Good & Sanchez, 2010). Glick and Fiske (1996) stated that the traits associated with each gender role may be conceptualised as complementary, because it appears that the traits of one particular gender role compensate for the deficiency of particular traits in the other gender role. For example, traits ascribed to a

woman's gender role, such as sensitivity and compassion, may compensate for the traits men are considered to lack (Glick & Fiske, 1996).

5.2.2.3 Gender roles and mate preferences. Of particular relevance to the current study is the relation of gender roles to sex differences in mate preferences. Specific social roles of men and women in society are expected to influence the value they place on a mate's physical attractiveness and status and resources, respectively (Koyama, McGain, & Hill, 2004). Gender roles are expected to influence mate preferences, because each sex may desire a mate of the opposite sex who possesses stereotypical characteristics that are defined by their gender (Eastwick et al., 2006). Regan and Sprecher (1995) theorised that the degree to which men and women behave in accordance with their traditional gender role may have a positive association with traditional sex-typed mate preferences.

Experimental studies have also shown that when traditional gender roles are experimentally reinforced, individuals are shown to exhibit stronger sex typed mate preferences (Eagly et al., 2009). To initially prime participants with a gender role, Eagly and colleagues (2009) asked participants to imagine their future selves in either a traditional feminine (homemaker) role, a masculine (provider) role, or a control role (neither feminine nor masculine), and these roles were randomly assigned to men and women. Results showed that priming individuals with traditional gender roles was associated with subsequent expression of traditional mate preferences (i.e., individuals envisioning themselves as homemakers placed more importance on a spouse's provider characteristics, and vice versa), and this result was significant for both sexes. For the control group, when envisioning themselves as future homemakers, individuals had stronger provider preferences compared to the control group. In addition, when envisioning themselves as future providers, individuals had stronger homemaker preferences compared to the control group. Interestingly, when considering the mate preferences of the sexes, women were found to place more importance

on provider characteristics compared to men, but men were not found to place more importance on homemaker characteristics compared to women (Eagly et al., 2009). Nonetheless, the results indicate that priming participants with traditional gender roles can influence subsequent mate preferences.

Further studies of the relationship between sex differences in mate preferences and gender roles have shown positive relationships between endorsement of traditional gender role ideology and preferences. Results from a nine-nation sample of 3682 participants from Germany, Italy, Mexico, Singapore, Spain, Syria, Taiwan, Turkey, and the United States revealed that the extent to which participants had a traditional gender role ideology was positively associated with greater sex-typing of mate preferences (Eastwick et al., 2006) .

Relationships have also been reported between endorsement of traditional gender ideology and preference for earning potential in a partner (Moore et al., 2010). Koyama et al. (2004) found that for women, preference for a mate's earning potential was associated with lower feminist attitudes. Meanwhile, Johannesen-Schmidt and Eagly (2002) found that women's preference for a mate's good earning potential was positively related to how much women supported a traditional female gender role.

Although the research presented thus far has reported a relation between endorsement of gender roles and sex differences in mate preferences, studies have not yet reported a significant relation between self-reported gender roles and mate preferences (e.g., Kenrick et al., 1993). Endorsement is assessed by asking individuals to consider what they consider appropriate behaviour for men and women, whereas self-report is assessed by examining how much an individual believes they encompass stereotypical masculine and feminine traits. As endorsement, not self-report, is found to relate to sex-typed mate preferences, this invites the question as to whether sex-typed differences of mate preferences are a result of gender role endorsement, rather than self-reported actual gender role. It may be that traditional mate

preferences are associated with endorsement of traditional gender roles, rather than an individual's personal gender role. For example, Kenrick and colleagues (1993) found no significant relation between an individual's self-reported gender role and traditional sex differences in mate preferences. However, Kenrick and colleagues measured participant's gender roles using the Personal Attributes Questionnaire (PAQ). The PAQ is considered only moderately well validated when measuring the extent to which an individual views their self as masculine or feminine (Kenrick et al., 1993), and according to Bem (1977), gender roles are not restricted to being masculine or feminine. Therefore, an aim of the current study was to establish if self-reported gender roles could be related to traditional mate preferences when assessing four gender roles (masculine, feminine, androgynous, and undifferentiated) instead of two (masculine and feminine).

5.2.2.4 Bem Sex Role Inventory (BSRI) in the current study and the BSRI short-form. According to Bem (1977), gender roles can be conceptualised beyond the dichotomy of masculine and feminine, and also include androgynous and undifferentiated. Previous research has found when women are distributed into these gender roles, 47% score as feminine, 10% score as masculine, 24% score as androgynous and 19% score as undifferentiated (Hoffman & Fidell, 1979). Hyde and Phillis (1979), who included men and women in their study, showed that 52% of women scored as feminine, 15% scored as masculine, 20% scored as androgynous and 13% scored as undifferentiated, distributions that are relatively consistent with Hoffman and Fidell (1979). Additionally, 3% of men scored as feminine, 51% scored as masculine, 18% scored as androgynous and 28% scored as undifferentiated (Hyde & Phillis, 1979). It is possible however that these distributions have changed, as these studies were conducted more than 30 years ago.

To date, research has not examined endorsement of or self-reported androgynous and undifferentiated gender roles in relation to sex differences in mate preferences. To explore the

relation between self-reported gender roles and sex differences in mate preferences, the current study employed the BSRI, as these four gender roles (i.e., masculinity, femininity, androgyny and undifferentiated) were originally proposed by Bem (1977). Although all four gender roles have not yet been explored in relation to sex differences in mate preferences, studies have explored relations between these gender roles and women's personality and health (Hoffman & Fidell, 1979), self-esteem (Antill & Cunningham, 1979); and sexual satisfaction (Kimlicka, Cross, & Tarnai, 1983).

Although the original measure is now nearly four decades old, recent research reports have shown that the BSRI continues to be a useful measure of gender roles (Heppner & Heppner, 2009; Kasen et al., 2006) and is still commonly used in gender research (e.g., Choi, Herdman, Fuqua, & Newman, 2011; Parent, Moradi, Rummell, & Tokar, 2011; Szymanowicz & Furnham, 2011). However, validation studies of the BSRI have determined that the short-form demonstrates better reliability and validity (Choi & Fuqua, 2003; Choi et al., 2009). The short-form of the BSRI contains half of the original BSRI items (10 masculine items and 10 feminine items), and correlates highly with the original BSRI (above .9) (Holt & Ellis, 1998). Recent research has also shown high internal consistency for the BSRI short-form, both in online (masculinity scale Cronbach's alpha = .88; femininity scale Cronbach's alpha = .95) and in offline (masculinity scale Cronbach's alpha = .77; femininity scale Cronbach's alpha = .88) administration modes (March, Grieve, Marx, & Witteveen, 2013). Both the PAQ and the BSRI short-form produce similar psychometric properties (substantial correlations and internal reliabilities) between the masculine and feminine scales (Spence, 1991). However, previous research has not used the PAQ to assess the gender roles of androgyny and undifferentiated. As such, the BSRI has been the only measure used to account for androgynous and undifferentiated gender roles.

5.2.3 Sex Differences in Mate Preferences and Economic Constraints

Social-economic theory of sex differences in mate preferences posits that sex differences in mate preferences may be attributed to societal sex specific economic constraints (Moore & Cassidy, 2007). These sex differences in mate preferences are a product of each sex attempting to maximise the resources traditionally denied to them within society (Moore & Cassidy, 2007).

Cross-cultural studies have revealed women experience a significant disadvantage compared to men in regards to status and power, and although some cultures are more egalitarian than others, patriarchy continues to be prevalent (Glick & Fiske, 2001). Across cultures, women are typically considered subordinate in comparison to men (Catalyst, as cited in Moss-Racusin, Good, & Sanchez, 2010). Presently and historically, men (more so than women) secure higher-paying and higher-status jobs and professions (Hamida, Mineka, & Bailey, 1998). Research has shown that, typically, men have held greater positions of status and power in society (e.g., Wood & Eagly, 2002), and according to models of economic constraint, this has resulted in women seeking to claim resources.

Research has also shown that both men and women significantly attend more to men of high status than women of high status, and incorrectly over emphasise men's status and de-emphasise women's status (DeWall, 2008). DeWall (2008) conducted a study to test the hypothesis that people attend preferentially to high status men (but not women). The initial experiment of DeWall tested the hypothesis that men displaying cues of high social status capture attention. In the first experiment, 176 (116 women and 60 men) undergraduate students from an American university viewed two arrays of photographs. One array included 12 pictures of men, the other array included 12 pictures of women, and the order of presentation was counterbalanced. Pictures were edited with a computer program to combine college-age faces with bodies that wore either professional attire or non-professional attire

(i.e., sweat suits). Thus, the photographs were constructed so that participants viewed either high or low social status targets. Participants were randomly allocated into one of two conditions: Half of the participants viewed all 12 targets simultaneously for four seconds, whereas the other participants viewed each target individually for four seconds. After viewing each array, participants estimated the percentage of targets that were 'high social status', 'socially dominant' and 'respected by others'. Participants' estimated greater percentages of high-status men when all targets were presented at once than when participants viewed targets individually. Additionally, participants estimated lower percentages of high-status women when all targets were presented at once than when participants viewed targets individually. Thus, the authors suggested that the limitations on attentional capacity caused participants to base their frequency estimates on targets that captured their attention most strongly, namely, high-status men.

DeWall (2008) sought to extend the results of the first experiment by conducting a second experiment; by measuring participants' eye movements in order to discern captured attention. Additionally, experiment two manipulated physical attractiveness alongside social status. Thus, half of the targets were of average attractiveness, whereas the other half were highly attractive. Consistent with results of the first experiment, results found that high status men (but not high status women) captured attention. Participants spent more than half the time attending to high status men, and less than half the time attending to high status women. Additionally, participants spent significantly more time attending to highly physically attractive men and women than average physically attractive men and women; there was no significant difference in time of attending to highly attractive men versus highly attractive women. These results suggest that both men and women overemphasise the presence of high male status, and de-emphasise the presence of high female status, supporting the theory that men are often assumed to hold higher positions of status in society in comparison to women.

In sum, because of the restrictions women face regarding individual advancement, women are proposed to seek in mates the characteristics associated with power, such as earning capacity and higher education (Buss & Barnes, 1986). Structural powerlessness theory (Buss & Barnes, 1986) suggests that the inclination for women to place higher emphasis on status and resources is related to the social and economic inequalities between the sexes within societies. As women have historically experienced greater constraints on their ability to provide for themselves and their offspring independently, women seek partners who have the ability to provide the resources required, at the cost of securing other characteristics, such as physical attractiveness (Moore & Cassidy, 2007). As men have not been bound by the same economic restrictions that bind women within society, men are able to focus their initial search on the physical attractiveness of a potential mate (Li et al., 2002). Additional research has shown a non-linear relationship between women's desire for a partner's income, suggesting that once women obtain a mate with a sufficient level of income, they do not continue to actively seek higher levels of income (Kenrick, Sundie, Nicastle, & O'Stone, 2001). For example, Kenrick and colleagues (2001) stated that women make greater distinctions between poor and lower-middle-class men, but smaller distinctions between middle-class men, upper-middle-class and upper-class men. In short, women's desire for a mate's status and resources may mainly be a mechanism to avoid a financially impoverished mate (Kenrick et al., 2001).

Inherent in structural powerlessness theory, however, is the implication that women's mate preferences should vary with women's status (Buss, Shackelford, Kirkpatrick, & Larsen, 2001). If women's mate preferences are governed by the need for status and resources, then individual differences in women's ability to provide for themselves should lead to within sex differences in women's mate preferences (Stanik & Ellsworth, 2010). For example, when women are of high status, they may be less likely to demonstrate traditional

female mate preferences (i.e., desiring a mate's status and resources) (Moore & Cassidy, 2007). This notion has received support through research that has shown that women strongly prefer status and resources in a potential mate when they live in a culture low in female reproductive freedom and educational equality (Kasser & Sharma, 1999). However, not all studies have supported this prediction of structural powerlessness theory. For example, Wiederman and Allgeier (1992) found no relationship between women's income and her emphasis placed on a mate's ability to provide financially. Even more interestingly, some research has reported a positive relationship between a woman's income and her preference for a mate's status and resources (Moore, Cassidy, Law Smith, & Perrett, 2006). This positive relationship suggests that women with a high level of income may seek partners with similar levels of wealth (Eagly & Wood, 1999). Townsend and Roberts (1993) found a positive relationship between expected personal future income of female law school students and their emphasis on a potential mate's ability to provide. Given the mixed results of previous studies assessing the relationship between women's SES and preferences for a mate's status and resources, the nature of the relationship between women's SES and mate preferences is unclear. Results of previous studies have varied between negative and positive relations between female SES and emphasis on a mate's status and resources, to even no relation.

A possible explanation for the variation in these results is that a woman's high income does not necessarily equate to possessing a high level of control over the income (i.e., determining how this income is spent) (Moore et al., 2010). The factors associated with SES that may influence women's mate preferences may not be the actual income, but rather empowerment and resource control (Moore & Cassidy, 2007). Additionally, Moore and colleagues (2006) found that women who report greater control over their own wealth resources report a higher preference for a mate's physical attractiveness, compared to a mate's ability to provide (Moore et al., 2006). This suggests that increased control over

resources could result in women placing higher preference on a mate's physical attractiveness instead of a mate's status and resources. Still, the general proposal is that as women gain financial independence and status, there should be a corresponding decrease in preferences for a mate's status and resources (Townsend & Roberts, 1993). The effect is reinforced by research that has found that sex differences in preferences for status and resources are particularly pronounced in cultures low in educational quality between the sexes (Greitemeyer, 2007).

March and Bramwell (2012) aimed to examine sex differences in mate preferences by examining the Australian culture, and add to the research on structural powerlessness theory by examining if variation in men and women's SES would have an effect on the characteristics they desire in a long-term mate. One hundred and forty-four participants (88 women and 56 men) were recruited from an Australian university campus and the wider community. Participants were given a mate characteristics questionnaire, which required participants to rate a number of traits (e.g., good looks, good health, good financial prospect, education/intelligence) on level of desirability in a potential long-term mate. Traits were organised into two scales: A physical attractiveness scale and the status and resources scale. Results showed that men considered physical attractiveness significantly more desirable in a long-term mate than women, and women considered status and resources significantly more desirable in a long-term mate than men. There were no main effects of participant SES on physical attractiveness and status and resources desirability ratings. However, there was an interaction between SES and sex on the physical attractiveness scale; specifically, women of a higher level of SES considered the physical attractiveness of a long-term mate significantly more desirable than did women of a low SES. These results suggested that as Australian women's SES increases, their desire for status and resources does not abate, and their desire for a long-term mate's physical attractiveness increases. A potential conclusion of these

results is that as women's level of SES increases, their physical attractiveness desirability scores become more equal to men. However, their desire for status and resources does not dissipate. These results also suggest that mate preferences are not just dependent on external factors, such as the quality of potential mate's physical attractiveness and status and resources, but individuals may also engage in summing up their own 'mate worth' (i.e., their own level of status and resources, physical attractiveness), and use this worth to determine which preferences they desire in their potential mates. This idea is expanded on below in section 5.3.

Moore and colleagues (2010) also found a relationship between women's SES and heightened preference for a mate's physical attractiveness. Results of Moore and colleagues' study showed that as women's levels of financial independence and power increase, their preferences for the physical attractiveness of a potential mate become equal to men. Therefore, greater gender equality may be associated with women expressing mate preferences typical with men's mate preferences (i.e., lower preference for status and resources, higher preference for physical attractiveness) (Moore et al., 2010). There is growing evidence in the literature for higher female status (i.e., higher income, control of assets, etc.) to relate to more male typical mate preferences (Moore & Cassidy, 2007). When studying sex differences in mate preferences in the Swedish culture, one of the most egalitarian cultures in the world, Gustavsson and colleagues (2008) found no significant difference between men and women's preferences for the physical attractiveness of a potential mate. Additionally, Zentner and Mitura (2012) found that an increase in a nation's gender equality was associated with decreases of sex differences in mate preferences.

Results of research concerning women's personal status and resources (as operationalised by SES) and corresponding mate preferences are inconsistent. Research has depicted negative associations between women's SES and preference for a mate's status and

resources, positive associations between women's SES and preference for a mate's status and resources, and no association between women's SES and preference for a mate's status and resources. Furthermore, research has also shown that a woman's SES may even be related to variation in preference for a mate's physical attractiveness. As such, there is a considerable gap in the literature concerning structural powerlessness theory, and the effects of women's SES on their mate preferences.

5.3 Social-Exchange Theory

As discussed, research has continued to produce mixed support for structural powerlessness theory (e.g., Luszyk, 2001; Weiderman & Allgeier, 1992). A potential explanation for the positive relationship between women's wealth and high preferences for status and resources of a potential mate could be assortative mating (Moore & Cassidy, 2007). According to social-exchange theory, the process of heterosexual mate selection has been compared with a stock market, in which men and women exchange their own assets for desirable attributes in a partner (Regan, 1998a). Individuals are assumed to seek the 'best value' they can achieve in a mate, and everyone has an approximate 'market value', depending on the degree to which he or she possesses valued traits such as beauty, intelligence, charm, wealth, and social status (Kenrick et al., 1993). Exchange theories suggest that people seek similarity in mates, and search for mate's whose 'value' is approximately equal to their own (Buss & Schmitt, 1993; Harrison & Saeed, 1977). Individuals with more assets are expected to ask for more assets in partners (Kenrick et al., 1993). In this model, individuals with high amounts of desired characteristics will pair with others of equally high value, and vice versa for individuals with lower amounts of desired characteristics (Regan, 1998a). This model suggests that the people prefer to mate with those who are similar to themselves on relevant dimensions (Kurzban & Weeden, 2005). In other words, "the '6s' mate with other '6s' and the '9s' mate with the other '9s' (Buss &

Shackelford, 2008, p. 136). There has been considerable support for social-exchange theory, as research has reported many dating and married couples are similar to one another (Zietsch, Verweij, Heath, & Martin, 2011) ranging from physical characteristics, such as attractiveness (Kocsor, Rezneki, Juhasz, & Bereczkei, 2011), to intrinsic characteristics such as intelligence and personality (Mascie-Taylor, 1989), to even education level (Wood & Brumbaugh, 2009). Interestingly, this theory could be applied to the methodology of the current dissertation, as participants engaging in the 'mate budget' design are essentially performing the mate stock market exchange.

Social-exchange theory posits that the ability to accurately assess one's own mate value is adaptive, as it prevents individuals from expending energy, time, and resources while competing for highly valuable mates that they have little chance of attracting and retaining (Regan, 1998a). Additionally, social-exchange theory predicts that individuals will reduce the risk of wasting their own resources on less valuable mates who will compromise the seekers' ability to produce viable offspring (Regan, 1998a). Results lend support to predictions from both social-exchange and evolutionary models. In line with the social-exchange models, participant's self-appraisals are generally strongly correlated with their minimum criteria for partners (Kenrick et al., 1993). Women who rate themselves as dominant, powerful, and aggressive (components of the dominance composite) and who rate themselves as high status, ambitious, wealthy, likely to be a college graduate, and high in earning capacity (components of the status composite) will expect more in a partner than women who rate themselves as low on those dimensions (Kenrick et al., 1993). For example, women at very high levels for expected career success seek partners at a similar or higher level (Kenrick et al., 1993).

Buss and Barnes (1986) also sought to examine the extent of men and women's assortative mating. To assess this, 92 married couples completed a mate selection questionnaire and demographics were collected. Results showed that men who preferred

mates who possessed high professional status indeed had wives who scored high on capacity for status and who also rated themselves as ambitious. Interestingly however, husbands of women who preferred mates who had high professional status did not show signs of ambition or capacity for status. These results provided mixed support for social-exchange theory, suggesting that men were assortative mating, whereas women's mate choices were not necessarily aligning with their preferences.

Bereczkei and Csanaky (1996) assessed Hungarian men and women close to the state of completed fertility (i.e., women over the age of 35 and men over the age of 40). Questionnaires were used to collect demographical and personal information. Additionally, a collaborator (who was not informed of the purpose of the study) personally interviewed each participant. The questionnaire collected variables such as marital status, age at marriage, age and educational differences between married couples, the number of living children, marital success and stability, frequency of divorce, and education. Participant's education was assessed to roughly ascertain socioeconomic status (as education is said to relate to income and occupational status). Results showed that the majority of women preferred mates with the same or higher educational level.

Assortative mating has also been proposed to be reproductively beneficial (Gyuris, Jarai, & Bereczkei, 2010). Bereczkei and Csanaky (1996) found that women who chose men of lower education gave birth to significantly less children than women marrying more educated men. The reproductive consequences of homogamy (marrying someone of similar social standing) were more similar to that of hypergamy (marrying someone of upper social standing) than hypogamy (marrying someone of lower social standing). Finally, couples where the husband was younger and less educated than the woman divorced on average earlier than couples where the husband was older and more educated than the women. Specifically, higher educated husbands with less educated wives have lived together on

average 23.67 years, and couples with reversed educational differences have stayed together for 20.35 years.

Research has also shown that newlyweds' social status (i.e., the social status of men and women who recently married) were very similar (Kalmijn, 1994). Social-exchange theory would suggest that, although there may be evolutionary and social-economic origins that attribute to sex differences in mate preferences, individuals will assess their own mate value and assortative mate with others who are on an equal mate value basis. Therefore, the preferences men and women exhibit in a potential long-term mate could actually be an adequate reflection of their own characteristics. However, as the overall aim of the current dissertation is to explore the interactive effects of gender roles and SES on characteristics considered a necessity in long-term and short-term mates, the current dissertation will focus on evolutionary theory and social-economic theory.

5.4 Additional Considerations of Social-Economic Theory

Overall, the degree of sex differences in mate preferences can be moderated and maintained by environmental factors. For example, men and women in less developed countries have been shown to rate a potential partner's health as more important when compared to men and women in more developed countries (Stone et al., 2008). Furthermore, men and women in less developed countries rated a potential mate's status and resources as more important in comparison to men and women in more developed countries (Stone et al., 2008). Zenter and Mitura (2012) reported that traditional sex differences in mate preferences also diminish as a function of less societal inequality between men and women. Calculating Global Gender Gaps for 31 different nations, Zenter and Mitura reported that sex differences in mate preferences were found to decrease with a smaller gender gap. However, a considerable limitation of social-economic theory is that although men's and women's societal roles may influence their subsequent mate preferences (e.g., Eagly & Wood, 1999),

social-economic theory does adequately explain how these values manifested initially – how did society come to value these traits in the first place?

Of final interest in the social-economic theory is the interaction between gender roles, education and income. Women's greater participation in employment has further contributed to an increase in women's self-reports of masculine characteristics (Fischer & Anderson, 2012). Twenge (1997) reported that there has been a steady increase in women's masculine gender traits, as assessed by the BSRI. This may suggest that in contemporary cultures, gender differences in agentic traits may be decreasing (Gentile et al., 2009). However, this increase in masculinity traits in women has not been associated with an increase in femininity traits in men (Twenge, 1997).

Interestingly, these changes in women's roles have led researchers to believe that women's economic resources may actually be becoming more attractive to men (Kalmijn, 1994). Men potentially compete for economically attractive women in the same way women have competed for economically attractive men (Kalmijn, 1994). With the increase in women occupying work roles, this could potentially lead to an increase in women's income and education. Furthermore, an increase of women occupying work roles has resulted in a decreased difference between men and women's masculine traits. Finally, the increase of women occupying work roles has led to an increase of women's own economic resources being attractive to men.

This leads to the question: What is the combined effect of gender roles (masculine, feminine, androgynous, and undifferentiated), different levels of education, and different levels of income on the preferences men and women exhibit for a mate? Also, is there an interaction among these factors in the expression of mate preferences? These questions are central to this dissertation (presented in the next chapter). An in-depth exploration of social behaviour should always account for both within-sex individual differences (in this case,

gender roles, education and income), as well as overall sex differences (in this case, men and women) (Johannesen-Schmidt & Eagly, 2002).

5.5 Summary of Chapter

This chapter presented social-economic origin theory of sex differences in mate preferences. Specifically, this chapter discussed gender roles and economic constraints. Gender roles are assumed to be related to sex differences in mate preferences, as these sex differences are a product of men and women assuming different social roles in society. Furthermore, the Bem Sex Role Inventory (BSRI) was also introduced, along with the BSRI short-form. The current chapter also discussed that economic constraints are proposed to maintain these sex differences in mate preferences, as each sex attempts to maximise economic resources. As women have historically experienced more economic constraints then men, social-economic theory posits that women attempt to maximise their own economic success by seeking a mate of sufficient status and resources. This has led to the construction of structural powerlessness theory, which maintains that as women's level of SES varies, so too does their desire for a mate's status and resources. A particularly important gap has in previous research was discussed in this chapter, specifically that previous research has not considered the combined effect of gender roles and SES on sex differences in mate preferences. As a result of this gap in previous research, the next chapter will introduce Experiment 2, designed to explore the combined effect of gender roles and SES on how much of a necessity men and women consider the physical attractiveness and social level of a long-term mate.

Chapter Six– Experiment 2 and Experiment 2b

"Take care of the luxuries and the necessities will take care of themselves"

– Dorothy Parker

6.1 Overview of Chapter

This chapter includes a discussion of the results of Experiment 1 in relation to evolutionary and social-economic theory. This discussion focuses on a gap in the empirical research literature, specifically, that the interaction of gender roles and SES has not yet been investigated in relation sex differences in mate preferences. Consideration of this gap in the research literature provides a rationale for Experiment 2, which was designed to assess the main and interactive effects of gender roles and SES on men's and women's perceived necessity of a long-term mate's physical attractiveness and social level. In addition, this chapter outlines the method, results and discussion of Experiment 2. Finally, this chapter includes a discussion of a potential confounding variable relating to Experiment 2 and presents additional analyses (Experiment 2b).

6.2 Discussion of Experiment 1 in Relation to Evolutionary and Social-Economic Theories of Long-Term Mates

Experiment 1 was conducted to establish the replicability of Li and colleagues' (2002) and Li and Kenrick's (2006) studies regarding men's and women's perceived necessity of physical attractiveness and social level of long-term and short-term mates, respectively. The perception of a necessity was determined by calculating percentage of mate dollars spent on a specific trait when mate budgets were constrained (low) compared to percentage of mate dollars spent on a specific trait when budgets less constrained (high). Specifically, if men and women allocated more mate dollars to a characteristic when given a low budget (i.e., a small amount of mate dollars to spend) relative to other characteristics, then this characteristic was considered a necessity.

Li and colleagues (2002) found that when assessing a sample of American university students, men considered physical attractiveness a necessity in a long-term mate, whereas women considered social level a necessity in a long-term mate (i.e., men spent significantly more mate dollars on physical attractiveness when budgets were constrained compared to when budgets were relaxed, and women spent significantly more mate dollars on social level when budgets were constrained compared to when budgets were relaxed). In addition, Li and Kenrick (2006) found that when assessing a sample of American university students, both men and women considered physical attractiveness a necessity in a short-term mate (i.e., both men and women spent significantly more mate dollars on physical attractiveness when budgets were constrained compared to when budgets were relaxed). Furthermore, Li and Kenrick (2006) found that when considering a short-term mate, women did not consider social level a necessity.

The results of Experiment 1 provided partial support for Li and colleagues (2002). Men were found to consider physical attractiveness a necessity in a long-term mate, thus corroborating results of Li and colleagues. Interestingly, women were also found to consider physical attractiveness a necessity in a long-term mate, a result not reported by Li and colleagues (2002). However, women were not found to consider social level a necessity in a long-term relationship, a result inconsistent with Li and colleagues (2002). Experiment 1 also showed that when considering a short-term mate, both men and women considered physical attractiveness a necessity, thus corroborating results of Li and Kenrick (2006).

Experiment 1 also revealed sex differences regarding these necessities. Men, compared to women, spent a significantly higher percentage of mate dollars on both long- and short-term mate's physical attractiveness when budget were constrained. Women, compared to men, spent a significantly higher percentage of mate dollars on a short-term (but not a long-term) mate's social level when budget was constrained.

A potential way to establish underlying biological mechanisms of preferences is to examine the generalisability of sex differences in mate preferences. Specifically, if these sex differences in preferences for the physical attractiveness, status and resources of a potential mate are consistent across cultures, then this provides support for a biological, evolutionary basis of sex differences in mate preferences. Experiment 1 showed that when assessing an Australian sample, men considered physical attractiveness a necessity in a long-term mate, extending the findings beyond the American population. This replication suggests that this result may be stable across (at least Western) cultures. Although this replication extends the findings only so far as an additional Western cultural setting, cross-cultural studies should not be limited to only comparisons of Eastern and Western cultures because there is considerable variance within Western cultures. For example, Sweden is considered one of the world's most egalitarian cultures, and the social structures of the Western Swedish culture are considered to vary from even other Western cultures (Gustavsson et al., 2008).

However, results of Experiment 1 showed that women did not consider the social level of a long-term mate a necessity, a result inconsistent with Li and colleagues (2002). In addition, women did not spend a significantly higher percentage of mate dollars on a long-term mate's social level compared to men. This inconsistency in results may indicate that women's necessity for a long-term mate's social level is much more susceptible to immediate social contexts than predicted by evolutionary theory.

6.3 Limitations of Experiment 1 and Rationale for Experiment 2

Experiment 1 was limited in replicating Li and colleagues' result in relation to women's necessity of a long-term mate's social level, and reasons for this limitation should be considered. If the replication of the finding that men consider the physical attractiveness of a long-term mate a necessity is attributed to shared cultural factors, then a reasonable prediction is that a similar pattern of findings will be shown for women's perceived

necessities. Additionally, according to evolutionary theory, women's higher parental investment should lead them to prioritise the social level of a long-term mate, regardless of cultural (i.e., individualistic or collectivistic) settings (e.g., Trivers, 1972). The failure to replicate women's necessity of a long-term mate's social level could be attributed to: (1), the initial result was sample dependent and unable to be replicated, and (2) alternatively, perhaps Australian women consider the social level of a long-term mate less of a necessity than American women. It is clear further exploration of this result is warranted, and because this result may be dependent on immediate social contexts and variables, it was decided to further explore this result using the factors of social-economic theory.

Social-economic theory (e.g., Lippa, 2007) suggests that culturally dependent social roles and economic constraints influence and maintain sex differences in mate preferences. As results of Experiment 1 indicate that the perceived necessity of social level in a potential mate for women may be culturally dependent, variables of social-economic theory may explain these differences in results. If results show that the elements (e.g., gender roles and SES) of social-economic theory have an effect on the relative characteristics men and women consider a necessity in a mate, this will provide further support for a social-economic origin theory of sex differences in mate preferences. In addition, it is of further interest to examine any potential interactive elements of social-economic and evolutionary theory, as the two theories should not be considered mutually exclusive (e.g., Eagly & Wood, 1999).

In sum, results of Experiment 1 suggested that sex differences in mate preferences appear to be a product of both evolutionary and social-economic factors. To date, research has only considered social role theory and economic constraints independently. For example, research has examined the relationship between gender roles and mate preferences (e.g., Eastwick et al., 2006) and the relationship between SES and mate preferences (Moore & Cassidy, 2007); however the interactive effect of these variables on mate preferences remains

unknown. Gravetter and Wallnau (2013) suggested that research should endeavour to examine relationships between variables, rather than consider variables independently, as two variables rarely exist in isolation. Considering gender roles and SES are the two predominant variables of interest within social-economic theory, research on origin theories of sex differences in mate preferences remains limited without investigations into the interaction between these variables.

6.4 Aim and Hypotheses

The aim of the current study was to examine, for the first time, the combined effects of an individual's gender role and socioeconomic status on characteristics considered a necessity in a *long-term mate*. Specifically, Experiment 2 sought to establish the main and interactive effects of gender roles and SES on the relative necessity men and women attribute to a long-term mate's physical attractiveness and social level. A finding of no interaction between these two elements may imply these factors make an independent contribution to the sex differences in mate preferences. In addition, possible interactive effects between gender roles and SES may reveal additional information about the relative contribution of evolutionary and social-economic processes on sex differences in mate preferences. Based on previous research of gender role and sex differences in mate preferences (e.g., Eastwick et al., 2009) and variations in SES and mate preferences (Buss & Barnes, 1986; Khallad, 2005) the following hypotheses were generated:

1. Men of a traditional masculine gender role will spend significantly more mate dollars on physical attractiveness when budgets are constrained compared to men of a non-traditional gender role (feminine, androgynous, undifferentiated)
2. Men of a feminine gender role will spend significantly more mate dollars on social level when budgets are constrained compared to men of other gender roles (masculine, androgynous, undifferentiated)

3. Women of a traditional feminine gender role will spend significantly more mate dollars on social level when budgets are constrained compared to women of a non-traditional gender role (feminine, androgynous, undifferentiated)
4. Women of a masculine gender role will spend significantly more mate dollars on physical attractiveness when budgets are constrained compared to men of other gender roles (feminine, androgynous, undifferentiated)
5. Based on the structural powerlessness theory (See Chapter 4), variation in men's SES will not have an effect on the percentage of mate dollars spent on a long-term mate's physical attractiveness or social level necessity scores when budgets are constrained[2]
6. Based on the structural powerlessness theory, variation in women's SES will have an effect on the percentage of mate dollars spent on a long-term mate's physical attractiveness and social level necessity scores when budgets are constrained

6.5 Method

6.5.1 Participants

Participants (N = 854) included 284 men and 570 women with a mean age of 21.83 years (SD = 3.36). Four hundred and nine participants indicated their current relationship status as single, 145 were currently dating, 255 were currently in a long-term relationship, 41 were married, and 4 were separated/divorced. Regarding sexual orientation, 748 participants identified as heterosexual, 46 identified as homosexual, 55 identified as bisexual, and 4 identified as other.

Regarding participants' current education status, 509 were currently enrolled as a university undergraduate student, 51 were currently enrolled as a TAFE (i.e., vocational) student, 155 were currently enrolled as a university postgraduate student, and 138 were not currently studying, with one participant not supplying information.

[6] It is acknowledged that problems exist when testing a null hypothesis, such as testing a non-significant effect (e.g., Nickerson, 2000). However, for this research the theory predicts no effect. Additionally, because a non-significant effect does not imply an absence of any effect, effect sizes will also be reported.

For highest education level attained, 4 participants had completed primary school, 442 participants had completed high school, 75 participants had completed a certificate I-IV, 58 participants had completed a diploma, 225 participants had completed a university undergraduate degree, and 50 participants had completed a university postgraduate degree.

Highest education level attained was operationalised as a categorical variable with the levels of low and high, based on previous research of March and Bramwell (2012). For participants who had attained primary school or high school education, this was operationalised as low education attained. For participants who had attained a certificate I-IV or a diploma, this was operationalised as medium education attained. For participants who had attained an undergraduate degree or postgraduate degree, this was operationalised as high education attained. Therefore, of the participants, 446 met criteria for low education attained, 134 met criteria for medium education attained, and 274 met criteria for high education attained.

Low, medium and high income brackets were determined by the Australian Bureau of Statistics 2005 – 2006 Household Income and Income Distribution. Of the participants, 540 (63.2%) reported their weekly gross income in the low bracket of $0 - $335, 260 (30.4%) reported their weekly gross income in the medium bracket of $336 - $990, and 54 (6.3%) reported their weekly gross income in the high bracket of $990+.

6.5.1.1. Categorisation of SES. Based on March and Bramwell (2012), participants were categorised into two levels of socio-economic status (SES; Low and high). High SES was categorised as high education achieved or high weekly income, regardless of current employment (e.g., March & Bramwell, 2012). Individuals with low level of educational attainment or low weekly income were categorised as low SES. If individuals were currently employed, with either medium education or medium income, they were categorised as high SES. However, if individuals had medium education or medium income but were not

currently employed, they were categorised as low SES. Based on this classification system, 379 (44.38%) of participants were classified as low SES and 475 (55.62%) participants were classified as high SES.

6.5.2 Materials

In line with the methodology of Experiment 1, materials were presented in an online questionnaire. As well as including a demographics section and the mate budget paradigm (Appendix A), materials for Experiment 2 included the Bem Sex Role Inventory short-form (BSRI short-form; Choi et al., 2009) (Appendix F).

6.5.2.1 Demographics. Demographic data was collected using the same questions as Experiment 1 (i.e., participant age, biological sex, sexual orientation, current romantic relationship status, the duration of the relationship (if not single), current employment, weekly gross income bracket, current education status (university undergraduate, university postgraduate, not applicable), and the highest level of education attained).

6.5.2.2 BSRI short-form (Choi et al., 2009). As the PAQ, unlike the BSRI, has not been employed to assess androgyny and undifferentiated gender roles, the BSRI (short-form) was used to assess gender roles. For the BSRI short-form, participants were asked to indicate the degree to which the statement personally reflected them by circling a number on a 7-point Likert scale (1 =*Always or almost always untrue*, 7=*Always or almost always true*). The scale consists of 20 statements, 10 considered to be masculine and 10 considered to be feminine. The statements considered to be masculine are: Defend own beliefs, independent, assertive, strong personality, forceful, has leadership abilities, willing to take risks, dominant, willing to take a stand, and aggressive. The statements considered to be feminine are: sensitive, affectionate, sympathetic, understanding, compassionate, eager to soothe hurt feelings, warm, tender, loves children, and gentle.

The original BSRI (Bem, 1974) reported high internal consistency (masculinity scale Cronbach's alpha = .86; femininity scale Cronbach's alpha = .82) and test retest reliability (masculinity test retest reliability *r* = .90; femininity test retest reliability *r* = .90). Previous validation studies of the BSRI short-form have also reported high internal consistency for the masculinity and femininity scales (Cronbach's alpha = .84 and .92, respectively) (Choi et al., 2009). For the current study, internal consistency measures of the BSRI short form masculinity and femininity scales remained high (Cronbach's alpha = .87 and .96, respectively).

6.5.2.2.1 Coding of gender roles. To categorise an individual's dominant gender role, a median split was created for both the masculinity and femininity scale. Individuals high on masculinity and low on femininity are considered to have a masculine gender role, individuals high on femininity and low on masculinity are considered to have a feminine gender role, individuals high on femininity and high on masculinity are considered to have an androgynous gender role, and individuals low on masculinity and low on femininity are considered to have an undifferentiated gender role (Lippa, 2007; Ziegler &Dusek, 1985). In the current study, 162 (19.0%) participants scored high on masculinity (above the median split) and low on femininity (equal to and below median split), 162 participants scored high on femininity (above the median split) and low on masculinity (equal to and below median split), 273 participants scored high on masculinity (above the median split) and high on femininity (above the median split), and 250 participants scored low on masculinity (equal to and below the median split) and low on femininity (equal to and below the median split). As a result of missing data, seven participants were not categorised into gender roles.

6.5.2.3 Mate budget paradigm (long-term). The mate budget paradigm, as used in Experiment 1, was also employed in Experiment 2. The mate budget paradigm has three sections: introduction, low budget and high budget. The low budget contains 20 mate dollars,

and the high budget contains 60 mate dollars. For Experiment 2, participants were required to consider the necessity of these characteristics in a long-term mate. For the current study, low and high budget presentation was counterbalanced. The counterbalanced condition (high then low presentation) was presented to 432 of the participants, whereas 422 of participants received the low then high presentation.

6.5.3 Design

The design of Experiment 2 was mixed-design, with mate budget (within-subjects; 2 levels: Low and high), sex of participants (between-subjects; 2 levels: Men and women), gender role (between-subjects; 4 levels: Masculine, feminine, androgynous, and undifferentiated), SES (between-subjects; 2 levels: Low and high) as the independent variables. The dependent variables were percentage of budget spent on each characteristic (physical attractiveness and social level).

6.5.4 Procedure

Participants were recruited from the Australian Catholic University Brisbane Campus and the general community. Participants were contacted during class time and through social media, including Facebook and Twitter. Participants were informed this study was voluntary and anonymous and would take approximately 20 – 30 minutes of their time (Information letter and consent forms are presented in Appendix C). Participants were given the online address to access the study. As participants were asked to access the questionnaire anonymously and in their own time, there was no way to ascertain the number of participants who declined to participate in the study. The questionnaire was completed using a secure data collection website (www.surveymonkey.com). Participants who were undergraduate students of the Australian Catholic University School of Psychology were offered credit towards their course work by participating in the research.

6.6 Results

6.6.1 Data Screening

Missing value analyses were conducted on physical attractiveness and social level dependent variables at each level of each independent variable (sex, SES and gender roles). No missing cases amounted to more than 5% regarding each variable. Normality and univariate outliers were extensively screened (Appendix F). Removing univariate outliers for the most case improved the violations of normality. Furthermore, as the *F* test is considered somewhat robust to violations of normality (Keppel & Wickens, 2004), the violations of normality after removal of outliers were considered minor. However, inferential statistics were run with and without inclusion of the univariate outliers, and as results of analyses did not change univariate outliers were retained.

6.6.2 Inferential Statistics

6.6.2.1 Long-term mates, necessities and luxuries. The long-term mate data from Experiment 1 was used for Experiment 2, which meant that necessities had already been established. However, Table 6.1 represents the percentage of mate dollars spent on the characteristics of physical attractiveness and social level, as these are the mate characteristics of interest in Experiment 2.

Table 6.1

Percentage (out of 100%) of Budget Spent on Long-Term Mate Characteristics in Low Budget Compared to High Budget

	Men			Women		
	Low	High	Difference	Low	High	Difference
Long-term						
Physical Attractiveness	27.59%	22.61%	4.98***	21.41%	20.00%	1.41***
Social Level	15.78%	17.37%	-1.60***	16.42%	18.98%	-2.56***

* $p <$ .05, ** $p <$ .01, *** $p <$ .001

As shown above, men considered physical attractiveness a necessity in a long-term mate, and social level a luxury. For women, physical attractiveness was also considered a necessity in a long-term mate, and social level a luxury.

6.6.2.2 Percentage of dollars spent on physical attractiveness. A 2x2x2x4 mixed models ANOVA was conducted, with sex (2 levels: Men and women), SES (2 levels: Low and high) and gender role (4 levels: Masculine, feminine, androgynous and undifferentiated) as the between subjects variables and budget (2 levels: Low and high) as the within subjects variable. The dependent variable was percentage of budget spent on physical attractiveness. Table 6.2 includes descriptive statistics, showing that men of low SES and a masculine gender role spent a high percentage of their low budget on physical attractiveness, and men of high SES and a feminine gender role spent a high percentage of their low budget on physical attractiveness. Means and standard errors are depicted graphically in Figure 6.1.

Table 6.2

Men's and Women's Mean (and Standard Deviations) Percentage of Budget Spent on a Long-Term Mate's Physical Attractiveness by Budget, SES and Gender Role

	Low Budget						High Budget					
	SES						SES					
Gender Role	Low	*n*	High	*N*	Total	N	Low	*n*	High	*n*	Total	N
Men												
Masc.	34.71 (24.20)	22	28.46 (10.32)	44	30.54 (16.38)	66	23.90 (5.99)	22	22.84 (5.82)	44	23.19 (5.85)	66
Femi.	24.38 (11.10)	19	31.68 (21.46)	19	28.03 (17.25)	38	21.81 (4.10)	19	21.40 (7.56)	19	21.61 (6.00)	38
Andro.	24.28 (9.28)	28	25.45 (14.52)	46	25.00 (12.73)	74	22.48 (5.31)	28	22.86 (7.05)	46	22.71 (6.41)	74
Undiff.	26.43 (12.28)	47	28.72 (13.85)	55	27.66 (13.14)	102	21.29 (6.58)	47	23.82 (5.36)	55	22.65 (6.05)	102
Total	27.15 (14.87)	116	28.07 (14.30)	164	27.69 (14.52)	280	22.16 (5.83)	116	23.00 (6.25)	164	22.65 (6.08)	280
Women												
Masc.	21.17 (9.58)	34	23.96 (10.73)	64	22.99 (10.38)	98	21.49 (4.68)	34	22.10 (5.15)	64	21.89 (4.98)	98

(table continues)

	Low Budget						High Budget					
	SES						SES					
Gender Role	Low	*n*	High	*n*	Total	N	Low	*n*	High	*n*	Total	N
Femi.	19.50 (10.12)	57	21.55 (11.41)	67	20.61 (10.84)	124	19.44 (4.59)	57	19.47 (5.90)	67	19.46 (5.32)	124
Andro.	21.75 (11.25)	95	19.17 (9.35)	101	20.42 (10.37)	196	19.64 (4.12)	95	19.73 (5.31)	101	19.69 (4.76)	196
Undiff.	21.03 (8.87)	73	23.78 (12.75)	73	22.40 (10.37)	146	19.47 (5.64)	73	19.86 (4.91)	73	19.67 (5.27)	146
Total	20.98 (10.14)	259	21.80 (11.12)	305	21.42 (10.68)	564	19.79 (4.79)	259	20.20 (5.39)	305	20.01 (5.12)	564

Note: Masc. = Masculine, Femi. = Feminine, Andro. = Androgynous, Undiff. = Undifferentiated

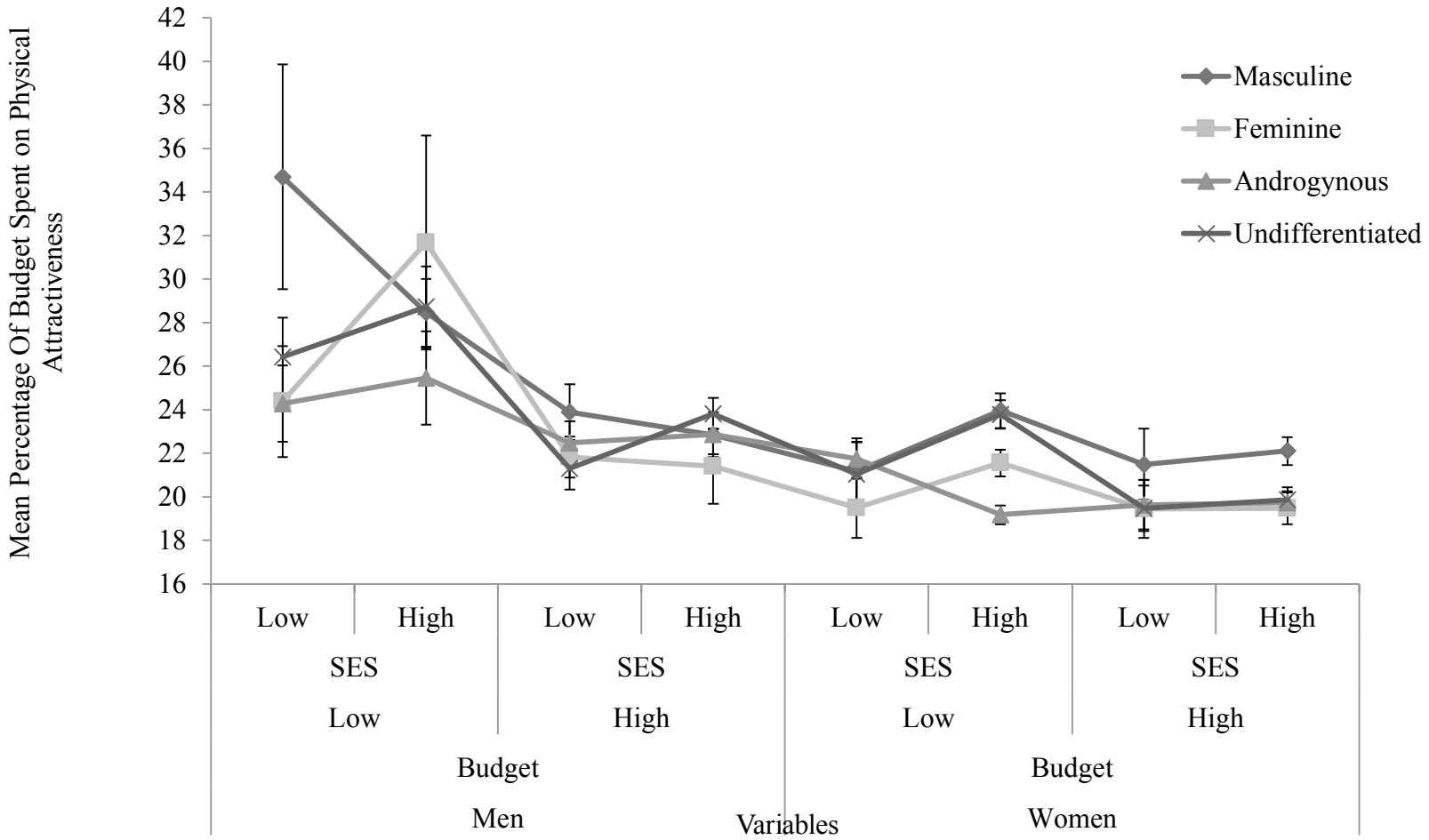

Figure 6.1. Men's and women's mean percentage of budget spent on a long-term mate's physical attractiveness by budget (low and high), SES (low and high) and gender role (masculine, feminine, androgynous and undifferentiated). Errors bars represent standard error. Y axis starts at 16% to differentiate error bars.

Regarding main effects, results showed a main effect of sex, $F(1,828) = 52.43$, $p = .001$, with a medium effect size of $\eta p^2 = .06$. There was no main effect of SES, $F(1, 828) = 1.50$, $p = .221$, with a small effect size of $\eta p^2 = .01$. There was a significant main effect of gender role, $F(3, 828) = 4.09$, $p = .007$, with a small effect size of $\eta p^2 = .02$. There was a significant main effect of budget, $F(1,828) = 74.06$, $p = .001$, with a medium effect size of $\eta p^2 = .08$.

Regarding interactions, there was no significant interaction between sex and SES, $F(1, 828) = .00$, $p = .983$, with a small effect size of $\eta p^2 = .01$. There was no significant interaction between sex and gender role, $F(3,828) = .36$, $p = .781$, with a small effect size of $\eta p^2 = .01$. There was no significant interaction between SES and gender role, $F(3, 828) = 1.69$, $p = .168$, with a small effect size of $\eta p^2 = .01$. Finally, there was no significant interaction between sex, SES and gender role, $F(3, 828) = 1.93$, $p = .123$, with a small effect size of $\eta p^2 = .01$.

There was a significant interaction between budget and sex, $F(1, 828) = 27.25$, $p = .001$, with a small effect size of $\eta p^2 = .03$. There was no significant interaction between budget and SES, $F(1, 828) = 1.21$, $p = .271$, with a small effect size of $\eta p^2 = .01$. There was a significant interaction between budget and gender role, $F(3, 828) = 3.24$, $p = .022$, with a small effect size of $\eta p^2 = .01$. There was no significant three-way interaction between budget, sex and SES, $F(1, 828) = .02$, $p = .899$, with a small effect size of $\eta p^2 = .01$. There was however a significant three-way interaction between budget, sex and gender role, $F(3, 828) = 3.17$, $p = .024$, with a small effect size of $\eta p^2 = .01$. There was also a significant three-way interaction between budget, SES and gender role, $F(3, 828) = 2.71$, $p = .044$, , with a small effect size of $\eta p^2 = .01$. Finally, there was a significant four way interaction between budget, sex, SES and gender role, $F(3, 828) = 3.18$, $p = .023$, with a small effect size of $\eta p^2 = .01$.

Post-hoc analyses with a Bonferroni adjustment to account for familywise error showed men had a significantly higher percentage of dollars spent on physical attractiveness compared to women, $p = .001$. Regarding gender roles, those of a masculine gender role had a significantly higher percentage of dollars spent on physical attractiveness compared to those of an androgynous gender role, $p = .004$. No other comparisons for gender roles were statistically significant. For budget, when in the low budget participants spent a significantly higher percentage of dollars on physical attractiveness than when in the high budget, $p = .001$.

Regarding the interaction of budget and sex, post-hoc analyses with a Bonferroni correction showed men in the low budget and the high budget spent a significantly higher percentage of dollars on physical attractiveness compared to women in the low budget and the high budget, $p = .001$, and .001, respectively. Regarding the interaction of budget and gender, those in the low budget and a masculine gender role spent a significantly higher percentage of dollars on physical attractiveness compared to those in the low budget and an androgynous gender role, $p = .005$. For the interaction of budget, sex and gender, men in the low budget and of a masculine gender role spent a significantly higher percentage of dollars on physical attractiveness compared to men in the low budget and of an androgynous gender role, $p = .010$. In addition, women in the high budget and of a masculine gender role spent a significantly higher percentage of dollars on physical attractiveness compared to women in the high budget and of a feminine, androgynous and undifferentiated gender role, $p = .012$, .015, and .022, respectively.

Regarding the interaction of budget, SES and gender, individuals in the low budget of a feminine gender role and a high SES spent a significantly higher percentage of dollars on physical attractiveness compared to individuals in the low budget and of a feminine gender role and a low SES, $p = .036$. In addition, individuals in the high budget and of an

undifferentiated gender role and high SES spent a significantly higher percentage of dollars on physical attractiveness compared to individuals in the high budget and of an undifferentiated gender role and a low SES, $p = .038$.

Finally, for the four-way interaction of budget, sex, SES and gender, men in the low budget of a low SES and a masculine gender role spent a significantly higher percentage of dollars on physical attractiveness compared to men in the low budget and a feminine, androgynous and undifferentiated gender role, $p = .037$, .014, and .046, respectively. Finally, women in the high budget and of a high SES and a masculine gender role spent a significantly higher percentage of dollars on physical attractiveness compared to women in the high budget and of a high SES and a feminine and androgynous gender role, $p = .035$, and .039, respectively.

6.6.2.3 Percentage of dollars spent on social level. A 2x2x2x4 mixed models ANOVA was run, with sex (2 levels: Men and women), SES (2 levels: Low and high) and gender role (4 levels: Masculine, feminine, androgynous and undifferentiated) as the between subjects variables and budget (2 levels: Low and high) as the within subjects variable. The dependent variable was percentage of budget spent on social level. See Table 6.3 for descriptive statistics, such as women of low SES and a feminine gender role spending a low percentage of their low budget on social level. Means and standard errors are depicted graphically in Figure 6.2.

Table 6.3

Men's and Women's Mean (and Standard Deviations) Percentage of Budget Spent on a Long-Term Mate's Social Level by Budget, SES and Gender Role

	Low Budget						High Budget					
	SES						SES					
Gender Role	Low	*n*	High	*n*	Total	N	Low	*n*	High	*n*	Total	N
Men												
Masc.	16.80 (9.81)	22	16.77 (9.90)	44	16.78 (9.80)	66	17.75 (6.71)	22	18.87 (7.07)	44	18.50 (6.92)	66
Femi.	15.96 (6.97)	19	14.84 (9.60)	19	15.40 (8.29)	38	17.76 (3.31)	19	17.19 (7.05)	19	17.48 (5.44)	38
Andro.	16.24 (7.13)	28	14.91 (10.00)	46	15.41 (8.99)	74	18.06 (6.02)	28	15.14 (7.16)	46	16.25 (6.86)	74
Undiff.	15.56 (8.27)	47	15.92 (11.87)	55	15.75 (10.32)	102	17.60 (5.29)	47	17.60 (8.56)	55	17.60 (7.20)	102
Total	16.03 (8.04)	116	15.74 (10.53)	164	15.86 (9.57)	280	17.77 (5.45)	116	17.21 (7.69)	164	17.44 (6.84)	280
Women												
Masc.	16.27 (7.76)	34	17.51 (10.85)	64	17.08 (9.86)	98	18.25 (5.30)	34	20.44 (5.87)	64	19.68 (5.74)	98

(table continues)

	Low Budget						High Budget					
	SES						SES					
Gender Role	Low	*n*	High	*n*	Total	N	Low	*n*	High	*n*	Total	N
Femi.	13.37 (9.06)	57	15.22 (11.20)	67	14.37 (10.27)	124	17.12 (4.98)	57	18.17 (5.57)	67	17.69 (5.31)	124
Andro.	17.02 (8.85)	95	17.05 (9.78)	101	17.04 (9.32)	196	20.18 (4.79)	95	18.30 (6.72)	101	19.21 (5.93)	196
Undiff.	17.13 (9.00)	73	16.80 (10.77)	73	16.97 (6.90)	146	18.62 (5.90)	73	19.93 (5.93)	73	19.28 (5.93)	146
Total	16.15 (8.89)	259	16.69 (10.55)	305	16.44 (9.81)	564	18.81 (5.33)	259	19.11 (6.17)	305	18.97 (5.79)	564

Note: Masc. = Masculine, Femi. = Feminine, Andro. = Androgynous, Undiff. = Undifferentiated

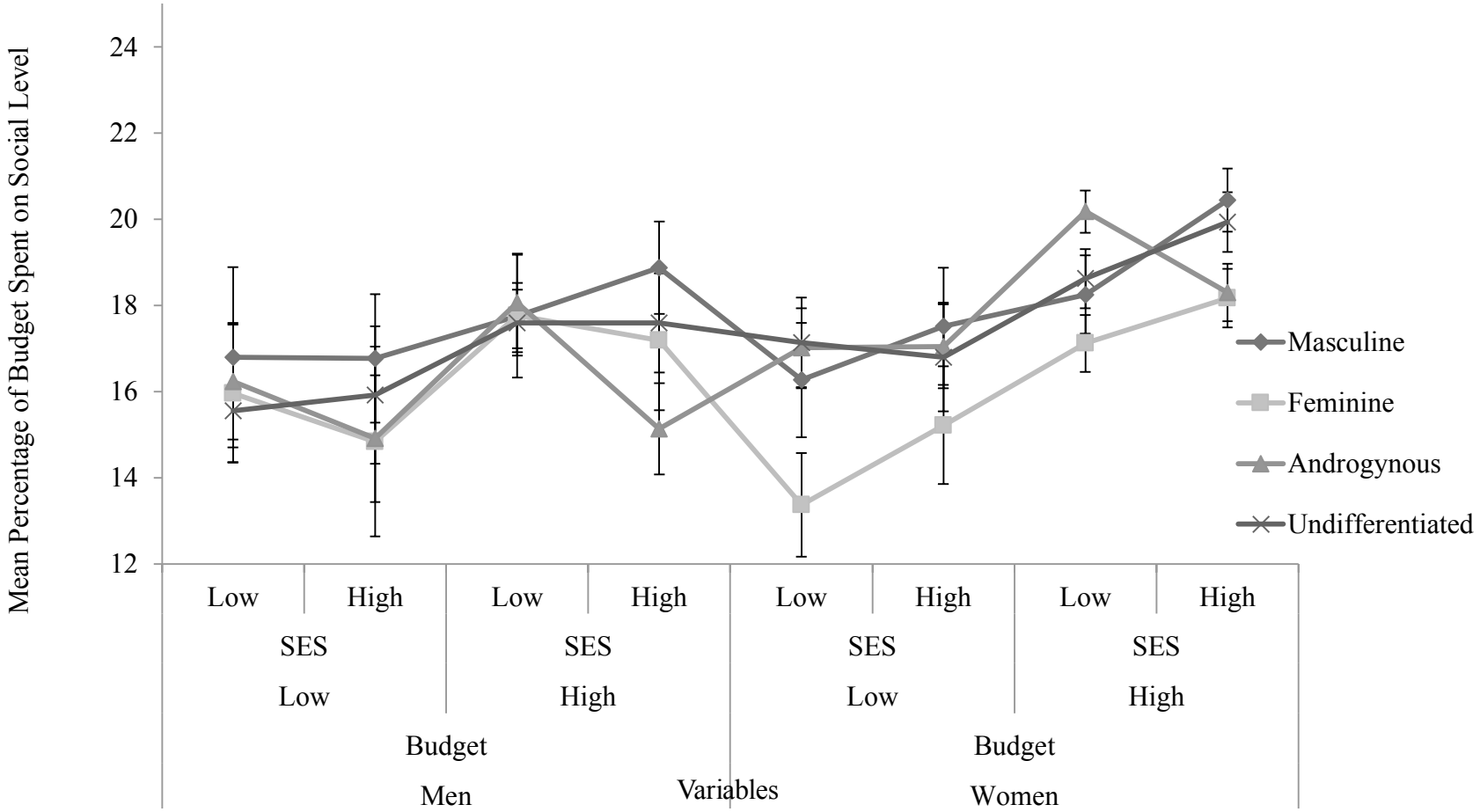

Figure 6.2. Men's and women's mean percentage of budget spent on a long-term mate's social level by budget (low and high), SES (low and high) and gender role (masculine, feminine, androgynous and undifferentiated). Errors bars represent standard error. Y axis starts at 12% to differentiate error bars.

Regarding main effects, results showed no main effect of sex, $F(1,828) = 2.68$, $p = .102$, with a small effect size of $\eta p^2 = .01$. There was no main effect of SES, $F(1, 828) = .01$, $p = .912$, with a small effect size of $\eta p^2 = .01$. There was no significant main effect of gender role, $F(3, 828) = 1.24$, $p = .293$, with a small effect size of $\eta p^2 = .01$. There was a significant main effect of budget, $F(1,828) = 41.35$, $p = .001$, with a small to medium effect size of $\eta p^2 = .05$.

Regarding interactions, there was no significant interaction between sex and SES, $F(1, 828) = 1.28$, $p = .259$, with a small effect size of $\eta p^2 = .01$. There was no significant interaction between sex and gender role, $F(3,828) = .92$, $p = .431$, with a small effect size of $\eta p^2 = .01$. There was no significant interaction between SES and gender role, $F(3, 828) = 1.78$, $p = .317$, with a small effect size of $\eta p^2 = .01$. Finally, there was no significant interaction between sex, SES and gender role, $F(3, 828) = .13$, $p = .939$, with a small effect size of $\eta p^2 = .01$.

There was no significant interaction between budget and sex, $F(1, 828) = 2.15$, $p = .143$, with a small effect size of $\eta p^2 = .01$. There was no significant interaction between budget and SES, $F(1, 828) = .01$, $p = .946$, with a small effect size of $\eta p^2 = .01$. There was no significant interaction between budget and gender role, $F(3, 828) = .44$, $p = .728$, with a small effect size of $\eta p^2 = .01$. There was no significant three-way interaction between budget, sex and SES, $F(1, 828) = .00$, $p = .979$, with a small effect size of $\eta p^2 = .00$.

There was no significant three-way interaction between budget, sex and gender role, $F(3, 828) = .10$, $p = .962$, with a small effect size of $\eta p^2 = .01$. There was no significant three-way interaction between budget, SES and gender role, $F(3, 828) = 1.06$, $p = .366$, with a small effect size of $\eta p^2 = .01$. Finally, there was no significant four way interaction between budget, sex, SES and gender, $F(3, 828) = .34$, $p = .800$, with a small effect size of $\eta p^2 = .01$.

Post-hoc analyses with a Bonferroni adjustment to account for familywise error showed individuals in the high budget spent a significantly higher percentage of dollars spent on social level compared to individuals in the low budget, $p = .001$.

6.7 Discussion

The aim of Experiment 2 was to establish the independent (main) and interactive effects of gender roles and SES on the percentage of mate budgets men and women allocated to a *long-term mate's* physical attractiveness and social level when budgets were constrained. It was predicted that men of a traditional masculine gender role would spend significantly more mate dollars on physical attractiveness when budgets are constrained compared to men of a non-traditional gender role (feminine, androgynous, undifferentiated). This was partially supported by results; men of a masculine gender role spent significantly more mate dollars on physical attractiveness in the low budget compared to men of an androgynous gender role, however no other comparisons were significant. This result partially corroborates Eastwick and colleagues' findings (2006), which showed that in a nine nation sample of 3682 participants from Germany, Italy, Mexico, Singapore, Spain, Syria, Taiwan, Turkey, and the United States, the extent to which participants had a traditional gender role ideology was positively associated with greater sex typing of mate preferences. However, in the current study the difference was only between a masculine gender role and an androgynous gender role. This suggests that men express greater traditional mate preferences when self-reporting a gender role high on masculine traits, in comparison to reporting a gender role high on both masculine and feminine traits. Additionally, it was predicted that men of a feminine gender role would spend significantly more mate dollars on social level when budgets were constrained compared to men of other gender roles (masculine, androgynous, undifferentiated). Results did not support this hypothesis, as there was no effect of gender roles on percentage of budget spent on social level when budgets were constrained. This

suggests that gender roles, alone and in interaction with sex of participant, have limited influence on necessity of a long-term mate's social level. It is of interest that men's gender role was found to influence the percentage of low budget spent on physical attractiveness, but not percentage of low budget spent on social level. Perhaps the effect is only seen when considering traditional sex differences in mate preferences (e.g., men desiring physical attractiveness, women desiring status and resources). As such, we posit gender roles only influence men's perceived necessity of a potential long-term mate's characteristics when they are considering physical attractiveness.

Additionally, it was predicted that women of a traditional feminine gender role would spend significantly more mate dollars on social level when budgets are constrained compared to women of a non-traditional gender role (feminine, androgynous, undifferentiated). This hypothesis was not supported, as results showed no main effect (or interaction with sex) of gender roles on percentage of budget spent on social level when budgets were constrained. This result does not corroborate previous research (e.g., Eastwick et al., 2006) where traditional gender role ascription has been associated with traditional sex differences in mate preferences. Combined with the results mentioned above, it is interesting that a traditional gender role for men (i.e., masculinity) was found to effect percentage of dollars spent on physical attractiveness when budgets were constrained, whereas a traditional gender role for women (i.e., femininity) was not found to effect percentage of dollars spent on social level when budgets were constrained. Evidently, traditional gender roles appear to only influence the characteristics men are expected to consider a necessity in a long-term mate, and not the characteristics women are expected to consider a necessity in a long-term mate.

It was also predicted that women of a masculine gender role would spend significantly more mate dollars on physical attractiveness when budgets are constrained compared to women of other gender roles (feminine, androgynous, undifferentiated). Results did not

support this prediction; however, results did show that women of a masculine gender role spent significantly more mate dollars on physical attractiveness when budgets were high, compared to women of a feminine and androgynous gender role. Interestingly, as stated above, men of a masculine gender role spent significantly more mate dollars in the low budget on physical attractiveness compared to men of feminine, androgynous and undifferentiated gender roles. It appears men of a masculine gender role spend more mate dollars when budgets are constrained compared to men of other gender roles, whereas women of a masculine gender role spend more mate dollars when budgets are unconstrained compared to women of other gender roles (specifically feminine and androgynous). As constrained budgets are expected to reveal necessities and unconstrained budgets are expected to reveal luxuries (e.g., Li et al., 2002), it is unclear why a masculine gender role was associated with a perception of necessity of a potential mate's physical attractiveness for men, and perceived luxury of a mate's physical attractiveness for women. Perhaps, a traditional masculine gender role alone (regardless of biological sex) does not influence the perceived necessity of a long-term mate's physical attractiveness. This result suggests that while Eastwick and colleagues (2006) found that traditional gender roles were associated with traditional sex differences in mate preferences, the current study extends this result by suggesting that when analysing the *necessity* of mate characteristics, traditional gender roles must be paired with the traditional biological sex.

It was also predicted that, based on the structural powerlessness theory (as outlined in Chapter Five), variation in men's SES would not have an effect on the percentage of mate dollars they would spend on a long-term mate's physical attractiveness or social level necessity scores when budgets were constrained (i.e., necessities). As there was no independent effect of SES on the percentage of men's low budget spent on physical attractiveness or social level, results supported this prediction. As men have not historically

experienced the same constraints as women have on their ability to provide for themselves and their offspring independently (Moore & Cassidy, 2007), variation in SES is not considered to influence their mate preferences. Results of the current study support the idea that men, not being bound by the same economic restrictions as women, are able to focus their initial search on physical attractiveness, and that their personal SES does not appear to influence whether they consider a long-term mate's physical attractiveness and social level a necessity.

It was also predicted that, based on the structural powerlessness theory, varying levels of women's SES would have an effect on long-term mate's physical attractiveness and social level necessity scores. However, as there was no independent effect of SES on the percentage women spent of their low budget on a long-term mate's physical attractiveness and social level, results did not support this prediction. This result does not support the findings of Moore and colleagues (2010), who found that as women's level of financial independence and power increases, their preferences for physical attractiveness of a mate increases. Growing evidence has suggested that women's status is related to their mate preferences, and an increase in women's SES leads to increased physical attractiveness scores (March & Bramwell, 2012; Moore & Cassidy, 2007). However, the current study found no effect of women's SES on their physical attractiveness necessity scores. The reason for this could actually be very simple: Women's varying levels of SES might be associated with increased preference for a mate's physical attractiveness (i.e., March & Bramwell, 2012; Moore & Cassidy, 2007), however, women's varying levels of SES may have no effect on whether they consider a long-term mate's physical attractiveness a *necessity*. Results of the current study also do not support additional research that has reported positive relationships between a woman's income and her preference for a mate's status and resources (e.g., Moore et al., 2006). For example, Eagly and Wood (1999) state that women with a high level of income

may seek partners with similar levels of wealth. Results of the current study do not support these findings either. Results of the current study support Weiderman and Allgeier (1992), who found no relationship between women's income and emphasis placed on a potential mate's ability to provide. However, these results should be considered in conjunction with results of Experiment 1. Specifically, Experiment 1 found that women did not consider social level a necessity in a long-term mate. Thus, a possible conclusion is that because the current study entailed an investigation of necessities only, and women did not consider social level a necessity, the effects of variation of SES was not evident.

6.7.1 Additional Considerations

Some additional results, beyond the scope of the research questions, are worthy of comment. Although there were significant two-way and three-way interactions when considering amount of budget spent on physical attractiveness, these significant results were replicated in the significant four-way interaction. Therefore, only the four-way interaction will be unpacked. The significant four-way interaction showed that men in the low budget and of a low SES and a masculine gender role spent a significantly higher percentage of mate dollars on physical attractiveness compared to men in the low budget of a low SES and a feminine, androgynous or undifferentiated gender role. This result presents an effect that has not yet been shown in research on sex differences in mate preferences; SES and gender roles can interact to have an effect on mate preferences. Specifically, as this effect was also located in the low budget, these variables apparently interact when men are considering the necessity of a potential long-term mate's physical attractiveness. It appears that for men, a low SES (i.e., unemployment, income, education attained) combined with a traditional gender role (i.e., masculinity) leads them to consider the physical attractiveness of a long-term mate significantly more of a necessity than men of a low SES and a non-traditional gender role (i.e., femininity, androgyny, undifferentiated). Of interest is why low SES, when paired with

a traditional gender role, would have an effect if a long-term mate's physical attractiveness is considered a necessity. Although a masculine gender role has shown to be associated with traditional mate preferences (e.g., Eastwick et al., 2006), a low SES for men is not predicted to have any effect on mate preferences. It is possible that the variable of low SES was also a potential, but unassessed, moderator in previous research assessing relations between men's gender roles and mate preferences. The current study has extended previous results, showing that a traditional gender role can also effect men's necessity of a long-term mate's physical attractiveness (as compared to non-traditional gender roles), especially when combined with lower levels of income, education attained and even employment.

The additional significant four-way interaction showed that women in the high budget (i.e., where luxuries are indicated), of high SES and a masculine gender role spent significantly more mate dollars on a long-term mate's physical attractiveness compared to women in the high budget, of high SES and a feminine or androgynous gender role. Firstly, it is interesting that this effect was located in the high budget. If gender roles, rather than biological sex, influenced mate preferences alone, then a traditional masculine gender role would have an effect on the percentage of budget spent in the low budget condition (e.g., where necessities are shown). However, for women, we find this effect in the high budget where, according to Li et al. (2002), luxuries are found. Therefore, a masculine gender role appears to have an effect on how much of a necessity men consider a long-term mate's physical attractiveness, and how much of a luxury women consider a long-term mate's physical attractiveness. In further comparison with men, where results showed a masculine gender role combined with a low SES influenced the extent they considered a long-term mate's physical attractiveness a necessity, results of women showed it was a masculine gender role combined with a *high* SES which had an effect on whether they considered a long-term mate's physical attractiveness a luxury. This association between SES and

women's preference for a mate's physical attractiveness has been shown before, as previous research has found an increase in women's SES leads to increased physical attractiveness scores (March & Bramwell, 2012; Moore & Cassidy, 2007). We posit that the results of the current study both corroborate and extend previous research by showing women's SES does have an effect on physical attractiveness scores; however, women continue to consider the physical attractiveness of a long-term mate a luxury, rather than a necessity. In sum, variation in SES combined and traditional gender roles do not lead to women considering the physical attractiveness of a long-term mate a necessity. Even when a masculine gender role is paired with high SES, women continue to consider the characteristic of physical attractiveness a luxury.

6.7.2 Discussion of Experiment 2 in Relation to Evolutionary and Social-Economic Theories

To reiterate, results of Experiment 1 showed men considering a long-term mate's physical attractiveness a necessity was able to be replicated in an additional Western cultural setting, suggesting this preference may have a biological basis, and therefore may be best explained by an evolutionary framework. However, if men's gender role or SES was to have an effect on men's physical attractiveness necessity scores, this would suggest that social elements may also have an effect on men's mate preferences. Furthermore, results of Experiment 1 showed women did not consider social level a necessity, suggesting that this result was unable to be replicated. As such, this result indicates women considering a long-term mate's social level a necessity may be better explained by cultural factors compared to biological factors. In an attempt to explore these cultural factors, Experiment 2 explored variables of social-economic theory (main and interactive effects of gender roles and SES) to test the effect these variables had on men's and women's mate preferences.

Results of Experiment 2 showed that gender roles independently showed an effect on the percentage of mate budget men and women spent on physical attractiveness. In addition, gender roles interacted with SES to effect men's percentage of budget spent on physical attractiveness in the low budget (i.e., necessities) and women's percentage of budget spent on physical attractiveness in the high budget (i.e., luxuries). Results showed that gender roles (and SES when interacting with gender roles) were found to have an effect men's and women's necessity and luxury of a mate's physical attractiveness, respectively, and as such this supports the theory that social variables also have an effect on mate preferences.

However, it appears that these variables were found to only have an effect on the percentage of budget men and women spent on physical attractiveness. Gender roles and SES had no main or interactive effect on the percentage of budget men and women spent on social level. Results of Experiment 1 showed the previous result of women considering a long-term mate's social level a necessity (e.g., Li et al., 2002) was not able to be replicated, suggesting that perhaps this preference was attributable to cultural more than biological influences. However, results of Experiment 2 showed that gender roles and SES have no effect on the percentage of budget women spent on a long-term mate's social level. As a result, it is difficult to ascertain whether women's preference for a long-term mate's social level could be more associated with biological factors (which would make this women's preference for a long-term mate's social level replicable), or social factors (which would show gender roles and SES having an effect on women's preference for a long-term mate's social level).

6.7.3 Unpacking SES

Due to the lack of clarity regarding preference for a long-term mate's social level, it was decided to examine the variables of SES individually, in an attempt to explore the separate contributions of employment, weekly income and education level attained on men's and women's percentage of budget spent on physical attractiveness and social level.

Although it is possible that the lack of effect of SES could be a true effect, it is also possible that the categorisation of SES (in line with March & Bramwell, 2012) has obscured individual SES factors (i.e., income, education, current employment) and their relation to men's and women's long-term mate preferences.

6.8 Experiment 2b

6.8.1 Aim and Hypotheses

The aim of this experiment was to assess the variables of current employment, weekly income, and educational level attained and their separate and combined relationship with men's and women's perceived necessity of a long-term mate's physical attractiveness and social level. Although previous research has not considered these variables in relation to men's and women's perceived necessity of mate preferences, predictions were based on premises of structural powerlessness theory (Buss & Barnes, 1986), i.e., that variation in SES would have an effect women's, but not men's, mate preferences . It was predicted that:

1. There would be no effect of men's current employment, weekly income, and education attained on their necessity scores of a long-term mate's physical attractiveness
2. There would be no effect of men's current employment, weekly income, and education attained on their necessity scores of a long-term mate's social level
3. There would be no effect of women's current employment, weekly income, and education attained on their necessity scores of a long-term mate's physical attractiveness
4. There would be a statistically significant effect of women's current employment, weekly income, and education attained on their necessity scores of a long-term mate's social level

6.9 Results

6.9.1 Design of Experiment 2b

Data was initially split by participant sex (men and women). Experiment 2b was a mixed-design, with mate budget (within-subjects; 2 levels: Low and high), current employment (between-subjects; 2 levels: Currently employed and not currently employed), weekly income (between-subjects; 3 levels: Low, medium and high), and education attained (between-subjects; 3 levels: Low, medium and high). The dependent variables were percentage of budget spent on each characteristic (physical attractiveness and social level).

For Experiment 2b, the main effects of budget, current employment, weekly income and education attained were of particular interest. When combined, the cells of budget, employment, weekly income and education attained contained low numbers (See Appendix G). These low cell numbers were considered to be problematic for the purposes of conducting planned comparisons. In addition, results based on these low cell numbers would be limited when generalising to the population, as the low sample numbers would not be reflective of the population. However, interactions between the variables of current employment, weekly income, education attained and the variable of budget are reported, as cell numbers were satisfied for appropriate analyses and as such it was possible to explore differences in low budget (necessities) and high budget (luxuries). Due to main effects being of interest, Estimated Marginal Means are presented in addition to means. Keppel (1991) suggested that in the absence of interactions, marginal means should be considered in addition to cell means.

6.9.2 Data Screening

As the hypotheses did not involve a direct comparison between men's and women's scores, data was split by sex.

6.9.2.1 Screening of men's and women's data. Missing value analyses were conducted on the percentage of mate dollars spent on physical attractiveness and social level

at each level of each independent variable (budget, current employment, weekly income, and education attained). No missing cases amounted to more than 5% of each variable. Normality and univariate outliers were extensively screened (Appendix H). Removing univariate outliers for the most case improved the violations of normality. Furthermore, as the *F* test is considered somewhat robust to violations of normality (Keppel & Wickens, 2004), the violations of normality after removal of outliers were considered minor. However, for inferential analyses, univariate outliers were included, as inferential statistics were run with and without inclusion of the univariate outliers and analyses did not differ.

6.9.3 Inferential Statistics

6.9.3.1 Men's employment, education attained, income and percentage of dollars spent on physical attractiveness. A 2x2x3x3 mixed models ANOVA was run on the men's data, with budget (2 levels: Low and high) as the within subjects variable, and employment (2 levels: Currently employed, not currently employed), income (3 levels: Low, medium and high) and education attained (3 levels: Low, medium, and high) as the between subjects variables. The dependent variable was percentage of budget spent on physical attractiveness. Table 6.4 displays the descriptive statistics, which shows the significantly higher means for each condition in the low budget compared to the high budget. Means and standard errors are depicted graphically in Figure 6.3.

Table 6.4

Men's Means and Standard Deviations of Percentage of Budget Spent on a Long-Term Mate's Physical Attractiveness by Budget, Employment, Weekly Income, and Education Attained

	Budget					
	Low			High		
	M	*SD*	*N*	*M*	*SD*	*N*
Current Employment						
Yes	27.05	14.42	97	22.87	5.76	97
No	27.87	14.66	185	22.48	6.25	185
Weekly Income						
Low	26.81	14.22	163	22.06	5.79	163
Medium	27.37	12.09	93	23.32	6.61	93
High	33.25	22.29	26	23.51	5.76	26
Education Attained						
Low	28.46	16.43	139	22.81	6.11	139
Medium	27.93	13.45	52	22.92	6.14	52
High	26.06	11.91	91	22.13	6.05	91
Total	27.54	14.55	284	22.61	6.08	282

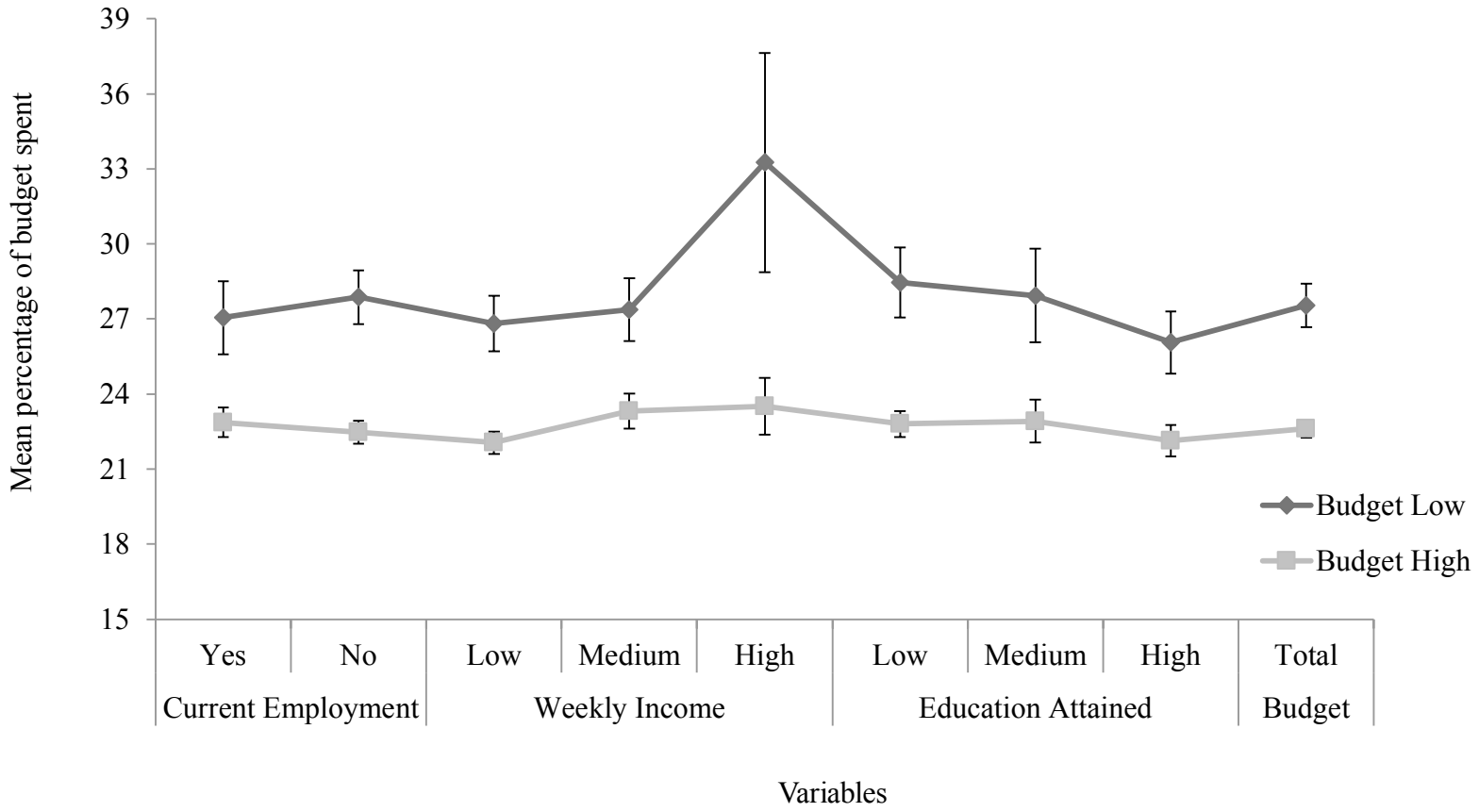

Figure 6.3. Men's mean percentage of budget spent on a long-term mate's physical attractiveness by budget (low and high), current employment (yes and no), weekly income (low, medium, and high), and education attained (low, medium, and high). Error bars represent standard error. Y axis begins at 15% to differentiate error bars.

Regarding main effects, results showed a main effect of job, $F(1, 266) = 12.03$, $p = .001$, with a small effect size of $\eta p^2 = .04$. There was a main effect of weekly income, $F(2, 266) = 12.39$, $p = .001$, with a medium effect size of $\eta p^2 = .08$. There was no significant main effect of education attained, $F(2, 266) = .54$, $p = .583$, with a small effect size of $\eta p^2 = .01$. There was a significant main effect of budget, $F(1, 266) = 45.14$, $p = .001$, with a large effect size of $\eta p^2 = .15$. Table 6.5 shows Estimated Marginal Means and Standard Error, including men of high weekly income spending the highest percentage of mate dollars on physical attractiveness.

Table 6.5

Men's Estimated Marginal Means and Standard Errors (SE) of Percentage of Budget Spent on a Long-Term Mate's Physical Attractiveness by Budget, Employment, Weekly Income, and Education Attained

			95% Confidence Interval	
	EMM	*SE*	Lower Bound	Upper Bound
Current Employment				
Yes	32.95	2.00	29.01	36.88
No	26.02	0.83	24.38	27.65
Weekly Income				
Low	24.37	0.85	22.69	26.05
Medium	27.83	1.80	24.29	31.36
High	37.90	2.61	32.77	43.03
Education Attained				
Low	33.83	1.78	30.34	37.32
Medium	26.78	2.06	22.73	30.84
High	25.58	1.13	23.35	27.81
Budget				
Low	33.61	1.53	30.60	36.63
High	24.48	0.68	23.15	25.81

Note: EMM = Estimated Marginal Mean

There was no significant interaction between budget and job, $F(1, 266) = 6.99$, $p = .009$, with a small effect size of $\eta p^2 = .03$. There was however a significant interaction between budget and weekly income, $F(2, 266) = 14.11$, $p = .001$, with a large effect size of $\eta p^2 = .10$. There was no significant interaction between budget and education attained, $F(2, 266) = 1.30$, $p = .273$, with a small effect size of $\eta p^2 = .01$.

Post-hoc analyses with a Bonferroni adjustment showed that in the low budget condition men spent significantly more mate dollars on physical attractiveness compared to in the high budget condition, $p = .001$. In addition, men with a job spent a significantly higher percentage of dollars on physical attractiveness compared men without a job, $p = .002$. Regarding weekly income, men of a high weekly income spent a significantly higher percentage of dollars on physical attractiveness compared to men of medium income and low income, $p = .005$ and .001, respectively. No other comparisons for weekly income were significant.

Regarding the interaction of budget and job, post-hoc analyses with a Bonferroni correction showed men in the low budget with a job spent a significantly higher percentage of dollars on physical attractiveness compared to men in the low budget without a job, $p = .003$. Regarding the interaction of budget and weekly income, men in the low budget and of a high weekly income spent a significantly higher percentage of dollars on physical attractiveness compared to men in the low budget and a medium or low weekly income, $p = .001$ and .001, respectively.

6.9.3.2 Men's employment, education attained, income and percentage of dollars spent on social level. A 2x2x3x3 mixed models ANOVA was run on the men's data, with budget (2 levels: Low and high) as the within subjects variable, and employment (2 levels: Currently employed, not currently employed), income (3 levels: Low, medium and high) and education attained (3 levels: Low, medium, and high) as the between subjects variables. The

dependent variable was percentage of budget spent on social level. Table 6.6 displays the descriptive statistics, which shows men spending significantly more mate dollars in the high budget compared to the low budget. Means and standard errors are depicted graphically in Figure 6.4.

Table 6.6

Men's Means and Standard Deviations of Percentage of Budget Spent on a Long-Term Mate's Social Level by Budget, Employment, Weekly Income, and Education Attained

	Budget					
	Low			High		
	M	*SD*	*N*	*M*	*SD*	*N*
Current Employment						
Yes	14.35	8.13	97	17.56	5.92	97
No	16.53	10.21	185	17.28	7.37	185
Weekly Income						
Low	15.29	8.20	163	17.41	6.06	163
Medium	16.66	10.25	93	17.03	7.61	93
High	15.71	14.36	26	18.36	9.06	26
Education Attained						
Low	16.36	8.76	139	17.94	5.73	139
Medium	15.76	10.50	52	18.68	7.37	52
High	14.89	10.27	91	15.75	7.95	91
Total	15.77	9.56	284	17.37	6.90	282

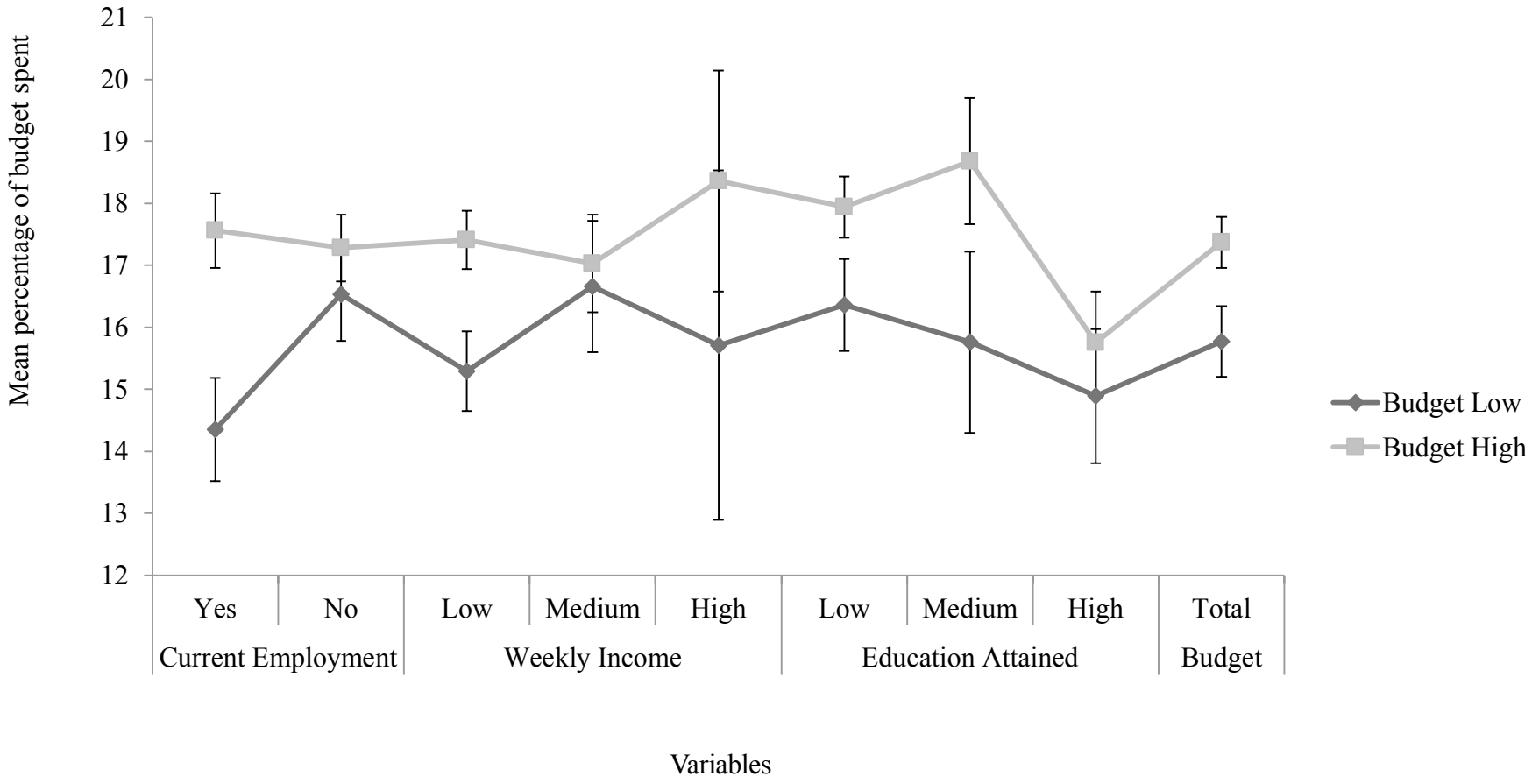

Figure 6.4. Men's mean percentage of budget spent on a long-term mate's social level by budget (low and high), current employment (yes and no), weekly income (low, medium, and high), and education attained (low, medium, and high). Error bars represent standard error. Y axis begins at 12% to differentiate error bars.

Regarding main effects, results showed no main effect of job, $F(1, 266) = .01$, $p = .905$, with a small effect size of $\eta p^2 = .01$. There was also no main effect of weekly income, $F(2, 266) = .07$, $p = .936$, with a small effect size of $\eta p^2 = .01$. There was no significant main effect of education attained, $F(2, 266) = .32$, $p = .728$, with a small effect size of $\eta p^2 = .01$. There was a significant main effect of budget, $F(1, 266) = 23.71$, $p = .001$, with a medium effect size of $\eta p^2 = .08$.

There was a significant interaction between budget and job, $F(1, 266) = 9.13$, $p = .003$, with a small effect size of $\eta p^2 = .03$. There was also a significant interaction between budget and weekly income, $F(2, 266) = 8.26$, $p = .001$, with a small to medium effect size of $\eta p^2 = .06$. There was no significant interaction between budget and education attained, $F(2, 266) = 1.11$, $p = .330$, with a small effect size of $\eta p^2 = .01$.

Post-hoc analyses with a Bonferroni adjustment showed men spent a significantly higher percentage of dollars on social level in the high budget condition compared to the low budget condition, $p = .001$. Regarding the interaction of budget and job, both men who were currently employed and not currently employed spent a significantly higher percentage of dollars on social level in the high budget compared to the low budget, $p = .001$ and .010, respectively. For the interaction of budget and weekly income, men of a low weekly income and a high weekly income spent a significantly higher percentage of dollars on social level in the high budget compared to the low budget, $p = .001$ and .001, respectively. Table 6.7 shows Estimated Marginal Means and Standard Error, such as men spending more mate dollars on social level in the high budget compared to the low budget.

Table 6.7

Men's Estimated Marginal Means and Standard Errors (SE) of Percentage of Budget Spent on a Long-Term Mate's Social Level by Budget, Employment, Weekly Income, and Education Attained

			95% Confidence Interval	
	EMM	*SE*	Lower Bound	Upper Bound
Current Employment				
Yes	15.86	1.62	12.68	19.04
No	16.52	0.67	15.21	17.85
Weekly Income				
Low	16.03	0.69	14.67	17.39
Medium	16.58	1.45	13.72	19.44
High	16.04	2.11	11.88	20.19
Education Attained				
Low	16.93	1.44	14.10	19.75
Medium	15.61	1.67	12.32	18.89
High	16.04	0.92	14.23	17.84
Budget				
Low	14.15	1.04	12.10	16.20
High	18.33	0.76	16.82	19.83

Note: EMM = Estimated Marginal Mean

6.9.3.3 Women's employment, education attained, income and percentage of dollars spent on physical attractiveness. A 2x2x3x3 mixed models ANOVA was run on women's data, with budget (2 levels: Low and high) as the within subjects variable, and employment (2 levels: Currently employed, not currently employed), income (3 levels: Low, medium and high) and education attained (3 levels: Low, medium, and high) as the between subjects variables. The dependent variable was percentage of budget spent on physical attractiveness. Table 6.8 displays for descriptive statistics, showing similar means for all conditions. Means and standard errors are depicted graphically in Figure 6.5.

Table 6.8

Women's Means and Standard Deviations of Percentage of Budget Spent on a Long-Term Mate's Physical Attractiveness by Budget, Employment, Weekly Income, and Education Attained

	Budget					
	Low			High		
	M	*SD*	*N*	*M*	*SD*	*N*
Current Employment						
Yes	22.02	10.59	402	19.99	5.08	402
No	19.93	10.85	167	20.01	5.22	167
Weekly Income						
Low	21.11	10.46	375	19.84	5.06	375
Medium	21.66	10.92	166	20.18	5.32	166
High	23.83	12.39	28	21.02	4.62	28
Education Attained						
Low	21.73	10.43	304	19.85	5.03	304
Medium	20.58	10.07	82	20.15	5.64	82
High	21.24	11.42	183	20.19	5.03	183
Total	21.42	10.69	570	20.00	5.12	569

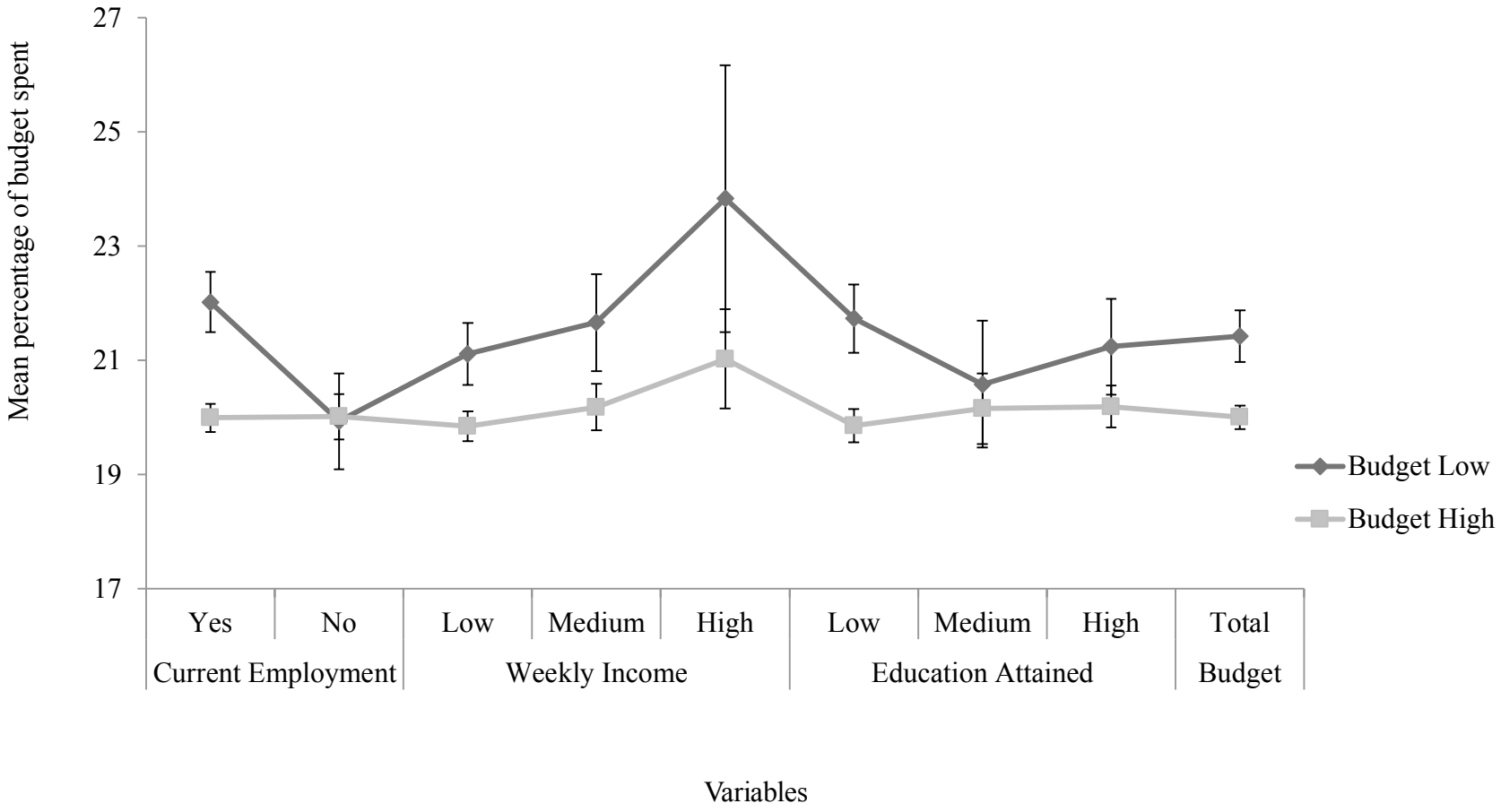

Figure 6.5. Women's mean percentage of budget spent on a long-term mate's physical attractiveness by budget (low and high), current employment (yes and no), weekly income (low, medium, and high), and education attained (low, medium, and high). Error bars represent standard error. Y axis begins at 17% to differentiate error bars.

Regarding main effects, results showed no main effect of job, $F(1, 552) = .42$, $p = .517$, with a small effect size of $\eta p^2 = .01$. There was no main effect of weekly income, $F(2, 552) = .24$, $p = .784$, with a small effect size of $\eta p^2 = .01$. There was no main effect of education attained, $F(2, 552) = .25$, $p = .776$, with a small effect size of $\eta p^2 = .01$. There was no significant main effect of budget, $F(1, 552) = .00$, $p = .991$, with a small effect size of $\eta p^2 = .01$. Table 6.9 displays the Estimated Marginal Means and Standard Errors, showing similar means for all conditions.

Table 6.9

Women's Estimated Marginal Means and Standard Errors (SE) of Percentage of Budget Spent on a Long-Term Mate's Physical Attractiveness by Budget, Employment, Weekly Income, and Education Attained

			95% Confidence Interval	
	EMM	*SE*	Lower Bound	Upper Bound
Current Employment				
Yes	21.15	1.02	19.15	23.16
No	20.52	1.50	17.58	23.47
Weekly Income				
Low	20.13	0.46	19.22	21.04
Medium	20.90	1.08	18.78	23.01
High	21.68	2.67	16.43	26.93
Education Attained				
Low	21.25	1.53	18.24	24.26
Medium	19.85	1.81	16.29	23.40
High	21.31	1.31	18.74	23.87
Budget				
Low	21.10	1.33	18.49	23.71
High	20.61	0.64	19.34	21.88

Note: EMM = Estimated Marginal Mean

There was no significant interaction between budget and job, $F(1, 552) = 1.74$, $p = .187$. There was a small effect size of $\eta p^2 = .01$. There was no significant interaction between budget and weekly income, $F(2, 552) = .23$, $p = .795$. There was a small effect size of $\eta p^2 = .01$. There was no significant interaction between budget and education attained, $F(2, 552) = 2.78$, $p = .063$. There was a small effect size of $\eta p^2 = .01$.

6.9.3.4 Women's employment, education attained, income and percentage of dollars spent on social level. A 2x2x3x3 mixed models ANOVA was conducted using women's data, with budget (2 levels: Low and high) as the within subjects variable, and employment (2 levels: Currently employed, not currently employed), income (3 levels: Low, medium and high) and education attained (3 levels: Low, medium, and high) as the between subjects variables. The dependent variable was percentage of budget spent on social level. See Table 6.10 for descriptive statistics, showing similar means for all conditions. Means and standard errors are depicted graphically in Figure 6.6.

Table 6.10

Women's Means and Standard Deviations of Percentage of Budget Spent on a Long-Term Mate's Social Level DV by Budget, Employment, Weekly Income, and Education Attained

	Budget					
	Low			High		
	M	*SD*	*N*	*M*	*SD*	*N*
Current Employment						
Yes	17.17	10.06	402	19.18	5.85	402
No	14.61	8.91	167	18.5	5.58	167
Weekly Income						
Low	15.98	9.39	375	18.8	5.46	375
Medium	16.78	9.72	166	19.1	6.44	166
High	20.09	14.35	28	20.68	5.57	28
Education Attained						
Low	16.05	9.17	304	18.87	5.53	304
Medium	16.84	9.67	82	18.76	5.64	82
High	16.83	10.85	183	19.23	6.22	183
Total	16.42	9.79	570	18.98	5.77	569

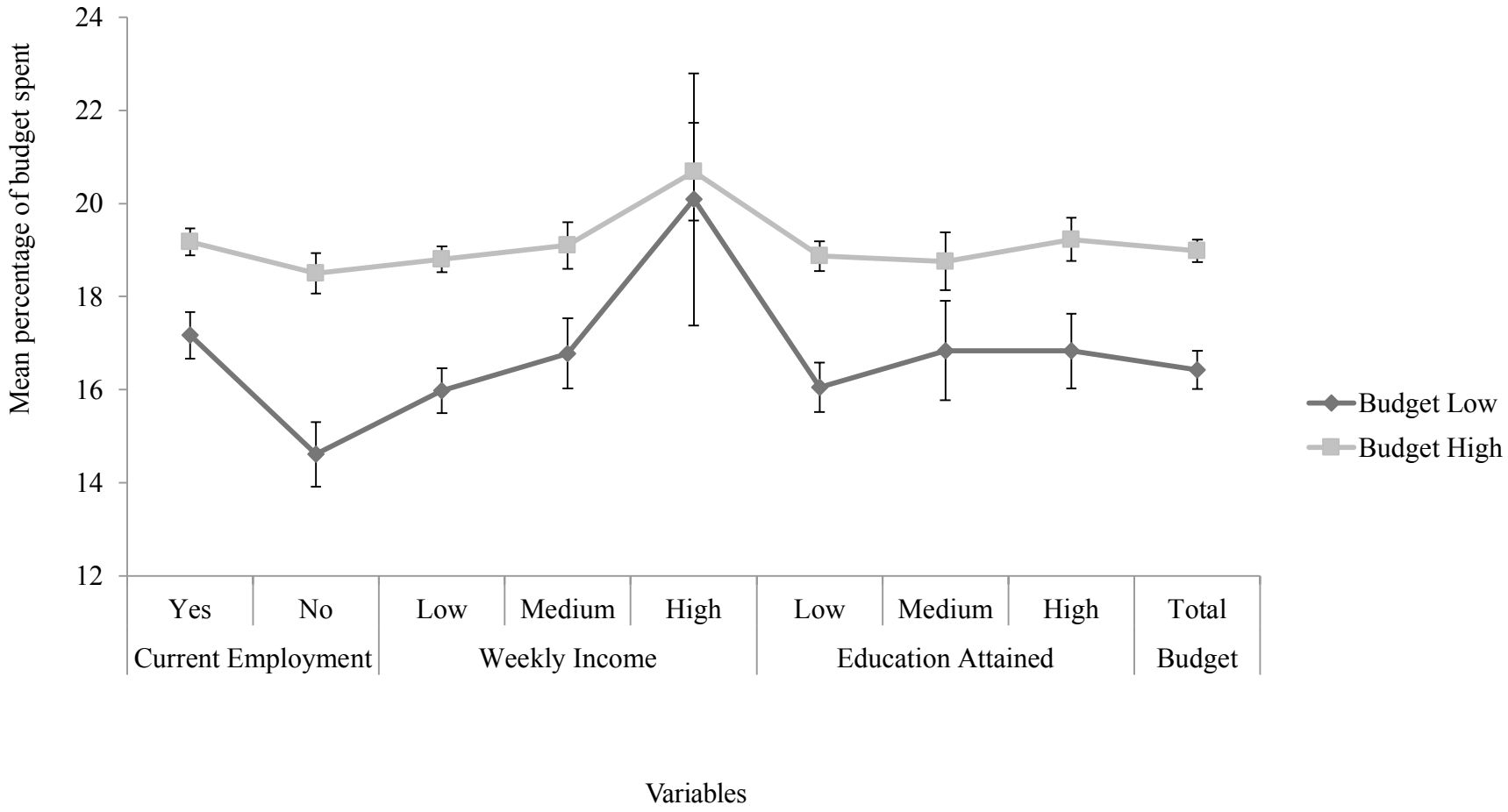

Figure 6.6. Women's mean percentage of budget spent on a long-term mate's social level by budget (low and high), current employment (yes and no), weekly income (low, medium, and high), and education attained (low, medium, and high). Error bars represent standard error. Y axis begins at 12% to differentiate error bars.

Regarding main effects, results showed no main effect of job, $F(1, 552) = 1.67$, $p = .197$, with a small effect size of $\eta p^2 = .01$. There was no main effect of weekly income, $F(2, 552) = .16$, $p = .849$, with a small effect size of $\eta p^2 = .01$. There was no main effect of education attained, $F(2, 552) = .42$, $p = .658$, with a small effect size of $\eta p^2 = .01$. There was no significant main effect of budget, $F(1, 552) = .87$, $p = .352$, with a small effect size of $\eta p^2 = .01$. See Table 6.11 for Estimated Marginal Means and Standard Error, showing similar means in all conditions.

Table 6.11

Women's Estimated Marginal Means and Standard Errors (SE) of Percentage of Budget Spent on a Long-Term Mate's Social Level by Budget, Employment, Weekly Income, and Education Attained

			95% Confidence Interval	
	EMM	*SE*	Lower Bound	Upper Bound
Current Employment				
Yes	18.77	0.99	16.82	20.71
No	15.66	1.45	12.80	18.51
Weekly Income				
Low	17.34	0.45	16.45	18.22
Medium	16.77	1.05	14.71	18.82
High	17.90	2.60	12.80	23.00
Education Attained				
Low	16.14	1.49	13.21	19.06
Medium	18.47	1.76	15.02	21.92
High	17.50	1.27	15.01	20.00
Budget				
Low	16.47	1.23	14.07	18.88
High	18.13	0.72	16.71	19.55

Note: EMM = Estimated Marginal Mean

There was no significant interaction between budget and job, $F(1, 552) = 1.05$, $p = .306$, with a small effect size of $\eta p^2 = .01$. There was no significant interaction between budget and weekly income, $F(2, 552) = 1.01$, $p = .364$, with a small effect size of $\eta p^2 = .01$. There was no significant interaction between budget and education attained, $F(2, 552) = 1.48$, $p = .229$, with a small effect size of $\eta p^2 = .01$.

6.10 Discussion

The aim of this experiment was to assess the variables of current employment, weekly income, and education attained and their independent and combined effect on men's and women's necessity of a long-term mate's physical attractiveness and social level. Firstly, it was predicted that there would be no effect of men's current employment, weekly income, and education attained on their necessity scores of a long-term mate's physical attractiveness, and results did not support this hypothesis. The variables of current employment and weekly income were found to have an effect on the percentage of the mate budget men spent on a long-term mate's physical attractiveness. In addition, as indicated by the interactions between these variables and budget, these effects were all located in the low budget when the budget was constrained thus revealing necessities.

Firstly, men in the low budget who were currently employed spent more on physical attractiveness compared to men who were in the low budget who were not currently employed. In addition, men in the low budget with a high weekly income spent more than men in the low budget of a medium and low weekly income. Combined, men in the low budget with current employment and a high weekly income spent a significantly higher percentage of their mate dollars on physical attractiveness compared to men in the low budget with current employment and a medium or low weekly income.

It was also predicted that there would be an effect of men's current employment, weekly income, and education attained on their necessity scores of a long-term mate's social

level. Results were found to support this hypothesis; however, results did show an effect of men's current employment and weekly income on their luxury scores of a long-term mate's social level. Specifically, results showed that men in current employment with a low and high weekly income spent significantly more mate dollars on a long-term mate's social level in the high budget (i.e., luxury) than the low budget. The main effect of budget suggests that overall, men spent more mate dollars on social level in the high budget compared to the low budget, and therefore that men considered the social level of a long-term mate more of a luxury than a necessity. The interaction of current employment and weekly income with budget suggests that differing levels of current employment (currently employed and not currently employed), and differing levels of weekly income (low and high) are not associated with the necessity of a long-term mate's social level.

It was predicted that there would be no effect of women's current employment, weekly income, and education attained on their necessity scores of a long-term mate's physical attractiveness, and results supported this hypothesis. In addition, there were no interactions between current employment, weekly income, education attained and budget on the percentage of mate dollars women spent on a long-term mate's physical attractiveness. Combined with results from Experiment 2, where SES was shown not to affect percentage of mate dollars spent on physical attractiveness in the low budget, it appears that SES, both as an aggregated variable and via its individual components, has no effect on women's perceived necessity of a long-term mate's physical attractiveness. In addition, it was predicted that there would be an effect of women's current employment, weekly income, and education attained on the necessity scores of a long-term mate's social level, and results did not support this hypotheses either. It should be noted, however, that women of the current sample were of higher education than the general population, and as such this could possibly explain the null results. Although these results appear in contrast to structural powerlessness

theory (Buss & Barnes, 1986) and previous research which has suggested varying levels of SES is associated with variations in mate preferences (e.g., Khallad, 2005; March & Bramwell, 2012; Moore & Cassidy, 2007), we suggest that women's varying levels of SES, both as an aggregated variable and via its individual components, may have no effect on the extent to which they consider a long-term mate's physical attractiveness and social level to be a *necessity*.

In relation to origin theories of sex differences in long-term mate preferences, results of Experiment 2B provide additional support for social-economic theories because the variables of current employment and weekly income were found to influence the percentage of budget men spent on a long-term mate's physical attractiveness in the low condition (i.e., necessity). In addition, results showed that regardless of the level of current employment and weekly income, men considered the social level of a long-term mate a luxury. These results provide support to the premise that social factors (i.e., SES) have an effect on preferences with regards to characteristics of a potential mate. However, results did not show that individual variables of SES had an effect on women's mate preferences. Future research should endeavour to explore other social variables that may have an effect on women's long-term mate preferences.

6.11 Summary of Chapter

This chapter presented Experiment 2, which included an assessment of the main and interactive effects of gender roles and SES on percentage of mate dollars men and women spent on a long-term mate's physical attractiveness and social level in varying budget conditions. To further explore the effects of SES, additional analyses were conducted to explore the individual effects of current employment, education level attained and weekly income on the percentage of mate dollars men and women spent on a long-term mate's physical attractiveness and social level.

Chapter Seven – Long-Term and Short-Term Relationships

"Go ahead and have her, go ahead and leave her; you only ever had her when you were a fever"

– The Kills, *U.R.A Fever, Midnight Boom*

7.1 Overview of Chapter

This chapter introduces research that has considered sex differences in mate preferences in relationship lengths other than long-term. Specifically, research is introduced that has considered the characteristics men and women desire in a short-term mate. Research has indicated that men's and women's mate preferences are dependent on the length of relationship they consider. As such, it is of interest to explore the separate and interactive effects gender roles and SES have on the extent to which men and women consider a short-term mate's physical attractiveness and social level a necessity. Next, research findings in relation to men's and women's short-term mate preferences are presented and interpreted with reference to evolutionary and social-economic origin theories of sex differences in mate preferences.

7.2 Sex Differences in Mate Preferences in Short-Term Relationships

Men and women pursue both long-term and short-term relationships (Strout, Fisher, Kruger, & Steeleworthy, 2010) and preferences for a short-term mate (e.g., dates, one night stand) have been contrasted to preferences for a long-term mate (e.g., spouse) (Scheib, 2001). Preference for particular mate characteristics can alter between these different relational contexts (Regan, Levin, Sprecher, Christopher, & Cate, 2000).

Buss (2006) notes that not all human mating lasts for a long time. Human mating can "last a few years, a few months, a few weeks, a few days, or even a few minutes" (Buss, 2006, p. 243). Short-term mating can be conceptualised as sexual activity without the commitment of a continuing relationship (Weiderman & Dubois, 1998). Buss and Schmitt

(1993) discussed that an important feature of the sexual strategies theory is that mate preferences are context dependent, and therefore can be heavily influenced by whether the union is considered to be short-term or long-term. Sexual strategies theory purports that both men and woman have mixed strategies when choosing a short-term mate or a long-term mate (Buss & Schmitt, 1993). Furthermore, this theory attempts to explicate why men, on average, engage in more short-term mating compared to women (Buss & Schmitt, 1993).

Men, compared to women, report a greater desire for sexual variety (Michalski & Shackelford, 2010; Townsend & Roberts, 1993) and for short-term sexual intercourse (Gangestad & Simpson, 2000). Clark and Hatfield (1989) had male and female experimenters approached total strangers on an American college campus and said, "Hi, I've been noticing you around campus, and I find you very attractive", and then asked one of three questions: 'Would you go out on a date with me?' 'Would you go back to my apartment with me?' or 'Would you have sex with me?' Of women who were approached by male experimenters, 50% agreed to go on a date, 6% agreed to go back to his apartment, and 0% agreed to have sex. However, of men who were approached by a female experimenter, 50% agreed to go on a date, 69% agreed to go back to her apartment, and 75% agreed to have sex with her. Furthermore, men who declined sex were apologetic, citing prior engagements or commitments.

Research has also stated that women receive more "booty calls" (i.e., contact where there is an explicit or implicit intention of engaging in sexual activity) over the course of a year than men do (Jonason, Li, & Cason, 2009, p. 1), and men are more likely than women to hold uncommitted, casual attitudes towards sexual activity (Sprecher & Regan, 1996). Overall, men are more likely to choose a mate based on sexual attraction, have more sexual thoughts, prefer and have more sexual partners, engage more frequently in casual sex, and are less selective than women (Conley et al., 2011). More-so than women's sexual fantasies,

men's sexual fantasies include multiple and unfamiliar partners (Shackelford, Goetz, LaMunyon, Quintus, & Weekes-Shackelford, 2004). Furthermore, when couples who were dating were asked for reasons on remaining abstinent (i.e., not engaging in sexual activity), 64% of men (compared to 11% of women) reported that their partner did not want to engage in sexual intercourse at the present time (Peplau, Rubin, & Hill, 1977). Finally, cultural protocol deems sexual promiscuity far more appropriate for men than for women (Li & Kenrick, 2006; O'Sullivan, 1995), and men receive more cultural reinforcement for engaging in and seeking sexual activity (Sprecher & Regan, 1996). In fact, sexually experienced men are considered to be admired and envied by their male peers (Sprecher, Barbee, & Schwartz, 1995). Sprecher and colleagues (1995) stated that society encourages women to engage in sexual intercourse with a committed mate, and communicates to men that sexual experience is part of being masculine. A man's sexual experience is considered to be related to his level of masculinity and sexual competence (Istvan & Griffitt, 1980). However, this cultural attitude may also place pressure on men to consent to more sexual advances by the opposite sex, despite their own desires (Sprecher, Hatfield, Cortese, Potapova, & Levitskaya, 1994).

Evolutionary theory proposes there are distinct adaptive mechanisms that influence the choices men and women make when choosing short-term mates or long-term mates (Eastwick & Finkel, 2008; Jackson & Kirkpatrick, 2007). Ancestral men experienced a reproductive benefit from identifying short-term mates who were healthy and fertile (Symons, 1979). Thus, men are assumed to seek short-term mates who indicate signs of increased fertility, and these signs are often expressed through physical features such as full lips, soft hair, and smooth skin (Li & Kenrick, 2006).

Evolutionary theory may also explain why men are more open to short-term mating than women. In the act of sexual intercourse, the contribution of a few sex cells is all that is physiologically required from men (Trivers, 1972). If pregnancy results from a short-term

sexual encounter, women must provide substantial pre- and postnatal resources if the offspring is to survive (Trivers, 1972). In the ancestral past, casual sex resulted in higher potential costs for women than for men (Jonason, Li, Webster, & Schmitt, 2009). Short-term mating appears to, on average, provide more reproductive benefits to men than to women (Jonason, Li, Webster, et al., 2009; Kruger & Hughes, 2010, Symons, 1979). Historically, men appear to have achieved increases in reproductive success primarily through increasing their number of short-term sexual partners (Buss & Schmitt, 1993; Tadinac & Hromatko, 2006). Socially, short-term mating may also appear to be more advantageous for men, as women engaging in short-term mating may potentially encounter situations which may lead to sexual victimisation (Perilloux, Duntley, & Buss, 2011). Indeed, a sexual double standard does exist for men and women (Marks & Fraley, 2006) where men who engage in promiscuous sexual activity are labelled 'studs' and women are labelled 'sluts' (Hird & Jackson, 2001). Therefore, pursuing short-term mating may be more advantageous for men than for women (Li &Kenrick, 2006).

Women do desire 'sexy' mates, particularly as short-term mates (Schmitt, Jonason, Byerley, Illbeck, O'Leary, & Quadrat, 2012). Wiederman and Dubois (1998) found that both men and women appeared to place the most emphasis on the physical attractiveness of a potential short-term mate, as compared to other relationship lengths. Buunk and colleagues (2002) reported that both sexes desired a higher level of physical attractiveness as relationship lengths shortened. It appears that when either men or women are considering engaging in a short-term sexual relationship, a constant elevated preference for physical attractiveness has been identified, and additionally men and women exhibit similar elevated preference levels for a short-term mate's physical attractiveness (Li & Kenrick, 2006).

When considering a short-term partner, both men and women seem unwilling to compromise the characteristic of physical attractiveness (Regan, 1998a; Regan et al., 2000).

Eastwick and Finkel (2008) suggest that sex differences in mate preferences are most prominent when individuals are considering a long-term relationship, as compared to a short-term relationship. As a result of these similar preferences between the sexes for a short-term mate's physical attractiveness, researchers have concluded that women tend to prefer physically attractive mates for short-term relationships, and mates with high status and resources for long-term relationships (Schulte-Hostedde et al., 2008).

Kenrick, Sadalla, Groth, and Trost (1990) examined the degree to which mate preferences are associated with level of anticipated investment in a relationship. Participants were 93 American undergraduate students. Participants were asked to consider the criteria they would use in choosing a partner for involvement in a single date, sexual relations, steady dating, and marriage. For each type of relationship, participants were asked to rate the importance of 24 criteria (e.g., kind and understanding, physically attractive, and college graduate). Participants were asked to give the minimum and maximum percentile of the characteristic they would find acceptance at each level of involvement. Women were more selective at all levels of involvement. Specifically, women were more selective at all levels of involvement for the traits of: earning capacity; powerful; wealth; high social status; ambitious; wants children; popular; dominant; good heredity; emotionally stable; religious and good housekeeper. The only trait men were more selective about at every level of involvement was physical attractiveness. However, this difference between men and women's ratings of a mate's physical attractiveness was only significantly different when men and women were considering a marriage partner.

To further assess different contexts of relationships, Kenrick and colleagues (1993) assessed participant's minimum criteria for engaging in five different levels of relationship involvement (i.e., single date, one night stand, sexual relations, steady dating, and marriage). Participants were 235 (127 women and 108 men) undergraduate students who completed a

questionnaire where they indicated the minimum percentile of a trait they would require in a partner at the five different levels. Participants rated their minimum criteria on 24 different traits (e.g., intelligent, friendly, physically attractive, high social status). Additionally, participants completed a self-report, where they rated themselves on the 24 dimensions also using percentiles. The presentation orders of level of involvement and type of report (self vs. other) were randomised. Compared to women, men were generally less selective with regards to their criteria for a one night stand. Additionally, for a one night stand, men's criteria were generally less related to their own self-reports than women. At the level of marriage, women set significantly higher criteria on status, and men set significantly higher criteria on physical attractiveness. Interestingly, however, women's self-reports were positively related to their minimum criteria for dominance. Results suggested that women who rate themselves as dominant, powerful and aggressive, with high status, ambition, wealth, are likely to be a college graduate, high in earning capacity and are more selective of mates compared to women who rate themselves as low on those characteristics (Kenrick et al., 1993). This trend was not found for men.

In contrast to results that suggest similar mate preferences between the sexes when considering a short-term relationship (i.e., Kenrick et al., 1990), it also appears that women may remain selective of their potential mates when considering either a long-term or short-term relationship, whereas men show increased selectivity when considering a long-term relationship (Buunk et al., 2002; Regan, 1998a). For example, Buunk and colleagues (2002) reported that as relationship involvement decreased, men found it more important that a mate was physically attractive, but less important that a mate was intelligent. Additionally, although physical attractiveness may be important to both men and women in a short-term mate, men still place more emphasis on the physical attractiveness of a short-term mate when compared to women (Buss & Schmitt, 1993). Furthermore, although the physical

attractiveness of a short-term mate is of increased importance to women, women still place more importance on a short-term mate's access to resources, as compared to men (Kurzban & Weeden, 2005).

To test the assumption (among other predictions) that men place more emphasis than women on the physical attractiveness of a short-term mate, Braun and Bryan (2006) assessed the extent to which the desirability of a potential mate is affected by body shape and/or agreeableness. The authors hypothesised that men would find the female target with a smaller waist-to-hip ratio more desirable, that women would find the male target with the smaller waist-to-shoulder ratio more desirable, and that both sexes would also consider body shape and personality in the context of short-term and long-term relationships. The authors predicted that for a long-term relationship, both sexes would show preference for personality, perhaps even more so than physical attractiveness. Additionally, the authors predicted that for short-term relationships, both sexes would show a clear preference for physical attractiveness, though this preference would be more prominent in men. Participants were 239 (134 women and 105 men) undergraduate psychology students and predominantly Caucasian (86%). Each participant completed a questionnaire, where a black and white photograph of a target was provided. For a female target, the waist was altered to represent either a smaller (approximately 0.67) or larger (approximately 0.81) waist-to-hip ratio (with a smaller waist-to-hip ratio considered more desirable). For male targets, the shoulders and waist were altered to depict a smaller (approximately 0.56) or larger (0.75) waist-to-shoulder ratio (with a larger waist-to-hip ratio considered more desirable). Personality descriptions were placed under the photographs, and all targets were described as 'a 23 year old college student majoring in pre-medicine who enjoyed movies, reading, hiking, and playing with [their] dog in the park' (p. 811). Low-agreeableness targets, a description was added reading 'pretty selfish, unsympathetic to the needs of others, and inconsiderate', whereas high-

agreeableness targets had a description added reading ‘extremely kind and considerate, generous, and helpful to those in need’. Level of waist-to-hip ratios and agreeableness were between-subject factors. All participants considered their particular target in a date (short-term relationship), one time sexual encounter (short-term relationship) and long-term relationship. Participants were asked how important the target’s face, body, personality, weight, career choice, intelligence, and age were in determining how desirable the target was for the particular relationship. For a date, all participants found the agreeable target significantly more desirable than the non-agreeable target. For a one-time sexual partner, all participants (regardless of sex) indicated they would rather have a one-time sexual encounter with the target that represented the more desirable waist-to-hip ratio. Regarding agreeableness, more female participants indicated they would rather have a one-time sexual encounter with the more agreeable target compared to men. Regarding long-term relationships, all participants preferred to have a relationship with the more agreeable target. Additionally, this effect was slightly stronger for women. These results suggested that body shape and personality do influence the desirability of a potential mate, though differently for men and women. Men, to a greater extent than women, reported that physical features including face, body, and weight, were important to their judgements of the desirability of a target for all terms of a relationship. Conversely, women considered personality, intelligence, and career choice to be significantly more important in determining target desirability in all terms of a relationship than did men. Additionally, women were significantly more likely to consider a target’s body shape when considering a one-time sexual encounter in comparison to a longer term relationship.

Despite the sex differences in the costs and benefits of short-term mating, women still seek short-term mates (Kruger & Fisher, 2008), which has led researchers to explore the potential benefits to women who are engaging in short-term sexual relationships. Researchers

have theorised that potential benefits could include immediate resource provisioning (Montoya, 2005) or even increased protection (Buss & Schmitt, 1993). However, the research literature has paid most attention to women engaging in short-term relationships in an effort to secure good genes (Kruger, Fisher, & Jobling, 2003). This suggestion is supported by research that has found that when considering short-term mates, women prioritise physical attractiveness significantly more than other traits (e.g., Li et al., 2011).

The 'sexy son hypothesis' suggests that when obtaining consistent parental investment is not an option (such as prolonged provisioning of resources to ensure an offspring's survival), women have evolved mechanisms to prefer men with high genetic quality, as this will still benefit the offspring biologically (Kruger & Fisher, 2008). In short-term relationships, women are considered to be selective about the physical attractiveness of their partner, and highly value mates with good genes (Kruger & Fisher, 2008; Vladas, Cialdini, & Kenrick, 2006). This consideration of a short-term mate's hereditary quality to enhance offspring fitness is known as strategic pluralism theory (Gangestad & Simpson, 2000). Essentially, women who engage in short-term sexual relationships with mates who have good genes may increase their chances of passing these genes on to their son (Wiederman & Dubois, 1998), which might in turn increase their own fitness through their son providing numerous grandchildren (Kruger et al., 2003).

Gangestad, Haselton, and Buss (2006) also noted that women's interest in a short-term mate's genetic benefits peaks midway during their cycle, coinciding with ovulation when they are most fertile. Women's preferences for different physical features of men fluctuate during their menstrual cycle (Hromatko, Tadinac, & Prizmić, 2006; Larson, Haselton, Gildersleeve, & Pillsworth, 2013). For instance, Penton-Voak, Little, Jones, Burt, Tiddeman, and Perrett (2003) found that women are shown to increase preference for masculine faces during the follicular phase of their menstrual cycle. This preference is often

attributed to the immunosuppressive effects of testosterone (Folstad & Karter, 1992). Higher levels of immune functioning can be expressed through masculine features, as these masculine features are indicative of higher levels of testosterone, and higher levels of testosterone can only be supported by men with higher levels of immune functioning (Lee et al., 2014). As such, women have come to prize physical masculine cues in mates.

Although genetic cues are also important in a long-term mate, these attributes are not nearly as important to women when they are choosing a long-term mate compared to a short-term mate (Kruger & Fisher, 2008). Kruger and colleagues (2003) suggested that in some circumstances, women may have evolved to prefer cues to genetic fitness *over* cues to status and resources. Casual sex with physically attractive men might enhance the quality of women's offspring (Buunk et al., 2002). The offspring will reap the greatest genetic benefit from good genes, because he or she will share 50% of their genes with each parent (Perilloux, Fleischman, et al., 2011).

Alternatively, Wiederman and Dubois (1998) suggested that women's engaging in potential disadvantageous short-term relationships may be beneficial if women use these short-term relationships as a means to assess a mate for a potential long-term relationship. Sexual strategies theory (Buss & Schmitt, 1993) theorises that women may also use short-term mating as a means to evaluate mates as potential long-term partners. Thus, this theory suggests that women's preferences for short-term mates are similar to their preferences for long-term mates (Scheib, 2001). Compared to men, women are expected to value financial resources and generosity more in short-term mates, just as they do in long-term mates (Wiederman & Dubois, 1998). Research has provided some support for sexual strategies theory. Greiling and Buss (2000) found support for women's use of short-term sexual relationships to identify and acquire a long-term partner by assessing the perceived benefits gained when women engage in short-term relationships. Furthermore, Buss and Schmitt

(1993) reported that characteristics women cite as undesirable in a short-term mate (such as promiscuity and unfaithfulness) support the hypothesis that women use short-term mates as an avenue to secure a long-term mate. However, sexual strategies theory may only predict the behaviour of some women. Although some women may engage in short-term relationships as a means to identify potential long-term mates, in other contexts and other women, the goals of engaging in a short-term relationship may differ (Vigil, Geary, & Byrd-Craven, 2006).

Townsend and Roberts (1993) found that even when considering a short-term mate, women continued to be selective about a mate's SES, whereas men were relatively indifferent. However, men did become choosier about a mate's socioeconomic status when they were considering a marriage partner (Townsend & Roberts, 1993). Additional research has supported this result, finding that the characteristic of good financial prospects is prized by women in short-term relationships (Tadinac & Hromatko, 2006).

However, some contrasting results have been produced. For example, Greitemeyer (2007) found that the SES of a long-term partner was consistently more important to both men and women than the SES of a short-term partner, and furthermore, the SES of a potential short-term partner was of little interest to both men and women.

Overall, results concerning sex differences and preferences in short-term mates are inconsistent. Research has provided support for both strategic pluralism theory (that both women and men seek short-term mates with a high level of genetic fitness) and for sexual strategies theory (that women evaluate short-term mates as potential long-term mates). Additionally, research has found no significant difference between men's and women's preference for a short-term mate's physical attractiveness, whereas other studies have reported men have a higher preference for a short-term mate's physical attractiveness compared to women. Short-term mating preferences have not received as much attention in

the research literature as long-term relationships (Tadinac & Hromatko, 2006), which may explain the conflicting results.

7.3 Short-Term Mate Preferences Explained in Evolutionary and Social-Economic Theories Frameworks

It appears there is a gap in the research literature when it comes to explaining short-term mate preferences within a social-economic frame work; on the whole, it appears mate preferences for a short-term mate are often interpreted in an evolutionary framework. For instance, women seeking to secure good genes from a mate to ensure offspring fitness (e.g., Kruger et al., 2003) are explained by an evolutionary framework. Furthermore, hypothesis regarding the evaluations that women form of short-term mates as potential long-term mates is explaining short-term mating in an evolutionary context, as women are continuing to seek status and resources to ensure offspring fitness and survival (e.g., Scheib, 2001; Wiederman & Dubois, 1998). Additionally, in an effort to enhance their own reproductive success, men are theorised to continue prize a short-term mate's physical attractiveness (Li & Kenrick, 2006; Symons, 1979). To the best of our knowledge, research has not yet considered the effects of gender roles and individual SES on characteristics men and women desire in a short-term mate. Without properly exploring these different elements of social-economic theory, previous research has failed to adequately explore origin theories of mate preferences in short-term mates.

7.4 Summary of Chapter

This chapter introduced the topic of sex differences in mate preferences in short-term relationships. Previous research that has examined sex differences in mate preferences in short-term mating was discussed. Additionally, sex differences in mate preferences in short-term mates in relation to evolutionary and social-economic theory were outlined, and it was determined that there is a considerable gap in the literature concerning social-economic

theory and short-term relationships. Chapter Eight will introduce Experiment 3, which assesses the main and interactive effects of gender roles and SES on how much men and women consider a short-term mate's physical attractiveness and social level a necessity.

Chapter Eight – Experiment 3 and Experiment 3b

8.1 Overview of Chapter

The topic of sex differences in mate preferences when considering a short-term mate was introduced in this chapter. Furthermore, it was concluded that previous research has not adequately assessed the main and interactive effects of gender roles and SES on the characteristics men and women desire in a short-term mate. As a consequence, social-economic theory in relation to short-term mate preferences remains untested. This chapter will reiterate results of Experiment 1 in relation to providing support for evolutionary and social-economic theory. Next, Experiment 3 is introduced, which entails an investigation of the main and interactive effects of gender roles and SES on men and women's relative necessity of a short-term mate's physical attractiveness and social level. Research questions are introduced and assessed and results are discussed in relation to previous research and evolutionary and social-economic theory of sex differences in mate preferences. Finally, this chapter includes a discussion of a potential confounding variable relating to Experiment 3 and presents additional analyses (Experiment 3b).

8.2 Discussion of Experiment 1 in Relation to Evolutionary and Social-Economic Theories of Short-Term Mates

In Experiment 1 the necessities of short-term mates were explored and results of these mate preferences were related to evolutionary and social-economic theories. To reiterate, Experiment 1 was conducted to establish whether men's and women's perceived necessities of physical attractiveness and social level in long-term and short-term mates could be replicated (i.e., Li et al., 2002; Li & Kenrick, 2006). The necessity level was established by calculating if more 'mate dollars' were spent when mate budgets were constrained. Regarding short-term mates, Li and Kenrick (2006) found that both men and women considered physical attractiveness a necessity in a short-term mate (i.e., both men and women

spent significantly more mate dollars on physical attractiveness when budgets were constrained compared to when budgets were relaxed). In addition, when considering a short-term mate, Li and Kenrick (2006) also found that women were not found to consider social level a necessity.

Results of Experiment 1 provided support for Li and Kenrick (2006), but also provided additional information. Corroborating Li and Kenrick, results of Experiment 1 study showed that both men and women considered the physical attractiveness of a short-term mate a necessity. In addition, men considered physical attractiveness significantly more of a necessity in a short-term mate compared to women, and women considered social level significantly more of a necessity in a short-term mate compared to men. However, women did not consider social level significantly more of a necessity in a long-term mate compared to a short-term mate.

Results of Experiment 1 appear to support the strategic pluralism theory (e.g., Gangestad & Simpson, 2000) of women engaging in short-term relationships, in comparison to sexual strategies theory (e.g., Buss & Schmitt, 1993). Specifically, women seek short-term mates with good genes to promote the health of any potential offspring, and may not be evaluating short-term mates as potential long-term mates. If women were engaging in short-term relationships based on purely evaluating these short-term relationships as potential long-term relationships, then the characteristics women consider a necessity in a short-term relationship should be similar to the characteristics women consider a necessity in a long-term relationship. Interestingly, because results of Experiment 1 did not show that women considered social level a necessity in a long-term relationship, and again not a necessity in a short-term relationship, it could be concluded that these short-term necessity ratings are reflective of long-term necessity ratings. However, as women did not consider physical attractiveness a necessity in a long-term relationship, results of the current study suggest that

these results best fit strategic pluralism theory (e.g., Gangestad & Simpson, 2000). Therefore, because women considered physical attractiveness a necessity in a short-term relationship, we can only conclude the characteristics women consider a necessity in a short-term relationship are not an accurate representation of the characteristics women consider a necessity in a long-term relationship.

Of additional interest, Experiment 1 showed that men considered physical attractiveness more of a necessity in a short-term mate than did women. Therefore, results did not support Kenrick and colleagues' (1990) finding that men's preference for physical attractiveness was only significantly higher than women's when considering a long-term mate. However, these results do support Buss and Schmitt (1993) who suggested that men still place more emphasis on the physical attractiveness of a short-term mate when compared to women.

Results of Experiment 1 also showed women spent a significantly higher percentage of mate dollars on a short-term mate's social level in the low budget (i.e., considered the trait a necessity) then did men. This result potentially supports Buss and Schmitt (1993), who suggest women desire status and resources in a short-term mate, as their short-term mate preferences are expected to reflect their long-term mate preferences. However, results of Experiment 1 show that women did not consider social level a necessity in a long-term mate. In addition, results of the current study also show that women did not spend significantly more mate dollars in the low budget on a long-term mate's social level compared to men. It is unclear why women would consider the social level of a short-term mate, but not a long-term mate, significantly more of a necessity than men. Clearly, results of Experiment 1 require further exploration to properly understand differences in men's and women's long-term and short-term mate preferences.

8.3 Short-Term Mate Preferences and Experiment 3

The cultural context of the current study could provide information about biological mechanisms in sex differences, which in turn may provide support for evolutionary theory of sex differences in mate preferences. Men and women considering physical attractiveness a necessity in a short-term mate appears to be replicable across Western cultures (cross-cultural research of short-term mate preferences is limited). However, care should be taken not to attribute these results to evolutionary theory before properly testing hypotheses arising from social-economic theory.

Exploring different factors of social-economic theory (i.e., gender roles and SES) and their effect on men's and women's mate preferences regarding a short-term mate will contribute to research in two key ways. Firstly, sex differences in short-term mate preferences have not received as much attention in the research literature as sex differences in long-term mate preferences. As a result, origin theories of sex differences in mate preferences in short-term relationships have not received the same amount of attention as origin theories of sex differences in mate preferences in long-term relationships, particularly when considering social-economic theory. The next experiment conducted as part of the current program of research is the first to specifically analyse different social elements (e.g., gender roles and SES) and their main and/or interactive effect on the extent to which men and women consider physical attractiveness and social level a necessity in a short-term mate. Secondly, exploring different factors central to social-economic theory (i.e., gender roles and SES) and their effect on men's and women's preferences in a short-term mate will clarify the unexpected results of Experiment 1. For example, in Experiment 1, women considered social level more of a necessity in a short-term relationship then did men. An exploration of social elements may show that women of differing levels of SES have different necessity ratings of social level, and this would support a social-economic theory of sex differences in mate preferences.

8.4 Aims and Exploratory Questions

The aim of Experiment 3was to examine, for the first time, the combined effects of an individual's gender role and socioeconomic status on characteristics considered a necessity in a *short-term mate*. As previous research has not yet considered the impact of these factors on mate preferences in short-term relationships, Experiment 3 is exploratory in nature. However, specific effects will be indicative of evolutionary or social-economic frameworks. For instance, if results suggest no significant effect of gender roles or SES on how much men and women consider physical attractiveness and social level a necessity in a short-term mate, this may be indicative that an evolutionary framework provides a better explanation for men and women's mate preferences of a short-term mate because social variables are unable to account for any changes in short-term mate preferences. The following exploratory questions, rather than hypotheses, were generated:

1. What is the effect of an individual's sex (male or female), SES (low or high), and gender role (masculine, feminine, androgynous or undifferentiated) on the percentage of mate dollars spent on a short-term mate's physical attractiveness?
2. What is the effect of an individual's sex (male or female), SES (low or high), and gender role (masculine, feminine, androgynous or undifferentiated) on the percentage of mate dollars spent on a short-term mate's social level?

8.5 Method

8.5.1 Participants

Although the design of Experiment 3 replicates Experiment 2 (assessing short-term mate preferences instead of long-term mate preferences), an additional group of participants was sampled for Experiment 3. Participants (N = 781) included 231 men and 550 women with a mean age of 21.82 years (SD = 3.80). Three hundred and sixty three participants indicated their current relationship status as single, 110 were currently dating, 248 were

currently in a long-term relationship, 55 were married, and 5 were separated/divorced. Regarding sexual orientation, 695 participants identified as heterosexual, 39 identified as homosexual, 41identified as bisexual, and 6 identified as other.

Four hundred and ninety-five participants were university undergraduate students, 50 were TAFE (i.e., vocational) students, 88 were university postgraduate students, and 148 were not currently studying. Of the participants, 511 reported their weekly gross income in the bracket of $0 - $335, 231 reported their weekly gross income in the bracket of $336 - $990, and 39 reported their weekly gross income in the bracket of $990+. These income brackets were determined by the Australian Bureau of Statistics 2005–2006 Household Income and Income Distribution.

For highest education attained, 2 participants had completed primary school, 391participants had completed high school, 88 participants had completed a certificate I-IV, 44 participants had completed a diploma, 214participants had completed a university undergraduate degree, and 42participants had completed a university postgraduate degree.

Highest education level attained was operationalised as a categorical variable with the levels of low and high, based on previous research of March and Bramwell (2012). For participants who had attained primary school or high school education, this was operationalised as a low level of education attained. For participants who had attained a certificate I-IV or a diploma, this was operationalised as medium level of education attained. For participants who had attained an undergraduate degree or postgraduate degree, this was operationalised as a high level of education attained. Therefore, 393 (50.3%) participants met criteria for a low level of education, 132 (16.9%) met criteria for a medium level of education, and 256(32.8%) met criteria for a high level of education.

8.5.1.1. Categorisation of SES. Based on March and Bramwell (2012), participants were categorised into two levels of socio-economic status (SES; Low and high). High SES

was categorised as high education achieved or high weekly income, regardless of current employment (e.g., March & Bramwell, 2012). Individuals with low education or low weekly income were categorised as low SES. If individuals were currently employed, with either medium education or medium income, they were categorised as high SES. However, if individuals had medium education or medium income but were not currently employed, they were categorised as low SES. Based on this classification system, 379 of participants were classified as low SES and 475 participants were classified as high SES.

8.5.2 Materials

Materials were the same as Experiment 2: An online questionnaire including a demographics section, the BSRI short-form (Choi et al., 2009) (Appendix F) and the mate budget paradigm (Appendix B).

8.5.2.1 Demographics. Participants were asked to supply the same demographic information that was gathered in Experiment 1 and Experiment 2: Age in years, biological sex, whether English was their primary language, sexual orientation, current romantic relationship status, if they currently held a steady job, their weekly gross income bracket, their current education status, and highest level of education attained.

8.5.2.2 BSRI short-form. Participants completed the BSRI-short form, which consists of 20 statements (10 considered to be masculine and 10 considered to be feminine). For the current study, internal consistency measures of the BSRI short form masculinity and femininity scales remained high (Cronbach's alpha = .86 and .96, respectively).

8.5.2.2.1 Coding of gender roles. Following the same methodology as Experiment 2, to categorise an individual's dominant gender role, a median split was created for both the masculinity and femininity scales. In Experiment 3, 90 participants scored high on masculinity (above the median split) and low on femininity (equal to and below median split), 248 participants scored high on femininity (above the median split) and low on

masculinity (equal to and below median split), 279 participants scored high on masculinity (above the median split) and high on femininity (above the median split), and 164 participants scored low on masculinity (equal to and below the median split) and low on femininity (equal to and below the median split).

8.5.2.3 Mate budget paradigm (short-term). Experiment 3 used the same mate budget paradigm (e.g., Li et al., 2002) used in Experiment 1 and Experiment 2, however Experiment 3 explicitly assessed short-term mates (i.e., participants were asked to spend mate dollars to design their ideal short-term mate, someone with whom they may have casual sex) . The mate budget paradigm consists of three different parts: An introduction, a low budget (with 10 mate dollars to spend) and a high budget (with 30 mate dollars to spend). For the current study, low and high budget presentation was counterbalanced. High then low presentation was given to 344 of the participants, whereas 437 of participants received the low then high presentation.

8.5.3 Design

The design of Experiment 3 was mixed-design, with mate budget (within-subjects; 2 levels: Low and high), sex of participants (between-subjects; 2 levels: Men and women), gender role (between-subjects; 4 levels: Masculine, feminine, androgynous, and undifferentiated), SES (between-subjects; 2 levels: Low and high) as the independent variables. The dependent variable was percentage of budget spent on each characteristic (physical attractiveness and social level).

8.5.4 Procedure

Participants were recruited from the Australian Catholic University Brisbane Campus and the general community. Participants were contacted during class time and through social media, including Facebook and Twitter. Participants were informed this study was voluntary and anonymous and would take approximately 20–30 minutes of their time (Information

letter and consent forms are presented in Appendix C). Participants were given the online address to access the study. The questionnaire was completed using a secure data collection website (www.surveymonkey.com). Participants who were undergraduate students of the Australian Catholic University School of Psychology were offered credit towards their course work by participating in the research.

8.6 Results

8.6.1 Data Screening

Missing value analyses were conducted on physical attractiveness and social level dependent variables at each level of each independent variable (sex, SES and gender roles). Missing cases did not exceed 5% on any variable. Normality and univariate outliers were extensively screened (Appendix I). Removing univariate outliers improved the violations of normality in most cases. Furthermore, as the *F* test is considered somewhat robust to violations of normality (Keppel & Wickens, 2004), the violations of normality after removal of outliers were considered minor. However, for inferential analyses, univariate outliers were included, as inferential statistics were run with and without inclusion of the univariate outliers and the results of analyses did not differ in terms of statistical significance.

8.6.2 Inferential Statistics

8.6.2.1 Short-term mates, necessities and luxuries. As the short-term data from Experiment 1 was being used, necessities had already been established. However, Table 8.1 represents the percentage of mate dollars spent on the characteristics of physical attractiveness and social level, as these are the mate characteristics of interest in Experiment 3.

Table 8.1

Percentage of Budget Spent on A Short-Term Mate's Characteristics in Low Budget Compared to High Budget

	Men			Women		
	Low	High	Difference	Low	High	Difference
Short-term						
Physical Attractiveness	36.14%	25.25%	10.89***	29.51%	23.24%	6.28***
Social Level	12.62%	16.75%	-4.13***	16.06%	18.34%	-2.28***

* $p < .05$, ** $p < .01$, *** $p < .001$

As shown above, men considered the physical attractiveness of a short-term mate a necessity, and social level a luxury. For women, the physical attractiveness of a short-term mate was also considered a necessity, and social level a luxury.

8.6.2.2 Percentage of dollars spent on physical attractiveness. A 2x2x2x4 mixed models ANOVA was run, with sex (2 levels: Men and women), SES (2 levels: Low and high) and gender roles (4 levels: Masculine, feminine, androgynous and undifferentiated) as the between subjects variables and budget (2 levels: Low and high) as the within subjects variable. The dependent variable was percentage of budget spent on physical attractiveness. See Table 8.2 for descriptive statistics, such as men and women in the low budget spending a higher percentage of their budget on physical attractiveness than men and women in the high budget. Means and standard errors are graphically depicted in Figure 8.1.

Table 8.2

Men's and Women's Mean (and Standard Deviations) Percentage of Budget Spent on a Short-Term Mate's Physical Attractiveness by Budget, SES and Gender Role

	Low Budget						High Budget					
	SES						SES					
Gender Role	Low	*n*	High	*n*	Total	N	Low	*n*	High	*n*	Total	N
Men's Data												
Masculine	38.99 (14.91)	25	48.81 (25.05)	21	43.47 (20.54)	46	26.61 (6.60)	25	26.84 (6.78)	21	26.72 (6.61)	46
Feminine	33.05 (14.89)	32	45.57 (18.28)	23	38.29 (17.38)	55	24.48 (7.36)	32	26.81 (4.44)	23	25.45 (6.36)	55
Androgynous	32.15 (15.19)	33	31.67 (15.15)	40	31.89 (15.06)	73	23.55 (7.58)	33	24.80 (8.03)	40	24.23 (7.80)	73
Undifferentiated	34.32 (18.73)	37	33.85 (14.86)	25	34.13 (17.14)	62	24.56 (7.34)	37	26.13 (6.78)	25	25.19 (7.11)	62
Total	34.35 (16.17)	127	38.40 (19.23)	109	36.23 (17.73)	236	24.68 (7.26)	127	25.92 (6.84)	109	25.25 (7.08)	236
Women's Data												
Masculine	29.71 (11.74)	22	27.36 (15.62)	23	28.51 (13.75)	45	25.29 (4.83)	22	22.99 (5.49)	23	24.11 (5.25)	45

(table continues)

	Low Budget						High Budget					
	SES						SES					
Gender Role	Low	*n*	High	*n*	Total	N	Low	*n*	High	*n*	Total	N
Feminine	30.14 (12.16)	115	31.08 (14.77)	80	30.53 (13.27)	195	23.74 (6.13)	115	23.30 (5.55)	80	23.56 (5.89)	195
Androgynous	27.76 (14.11)	118	30.04 (14.64)	87	28.73 (14.35)	205	22.90 (6.70)	118	22.98 (6.61)	87	22.94 (6.65)	205
Undifferentiated	29.59 (16.95)	58	28.25 (16.67)	45	29.01 (16.76)	103	23.18 (6.18)	58	22.41 (8.08)	45	22.84 (7.05)	103
Total	29.11 (13.84)	313	29.79 (15.14)	235	29.40 (14.41)	548	23.43 (6.28)	313	22.98 (6.46)	235	23.24 (6.36)	548

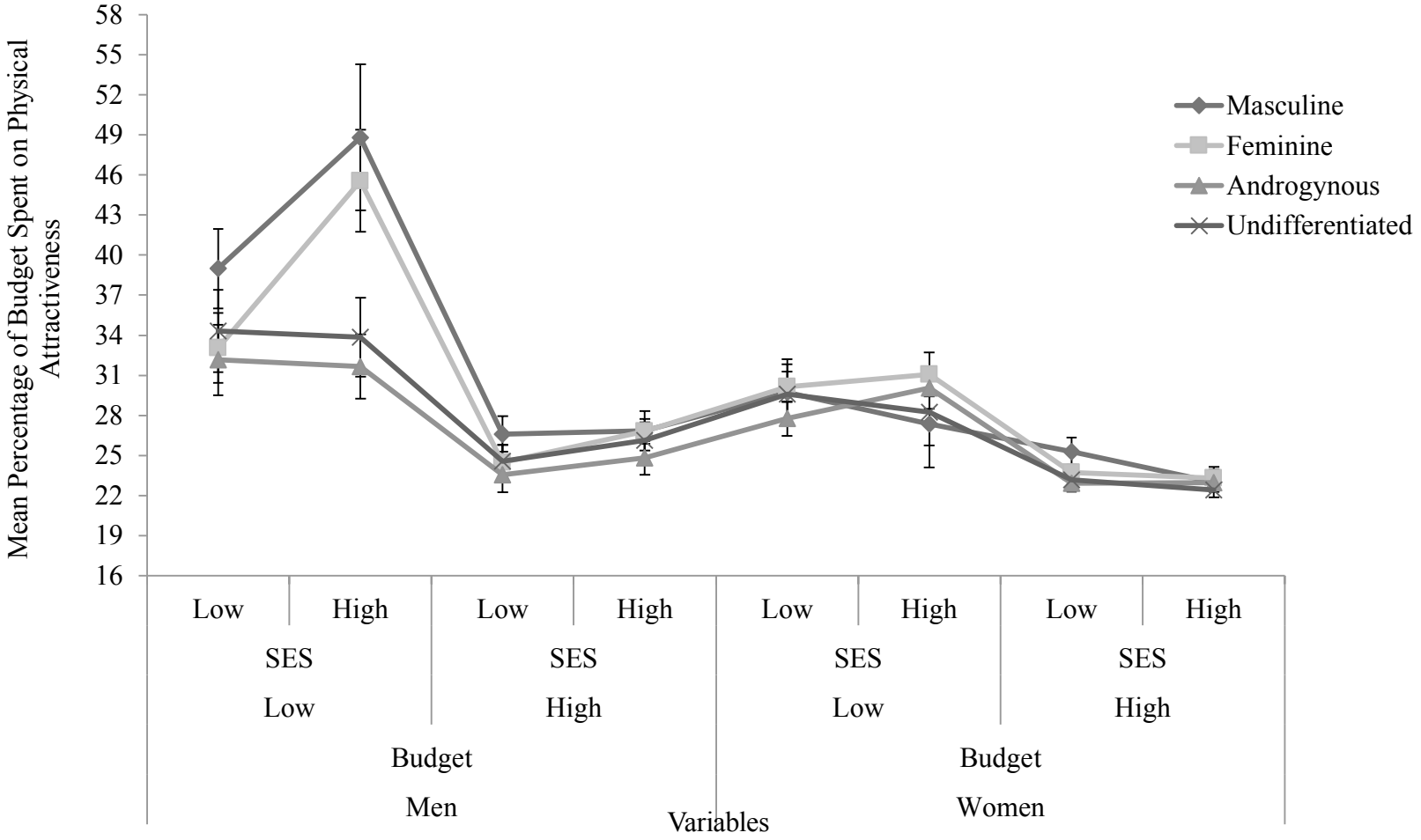

Figure 8.1. Men's and women's mean percentage of budget spent on a short-term mate's physical attractiveness by budget (low and high), SES (low and high) and gender role (masculine, feminine, androgynous and undifferentiated). Errors bars represent standard error. Y axis starts at 16% to differentiate error bars.

Regarding main effects, results showed a main effect of sex, $F(1,768) = 37.67$, $p = .001$, with a small to medium effect size of $\eta p^2 = .05$. There was no main effect of SES, $F(1, 768) = 2.97$, $p = .085$, with a small effect size of $\eta p^2 = .01$. There was a significant main effect of gender, $F(3, 768) = 4.56$, $p = .004$, with a small effect size of $\eta p^2 = .02$. There was a significant main effect of budget, $F(1,768) = 267.51$, $p = .001$, with a large effect size of $\eta p^2 = .26$.

Regarding interactions, there was a significant interaction between sex and SES, $F(1, 768) = 5.35$, $p = .021$, with a small effect size of $\eta p^2 = .01$. There was also a significant interaction between sex and gender, $F(3,768) = 2.77$, $p = .041$, with a small effect size of $\eta p^2 = .01$. There was no significant interaction between SES and gender, $F(3, 768) = 1.27$, $p = .283$, with a small effect size of $\eta p^2 = .01$. Finally, there was no significant interaction between sex, SES and gender, $F(3, 768) = 1.72$, $p = .162$, with a small effect size of $\eta p^2 = .01$.

There was a significant interaction between budget and sex, $F(1, 768) = 30.01$, $p = .001$, with a small effect size of $\eta p^2 = .04$. There was a significant interaction between budget and SES, $F(1, 768) = 4.78$, $p = .029$, with a small effect size of $\eta p^2 = .01$. There was a significant interaction between budget and gender, $F(3, 768) = 3.65$, $p = .012$, with a small effect size of $\eta p^2 = .01$. There was no significant three-way interaction between budget, sex and SES, $F(1, 768) = 2.27$, $p = .133$, with a small effect size of $\eta p^2 = .01$. There was however a significant three-way interaction between budget, sex and gender, $F(3, 768) = 4.51$, $p = .004$, with a small effect size of $\eta p^2 = .02$. There was also a significant three-way interaction between budget, SES and gender, $F(3, 768) = 2.72$, $p = .044$, with a small effect size of $\eta p^2 = .01$. Finally, there was a significant four way interaction between budget, sex, SES and gender, $F(3, 768) = 2.82$, $p = .038$, with a small effect size of $\eta p^2 = .01$.

Post-hoc analyses with a Bonferroni adjustment to account for familywise error showed men had a significantly higher percentage of dollars spent on physical attractiveness compared to women, $p = .001$. Regarding gender roles, those of a masculine gender role and a feminine gender role had a significantly higher percentage of dollars spent on physical attractiveness compared to those of an androgynous gender role, $p = .012$ and .038, respectively. No other comparisons reached significance. For budget, when in the low budget participants spent a significantly higher percentage of dollars on physical attractiveness than when in the high budget, $p = .001$.

Regarding the interaction of sex and SES, post-hoc analyses with a Bonferroni correction showed men of low SES spent a significantly higher percentage of dollars on physical attractiveness compared to women of low SES, $p = .005$. In addition, men of high SES spent a significantly higher percentage of dollars on physical attractiveness compared to women of high SES, $p = .001$. For the interaction of sex and gender, men of a masculine gender role spent a significantly higher percentage of dollars on physical attractiveness compared to men of an androgynous and undifferentiated gender role, $p = .001$ and .024, respectively. For the interaction of budget and sex, men in the low budget and women in the low budget spent a significantly higher percentage of dollars on physical attractiveness compared to men in the high budget and women in the high budget, $p = .001$ and .001, respectively. For the interaction of budget and SES, individuals of low SES and high SES spent a significantly higher percentage of dollars on physical attractiveness when in the low budget compared to when in the high budget, $p = .001$ and .001, respectively. Regarding the interaction between budget and gender, individuals of a masculine gender role and a feminine gender role spent a significantly higher percentage of dollars on physical attractiveness in the low budget compared to individuals of an androgynous gender role, $p = .015$ and .024, respectively.

Regarding the three way interaction of budget, sex and gender, men in the low budget of a masculine gender role spent a significantly higher percentage of dollars on physical attractiveness compared to men in the low budget and of an androgynous or undifferentiated gender role, p = .001 and .007, respectively. For the three way interaction of budget, SES and gender, individuals in the low budget, of high SES and a feminine gender role spent a significantly higher percentage of dollars on physical attractiveness compared to individuals in the low budget, of high SES and an androgynous or undifferentiated gender role, p = .008 and .034, respectively.

Finally, for the four way interaction of budget, sex, SES and gender, men in the low budget, of a high SES and a masculine gender role spent a significantly higher percentage of dollars on physical attractiveness compared to men in the low budget, of a high SES and an androgynous or undifferentiated gender role, p = .001 and .006, respectively. In addition, men in the low budget condition, with a high SES and a feminine gender role spent a significantly higher percentage of dollars on physical attractiveness compared to men in the low budget, of a high SES and an androgynous or undifferentiated gender role, p = .003 and .048, respectively.

8.6.2.3 Percentage of dollars spent on social level. A 2x2x2x4 mixed models ANOVA was run, with sex (2 levels: Men and women), SES (2 levels: Low and high) and gender (4 levels: masculine, feminine, androgynous and undifferentiated) as the between subjects variables and budget (2 levels: Low and high) as the within subjects variable. The dependent variable was percentage of budget spent on social level. Table 8.3 shows the descriptive statistics, including men and women spending significantly more mate dollars on social level in the high budget compared to the low budget. Means and standard errors are depicted graphically in Figure 8.2.

Table 8.3

Men's and Women's Mean (and Standard Deviations) Percentage of Budget Spent on a Short-Term Mate's Social Level by Budget, SES and Gender Role

	Low Budget						High Budget					
	SES						SES					
Gender Role	Low	*n*	High	*n*	Total	N	Low	*n*	High	*n*	Total	N
Men's Data												
Masculine	16.94 (9.11)	25	9.17 (10.83)	21	13.39 (10.57)	46	16.92 (6.88)	25	17.28 (5.80)	21	17.08 (6.34)	46
Feminine	13.94 (10.52)	32	10.03 (8.18)	23	12.31 (9.73)	55	16.95 (6.62)	32	15.36 (6.87)	23	16.29 (6.71)	55
Androgynous	13.52 (7.29)	33	13.13 (9.28)	40	13.31 (8.38)	73	16.92 (6.48)	33	15.75 (7.33)	40	16.28 (6.94)	73
Undifferentiated	10.31 (7.75)	37	13.28 (7.60)	25	11.51 (7.77)	62	17.36 (7.14)	37	17.60 (6.42)	25	17.46 (6.81)	62
Total	13.36 (8.89)	127	11.75 (9.08)	109	12.62 (9.00)	236	17.06 (6.71)	127	16.39 (6.73)	109	16.75 (6.71)	236
Women's Data												
Masculine	18.92 (9.55)	22	15.55 (10.38)	23	17.20 (10.02)	45	20.17 (4.83)	22	20.49 (5.44)	23	20.33 (5.07)	45

(table continues)

	Low Budget						High Budget					
	SES						SES					
Gender Role	Low	*n*	High	*n*	Total	N	Low	*n*	High	*n*	Total	N
Feminine	16.04 (8.56)	115	17.18 (9.71)	80	16.50 (9.04)	195	17.52 (5.49)	115	18.59 (6.49)	80	17.96 (5.93)	195
Androgynous	16.39 (8.94)	118	15.05 (8.52)	87	15.82 (8.77)	205	18.27 (5.72)	118	18.68 (6.77)	87	18.44 (6.17)	205
Undifferentiated	16.13 (9.94)	58	14.00 (10.22)	45	15.20 (10.07)	103	19.49 (5.83)	58	16.05 (7.85)	45	17.99 (6.96)	103
Total	16.39 (9.02)	313	15.62 (9.47)	235	16.06 (9.22)	548	18.35 (5.64)	313	18.32 (6.85)	235	18.34 (6.18)	548

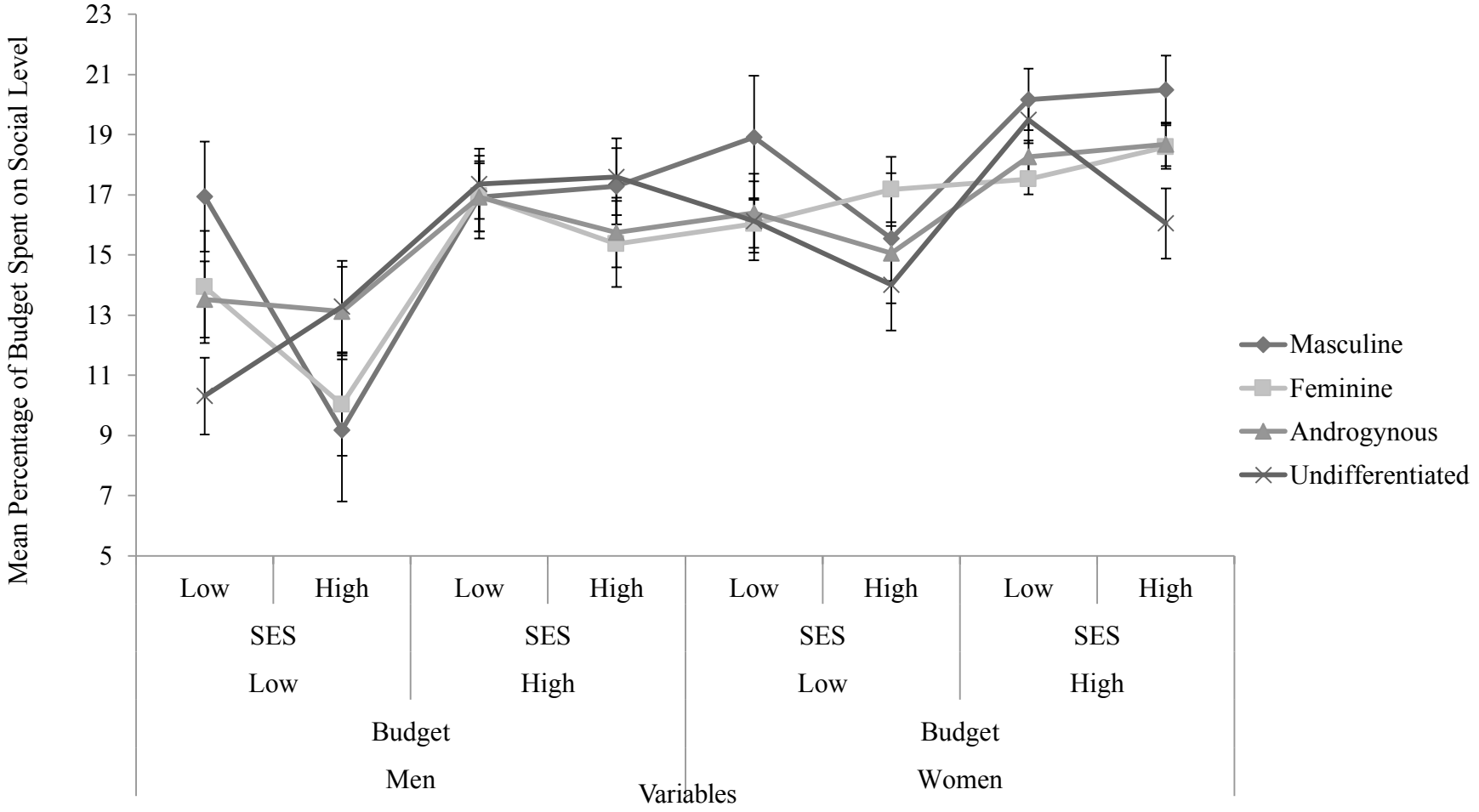

Figure 8.2. Men's and women's mean percentage of budget spent on a short-term mate's social level by budget (low and high), SES (low and high) and gender role (masculine, feminine, androgynous and undifferentiated). Errors bars represent standard error. Y axis starts at 5% to differentiate error bars.

Regarding main effects, results showed a main effect of sex, $F(1,768) = 23.75$, $p = .001$, with a small effect size of $\eta p^2 = .03$. There was also a main effect of SES, $F(1, 768) = 4.23$, $p = .040$, with a small effect size of $\eta p^2 = .01$. There was no significant main effect of gender, $F(3, 768) = .92$, $p = .432$, with a small effect size of $\eta p^2 = .01$. There was a significant main effect of budget, $F(1,768) = 95.89$, $p = .001$, with a large effect size of $\eta p^2 = .11$.

Regarding interactions, there was no significant interaction between sex and SES, $F(1, 768) = .19$, $p = .666$, with a small effect size of $\eta p^2 = .01$. There was no significant interaction between sex and gender, $F(3,768) = .57$, $p = .633$, with a small effect size of $\eta p^2 = .00$. There was no significant interaction between SES and gender, $F(3, 768) = .55$, $p = .648$, with a small effect size of $\eta p^2 = .01$. However, there was a significant interaction between sex, SES and gender, $F(3, 768) = 2.65$, $p = .048$, with a small effect size of $\eta p^2 = .01$.

There was a significant interaction between budget and sex, $F(1, 768) = 6.33$, $p = .012$, with a small effect size of $\eta p^2 = .01$. There was a significant interaction between budget and SES, $F(1, 768) = 3.99$, $p = .046$, with a small effect size of $\eta p^2 = .01$. There was no significant interaction between budget and gender, $F(3, 768) = 1.02$, $p = .382$, with a small effect size of $\eta p^2 = .01$.

There was no significant three-way interaction between budget, sex and SES, $F(1, 768) = .28$, $p = .599$, with a small effect size of $\eta p^2 = .01$. There was no significant three-way interaction between budget, sex and gender, $F(3, 768) = 1.14$, $p = .332$, with a small effect size of $\eta p^2 = .010$. There was however a significant three-way interaction between budget, SES and gender, $F(3, 768) = 4.51$, $p = .004$, with a small effect size of $\eta p^2 = .02$. Finally, there was no significant four-way interaction between budget, sex, SES and gender, $F(3, 768) = 1.37$, $p = .250$, with a small effect size of $\eta p^2 = .01$.

Post-hoc analyses with a Bonferroni adjustment to account for familywise error showed women had a significantly higher percentage of dollars spent on social level

compared to men, $p = .001$. Regarding SES, those of a low SES spent a significantly higher percentage of dollars spent on social level compared to those of high SES, $p = .040$.For budget, when in the high budget individuals spent a significantly higher percentage of dollars on social level than when in the low budget, $p = .001$.

For the interaction of budget and sex, men in the high budget spent a significantly higher percentage of dollars on social level compared to men in the low budget, $p = .001$. In addition, women in the high budget spent a significantly higher percentage of dollars on social level compared to women in the low budget, $p = .001$. For the interaction of budget and SES, individuals in the high budget and of low SES spent a significantly higher percentage of dollars on social level compared to individuals in the low budget and of low SES, $p = .001$. In addition, individuals in the high budget and of high SES spent a significantly higher percentage of dollars on social level compared to individuals in the low budget and of high SES, $p = .001$.

Regarding the three-way interaction of sex, SES and gender, post-hoc analyses with a Bonferroni correction showed women of an undifferentiated gender role and a low SES spent a significantly higher percentage of dollars on social level compared to women of an undifferentiated gender role and a high SES, $p = .037$. No other comparisons reached significance. Finally, for the interaction of budget, SES and gender, individuals in the low budget condition with low SES and a masculine gender role spent a significantly higher percentage of dollars on social level compared to individuals in the low budget of low SES and an undifferentiated gender role, $p = .025$.

8.7 Discussion

8.7.1 Aims and Exploratory Questions

The aim of Experiment 3 was to examine, for the first time, the combined effects of an individual's gender role and socioeconomic status on characteristics considered a

necessity in a *short-term mate*. The following exploratory questions were tested, (1) what is the effect of an individual's sex (male or female), SES (low or high), and gender role (masculine, feminine, androgynous or undifferentiated) on the percentage of mate dollars spent on a short-term mate's physical attractiveness? In addition, (2) what is the effect of an individual's sex (male or female), SES (low or high), and gender role (masculine, feminine, androgynous or undifferentiated) on the percentage of mate dollars spent on a short-term mate's social level?

8.7.2 Discussion of Mate Dollars Spent on Physical Attractiveness

In relation to exploratory question 1, results showed that both men and women spent significantly more mate dollars on a short-term mate's physical attractiveness in the low budget compared to the high budget. This confirms results of Experiment 1 and previous literature of Li and Kenrick (2006), that both men and women consider the physical attractiveness of a short-term mate a necessity.

Results also showed an effect for biological sex, specifically that men spent a significantly higher percentage overall (i.e., in both low and high budget conditions) on a short-term mate's physical attractiveness compared to women. This result has implications for the interpretation of previously published research findings that have shown no significant differences in men's and women's desire for physical attractiveness in a short-term mate (e.g., Eastwick & Finkel, 2008). Rather than suggesting that sex differences in mate preferences disappear when men and women consider a short-term mate, current results support the work of Braun and Bryan (2006), who stated that for short-term relationships, both sexes show a clear preference for physical attractiveness, however this preference is more prominent in men.

As previous research has not considered the variables of gender roles and SES independent and interactively in relation to short-term mate preferences, the current results

add to the research findings in relation to sex differences in mate preferences. Firstly, results showed that individuals of a masculine and feminine gender role spent a significantly higher percentage of mate dollars on physical attractiveness in the low budget compared to individuals of an androgynous gender role. Adding to this, men in the low budget and of a masculine gender role spent a significantly higher percentage of mate dollars on physical attractiveness compared to men in the low budget and of an androgynous or undifferentiated gender role. This result adds to the body of literature on men's and women's short-term mate preferences, showing that gender roles can also influence short-term mate preferences. In addition, these results also suggest that gender roles (i.e., androgynous and undifferentiated) other than those traditionally studied in mate preferences literature (i.e., masculine and feminine; Eastwick et al., 2009) can also influence men's and women's preference for a short-term mate's physical attractiveness.

Secondly, there were also effects of men's and women's level of SES on their preference for a short-term mate's physical attractiveness. Men and women of both high and low SES spent significantly more mate dollars in the low budget compared to the high budget. In addition, men of low and high SES spent significantly more mate dollars on a short-term mate's physical attractiveness compared to women of low and high SES. There was also an interaction between SES and gender roles. Men and women in the low budget of the high SES group and a feminine gender role spent a significantly higher percentage of mate dollars on a short-term mate's physical attractiveness compared to men and women in the low budget condition of the high SES group and an androgynous and undifferentiated gender role. Evidently, the effect for high SES and a feminine gender role influences individuals to spend more mate dollars on physical attractiveness when in the low budget. Although a result not yet found for men, the association between women's high SES and an increased preference for a mate's physical attractiveness has been reported before (although

in a long-term mate; March & Bramwell, 2012). Of interest however is that this was associated with a feminine gender role, as preference for a mate's physical attractiveness is generally associated with men, and as such should be associated with a masculine gender role (e.g., Eastwick et al., 2006; Regan & Sprecher, 1995). It should be noted however that this difference in gender roles was not between femininity and masculinity, rather femininity and androgyny and undifferentiated. Therefore, it is possible that a feminine gender role is associated with preference for a short-term mate's physical attractiveness, whereas a masculine gender role is associated with preference for a long-term mate's physical attractiveness.

Finally, there was a four-way interaction between the variables. Specifically, men in the low budget of a high SES and a masculine gender role spent a significantly higher percentage of mate dollars on a short-term mate's physical attractiveness compared to men in the low budget of a high SES and an androgynous or undifferentiated gender role. Related to this, men in the low budget of a high SES and a feminine gender role spent a significantly higher percentage of mate dollars on a short-term mate's physical attractiveness compared to men in the low budget of a high SES and an androgynous or undifferentiated gender role. This four-way interaction adds an interesting element to the three-way interaction reported above. Firstly, results suggest that SES has an effect on men's preference for a short-term mate's physical attractiveness, and as such should be included as a measurable variable in future research regarding short-term mate preferences. Secondly, although femininity might be associated with an increased preference for a short-term mate's physical attractiveness, it appears that for men masculinity is also associated with an increased preference for a short-term mate's physical attractiveness. However, these statistically significant comparisons were only in the low budget (where necessities are located), when SES was high, and when compared to androgynous and undifferentiated gender roles.

It is of interest this difference was not between men of a masculine gender role and men of a feminine gender role, as previous research has shown traditional gender roles are associated with stronger traditional sex differences in mate preferences (e.g., Eastwick et al., 2006). However, previous research has also reported no significant difference between men and women's physical attractiveness necessity scores in a short-term mate (Li & Kenrick, 2006). If there is limited difference between men and women's desirability of a short-term mate's physical attractiveness, then perhaps we would not expect a difference between individuals of a masculine or feminine gender role and their physical attractiveness necessity score. Another suggestion for future research is to elaborate on the distinction of gender roles. Instead of considering gender roles as masculine and feminine, perhaps these could be further categorised as traditional (i.e., masculine and feminine) and non-traditional (i.e., androgynous and undifferentiated) gender roles, as current comparisons between these two categories produced significant results.

8.7.3 Discussion of Mate Dollars Spent on Social Level

Exploratory question 2 was designed to investigate the effects of an individual's biological sex (male or female), SES (low or high) and gender role (masculine, feminine, androgynous or undifferentiated) on the percentage of mate dollars spent on a short-term mate's social level. Results showed that both men and women spent significantly more mate dollars on a short-term mate's social level in the high budget compared to the low budget, again confirming results of Experiment 1, that both men and women consider the social level of a short-term mate a necessity.

Results also showed an effect for biological sex, specifically that women spent a significantly higher percentage overall (i.e., in both low and high budget conditions) on a short-term mate's social level compared to men. It appears that, although men and women do not consider the social level of a short-term mate a necessity, women still show higher

preference for a short-term mate's social level compared to men, as evident by the higher percentage of mate dollars women spent on social level overall. This result confirms the previous suggestion of Wiederman and Dubois (1998) that compared to men, women value financial resources and generosity more in short-term mates. In addition, this result suggests that perhaps women are considering short-term mate's as potential long-term mates. Buss and Schmitt (1993) suggest that women use short-term mating as a means to assess a potential long-term mate. As the sex differences in this preference for a short-term mate's social level mirrors sex differences in preference for a long-term mate's social level (i.e., women having higher preference then men), perhaps women are assessing these short-term mates as potential long-term suitors. Overall, this result suggests that although not considered as strong a necessity as a short-term mate's physical attractiveness, compared to men women show higher preference for a short-term mate's social level. In sum, when considering short-term mates (compared to long-term mates), sex differences in preference for physical attractiveness dissipate, whereas sex differences in preference for social level remain.

In addition, there were also main and interactive effects of SES and gender roles and men's and women's preference for a short-term mate's social level. Both men and women of low SES spent a significantly higher percentage of mate dollars on a short-term mate's social level compared to men and women of high SES. This result provides support for structural powerlessness theory (Buss & Barnes, 1986), which suggests a decrease in women's individual SES is associated with an increase in preference for a long-term mate's social level. The current results suggest that for a short-term mate, the structural powerlessness theory is also applicable, and not only for women but also for men. Furthermore, results also showed that women of an undifferentiated gender role and low SES spent a significantly higher percentage of mate dollars on a short-term mate's social level compared to women of an undifferentiated gender role and high SES. Apparently, the premise of structural powerless

theory (e.g., Buss & Barnes, 1986) is strongly applicable when women are of an undifferentiated (e.g., non-traditional) gender role.

Finally, results showed that when individuals were assigned to the low budget condition, those of low SES and a masculine gender role spent a significantly higher percentage of mate dollars on a short-term mate's social level compared to individuals of low SES and an undifferentiated gender role. Firstly, as this effect occurred in the low budget condition, we can assume these individuals considered social level a necessity. As such, individuals considered a short-term mate's social level a necessity only when they were of masculine gender role and of low SES. Of interest again is that this mate preference traditionally associated with women of a masculine gender role, not a feminine gender role. We suggest again that future research considers gender roles to be further conceptualised as traditional and non-traditional, as it appears that masculine and feminine gender roles are no longer producing sex typed mate preferences.

8.7.4 Unpacking Variables of SES and the Effects on Short-Term Mate Necessity Scores

Due to the lack of effect in Experiment 3 regarding preference for a short-term mate's social level, it was decided to unpack the variables of SES in an attempt to investigate the independent contributions of employment, weekly income and education attained on men's and women's percentage of budget spent on physical attractiveness and social level. Although it is possible that the lack of effect of SES could be a true effect, it is also possible that the categorisation of SES (in line with March & Bramwell, 2012) has obscured individual SES factors (i.e., income, education, current employment) and their relation to men's and women's short-term mate preferences.

8.8 Experiment 3b

8.8.1 Aims and Hypotheses

The aim of this experiment is to assess the variables of weekly income, education attained, and current employment, and their independent and combined relationship on men and women's physical attractiveness necessity scores and social level necessity scores of a short-term mate. Previous research has interpreted men and women's mate preferences of a short-term mate in an evolutionary framework. Specifically, previous research has made no predictions regarding factors informed by social-economic theory and their effects on men and women's short-term mate preferences. Although results of Experiment 3 so far have shown that different levels of SES may have an effect men and women's short-term mate preferences, previous research has not yet explored these factors in relation to men's and women's short-term mate preferences. Therefore, based on the limited exploration of previous research in relation to socio-economic factors influencing men and women's short-term mate preferences, and based on the results of SES in Experiment 3, the following hypotheses were generated

1. There will be an effect of men's level of current employment, weekly income, and education attained on their necessity scores of a short-term mate's physical attractiveness. Specifically, current employment, high weekly income and high education attained will be related to a higher percentage of mate dollars spent on a short-term mate's physical attractiveness
2. There will be an effect of men's level of current employment, weekly income, and education attained on their necessity scores of a short-term mate's social level. Specifically, no current employment, low weekly income and low education attained will be related to a higher percentage of mate dollars spent on a short-term mate's social level

3. There will be an effect of women's level of current employment, weekly income, and education attained on their necessity scores of a short-term mate's physical attractiveness. Specifically, current employment, high weekly income and high education attained will be related to a higher percentage of mate dollars spent on a short-term mate's physical attractiveness

4. There will be an effect of women's level of current employment, weekly income, and education attained on their necessity scores of a short-term mate's social level. Specifically, no current employment, low weekly income and low education attained will be related to a higher percentage of mate dollars spent on a short-term mate's social level

8.9 Results

8.9.1 Design of Experiment 3b

Data was initially split by participant sex (men and women). Experiment 3b was a mixed-design, with mate budget (within-subjects; 2 levels: Low and high), current employment (between-subjects; 2 levels: Currently employed and not currently employed), weekly income (between-subjects; 3 levels: Low, medium and high), and education attained (between-subjects; 3 levels: Low, medium and high). The dependent variables were percentage of budget spent on each characteristic (physical attractiveness and social level). For Experiment 3b, the main effects of budget, current employment, weekly income and education attained were of particular interest. When combined, the cells of budget, employment, weekly income and education attained contained low numbers (See Appendix J). These low cell numbers were considered to be problematic for the purposes of conducting planned comparisons. In addition, results based on these low cell numbers would be limited when generalising to the population, as the low sample numbers would not considered be to reflective of the population. However, interactions between the variables of current

employment, weekly income, education attained and the variable of budget are reported, as cell numbers were satisfied for appropriate analyses and it was of interest to explore necessities and luxuries. Due to main effects being of interest, Estimated Marginal Means will be presented in addition to means. Keppel (1991) suggests that in the absence of interaction, marginal means should be considered in addition to cell means.

8.9.2 Data Screening

As the hypotheses did not involve a direct comparison between men's and women's scores, data was split by sex.

8.9.2.1 Screening of men's and women's data. Missing value analyses were conducted on physical attractiveness and social level dependent variables at each level of each independent variable (current employment, weekly income, education attained). No missing cases amounted more than 5%. Normality and univariate outliers were extensively screened (Appendix K). Removing univariate outliers for the most case improved the violations of normality. Furthermore, as the *F* test is considered somewhat robust to violations of normality (Keppel & Wickens, 2004), the violations of normality after removal of outliers were considered minor. However, for inferential analyses, univariate outliers were included, as inferential statistics were run with and without inclusion of the univariate outliers and analyses did not differ.

8.9.3 Inferential Statistics

8.9.3.1 Men's employment, education attained, income and percentage of dollars spent on physical attractiveness. A 2x2x3x3 mixed models ANOVA was run, with budget (2 levels: Low and high) as the within subjects variable, and employment (2 levels: Currently employed, not currently employed), income (3 levels: Low, medium and high) and education attained (3 levels: Low, medium, and high) as the between subjects variables. The dependent variable was percentage of budget spent on physical attractiveness. Table 8.4 displays the

descriptive statistics, men of high education attained spending more mate dollars on physical attractiveness in the low budget compared to the high budget. Means and standard errors are depicted graphically in Figure 8.3.

Table 8.4

Men's Means and Standard Deviations of Percentage of Budget Spent on Physical Attractiveness by Budget, Employment, Weekly Income, and Education Attained

	Budget					
	Low			High		
	M	*SD*	*N*	*M*	*SD*	*N*
Current Employment						
Yes	36.84	17.20	143	25.77	6.84	143
No	35.27	18.57	93	24.46	7.41	93
Weekly Income						
Low	34.50	15.59	137	25.45	6.87	137
Medium	37.58	18.99	72	24.96	6.92	72
High	41.36	23.16	27	25.06	8.69	27
Education Attained						
Low	36.13	17.23	108	25.28	6.71	108
Medium	30.52	14.46	53	24.67	7.62	53
High	40.40	19.51	75	25.84	7.25	75
Total	36.23	17.73	236	25.25	7.08	236

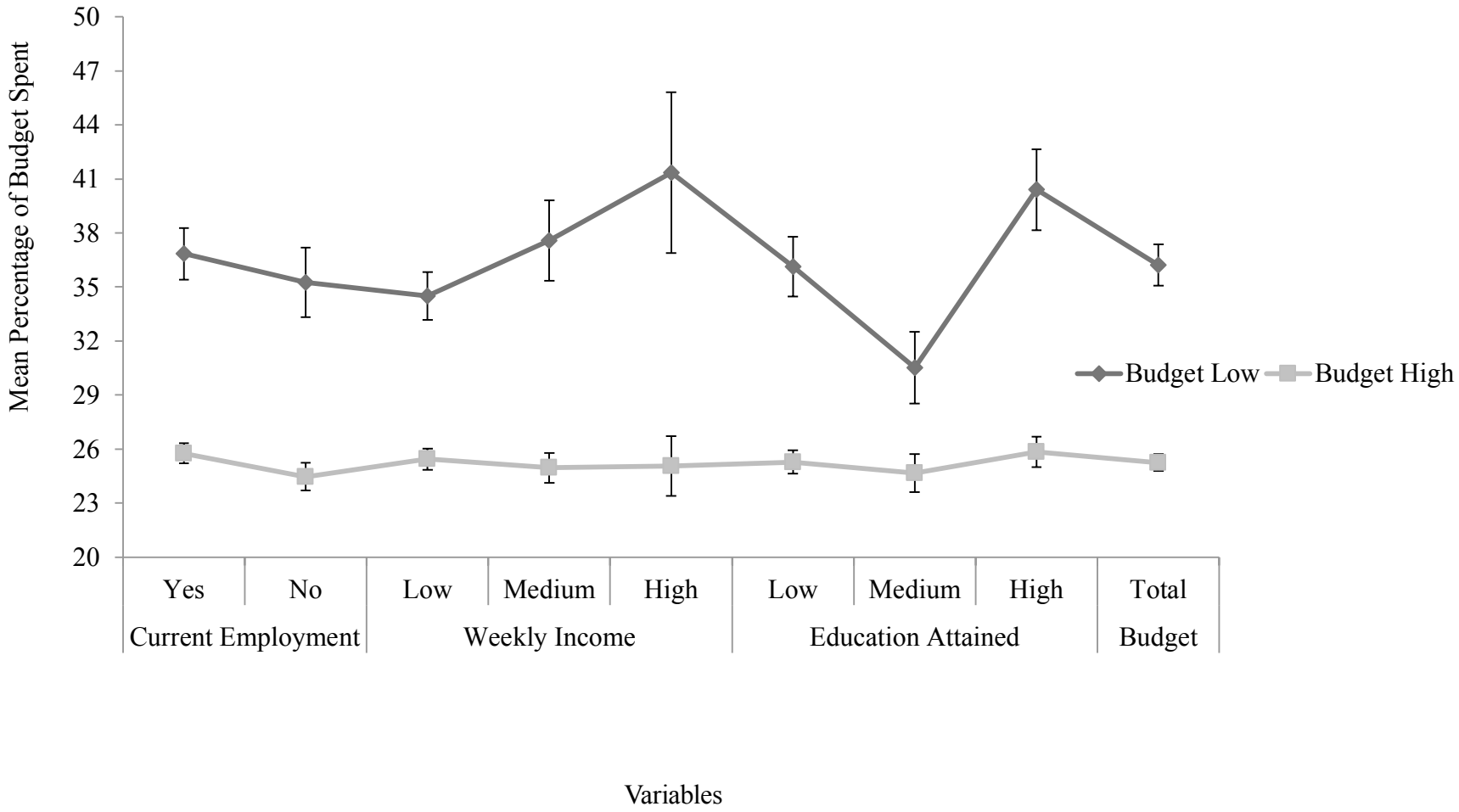

Figure 8.3. Men's mean percentage of budget spent on a short-term mate's physical attractiveness by budget (low and high), current employment (yes and no), weekly income (low, medium and high) and education attained (low, medium and high). Errors bars represent standard error. Y axis starts at 20% to differentiate error bar

Regarding main effects, results showed no main effect of job, $F(1, 221) = 1.81$, $p = .180$, with a small effect size of $\eta p^2 = .01$. There was no main effect of weekly income, $F(2, 221) = .51$, $p = .601$, with a small effect size of $\eta p^2 = .01$. There was a significant main effect of education attained, $F(2, 221) = 4.81$, $p = .009$, with a small effect size of $\eta p^2 = .04$. There was also a significant main effect of budget, $F(1, 221) = 16.32$, $p = .001$, with a medium effect size of $\eta p^2 = .07$. See Table 8.5 for Estimated Marginal Means and Standard Error.

Table 8.5

Men's Estimated Marginal Means and Standard Errors (SE) of Percentage of Budget Spent on a Short-Term Mate's Physical Attractiveness by Budget, Employment, Weekly Income, and Education Attained

			95% Confidence Interval	
	EMM	*SE*	Lower Bound	Upper Bound
Current Employment				
Yes	31.60	1.17	29.30	33.90
No	29.03	2.81	23.50	34.56
Weekly Income				
Low	30.89	1.12	28.67	33.10
Medium	30.61	2.51	25.65	35.56
High	30.05	3.45	23.25	36.85
Education Attained				
Low	31.91	2.56	26.88	36.95
Medium	27.75	1.92	23.97	31.52
High	31.34	2.19	27.03	35.64
Budget				
Low	36.06	2.04	32.04	40.07
High	25.09	0.84	23.44	26.73

Note: EMM = Estimated Marginal Mean

There was no significant interaction between budget and job, $F(1, 221) = 1.17$, $p = .281$, with a small effect size of $\eta p^2 = .01$. There was also no significant interaction between budget and weekly income, $F(2, 221) = .18$, $p = .833$, with a small effect size of $\eta p^2 = .01$ There was however a significant interaction between budget and education attained, $F(2, 221) = 5.78$, $p = .004$, with a medium effect size of $\eta p^2 = .05$.

Post-hoc analyses with a Bonferroni adjustment showed that when men were in the low budget condition spent they a significantly higher percentage of dollars on physical attractiveness compared with when they were in the high budget, $p = .001$. Regarding the main effect of education attained, no pairwise comparisons reached significance. In addition, no pairwise comparisons for the interaction of budget and education attained reached significance.

8.9.3.2 Men's employment, education attained, income and percentage of dollars spent on social level. A 2x2x3x3 mixed models ANOVA was run, with budget (2 levels: Low and high) as the within subjects variable, and employment (2 levels: Currently employed, not currently employed), income (3 levels: Low, medium and high) and education attained (3 levels: Low, medium, and high) as the between subjects variables. The dependent variable was percentage of budget spent on social level. Table 8.6 displays the descriptive statistics, including the mean total percentage of dollars spent on social level being higher in the high budget compared to the low budget. Means and standard errors are depicted graphically in Figure 8.4.

Table 8.6

Men's Means and Standard Deviations of Percentage of Budget Spent on a Short-Term Mate's Social Level by Budget, Employment, Weekly Income, and Education Attained

	Budget					
	Low			High		
	M	*SD*	*N*	*M*	*SD*	*N*
Current Employment						
Yes	13.40	8.77	143	16.90	6.90	143
No	11.41	9.26	93	16.52	6.44	93
Weekly Income						
Low	12.68	8.52	137	16.20	6.56	137
Medium	13.22	9.64	72	17.95	6.76	72
High	10.71	9.66	27	17.30	7.18	27
Education Attained						
Low	13.46	9.21	108	17.73	6.51	108
Medium	11.37	8.00	53	15.17	6.69	53
High	12.29	9.34	75	16.45	6.86	75
Total	12.62	9.00	236	16.75	6.71	236

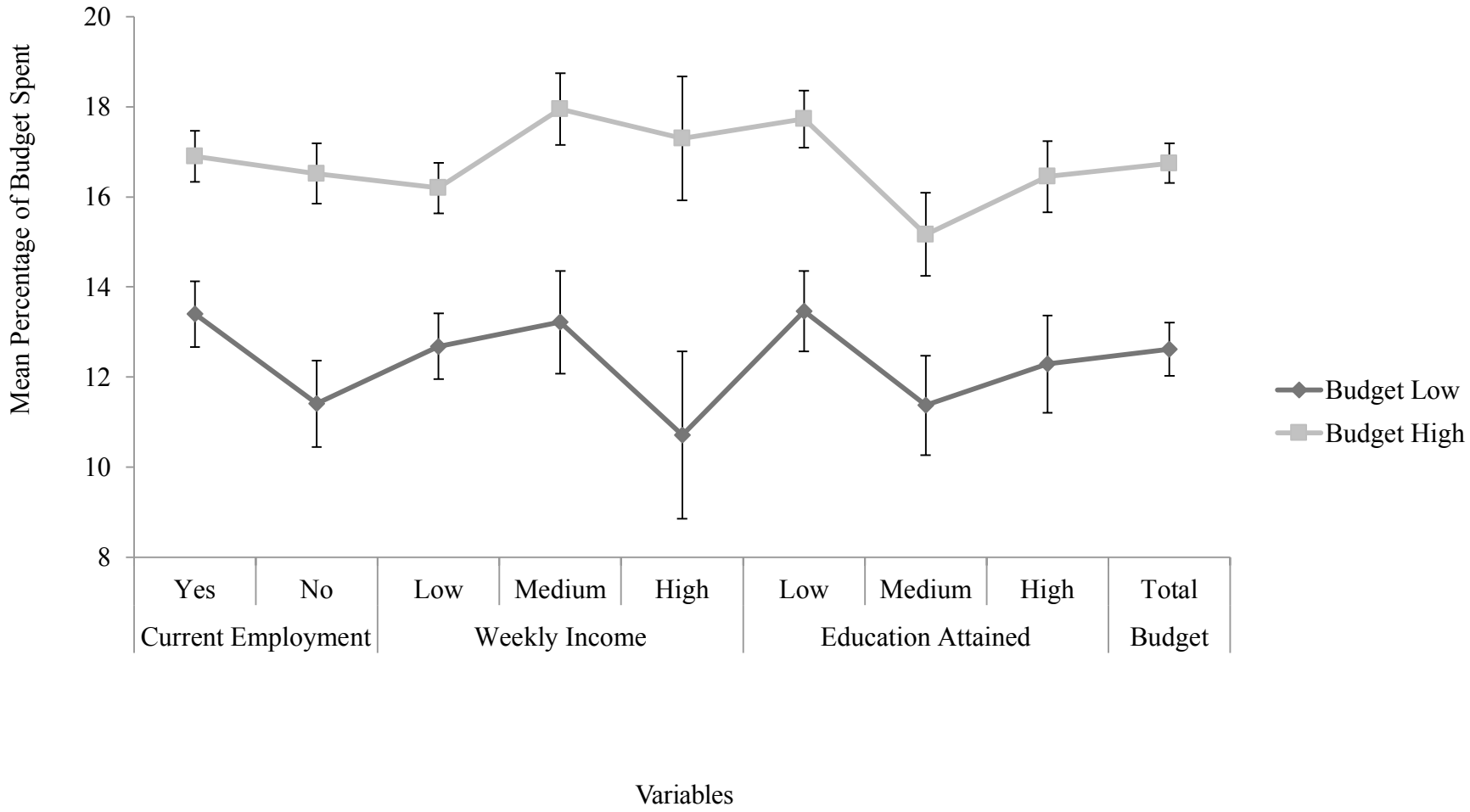

Figure 8.4. Men's mean percentage of budget spent on a short-term mate's social level by budget (low and high), current employment (yes and no), weekly income (low, medium and high) and education attained (low, medium and high). Errors bars represent standard error. Y axis starts at 8% to differentiate error bar

Regarding main effects, results showed no main effect of job, $F(1, 221) = .18$, $p = .676$, with a small effect size of $\eta p^2 = .01$. There was also no main effect of weekly income, $F(2, 221) = .10$, $p = .908$, with a small effect size of $\eta p^2 = .01$. There was no significant main effect of education attained, $F(2, 221) = .29$, $p = .752$, with a small effect size of $\eta p^2 = .01$. There was however a significant main effect of budget, $F(1, 221) = 27.30$, $p = .001$, with a medium to large effect size of $\eta p^2 = .11$. See Table 8.7 for Estimated Marginal Means and Standard Error, showing similar means across all conditions.

Table 8.7

Men's Estimated Marginal Means and Standard Errors (SE) of Percentage of Budget Spent on a Short-Term Mate's Social Level by Budget, Employment, Weekly Income, and Education Attained

			95% Confidence Interval	
	EMM	*SE*	Lower Bound	Upper Bound
Current Employment				
Yes	14.95	0.7	13.57	16.32
No	13.47	1.68	10.15	16.78
Weekly Income				
Low	13.86	0.67	12.53	15.19
Medium	14.72	1.51	11.75	17.69
High	14.64	2.07	10.56	18.71
Education Attained				
Low	15.15	1.53	12.13	18.17
Medium	14.08	1.15	11.82	16.34
High	13.87	1.31	11.29	16.45
Budget				
Low	11.46	1.04	9.42	11.51
High	17.25	0.78	15.71	18.78

Note: EMM = Estimated Marginal Mean

There was a significant interaction between budget and job, $F(1, 221) = 5.74$, $p = .017$, with a small effect size of $\eta p^2 = .03$. There was also a significant interaction between budget and weekly income, $F(2, 221) = 3.14$, $p = .045$, with a small effect size of $\eta p^2 = .03$. There was no significant interaction between budget and education attained, $F(2, 221) = .12$, $p = .890$, with a small effect size of $\eta p^2 = .01$.

Post-hoc analyses with a Bonferroni adjustment showed men spent a significantly higher percentage of dollars on social level in the high budget compared to the low budget, p = .001. Regarding the interaction of budget and job, men with a job and men without a job spent a significantly higher percentage of dollars on social level in the high budget compared to the low budget, p = .001 and .001, respectively. Finally, regarding the interaction of budget and weekly income, men of low, medium and high weekly income all spent a significantly higher percentage of dollars on social level in the high budget compared to the low budget, p = .001, .001 and .001, respectively.

8.9.3.3 Women's employment, education attained, income and percentage of dollars spent on physical attractiveness. A 2x2x3x3 mixed models ANOVA was run, with budget (2 levels: Low and high) as the within subjects variable, and employment (2 levels: Currently employed, not currently employed), income (3 levels: Low, medium and high) and education attained (3 levels: Low, medium, and high) as the between subjects variables. The dependent variable was percentage of budget spent on physical attractiveness. Table 8.8 shows the descriptive statistics, including women spending more mate dollars in the low budget compared to the high budget. Means and standard errors are depicted graphically in Figure 8.5.

Table 8.8

Women's Means and Standard Deviations of Percentage of Budget Spent on a Short-Term Mate's Physical Attractiveness by Budget, Employment, Weekly Income, and Education Attained

	Budget					
	Low			High		
	M	*SD*	*N*	*M*	*SD*	*N*
Current Employment						
Yes	30.05	15.36	370	23.26	6.6	370
No	28.05	12.12	178	23.19	5.83	178
Weekly Income						
Low	28.94	13.83	374	23.16	6.36	374
Medium	32.11	15.2	160	23.39	6.25	160
High	22.76	15.99	14	23.39	7.89	14
Education Attained						
Low	29.27	14.02	287	23.54	6.32	287
Medium	29.36	16.48	78	23.34	6.3	78
High	29.63	14.13	183	22.72	6.43	183
Total	29.4	14.41	548	23.24	6.36	548

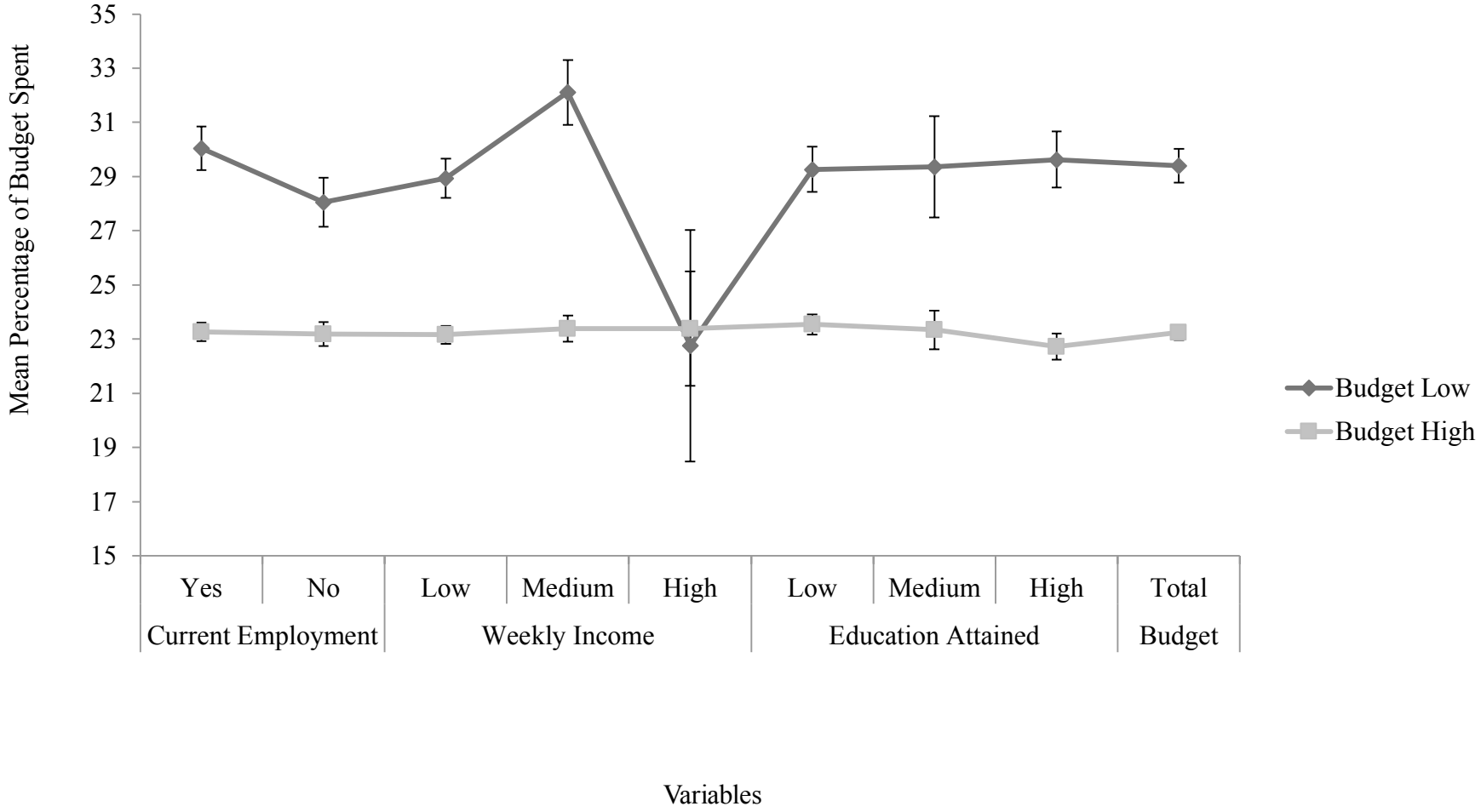

Figure 8.5. Women's mean percentage of budget spent on a short-term mate's physical attractiveness by budget (low and high), current employment (yes and no), weekly income (low, medium and high) and education attained (low, medium and high). Errors bars represent standard error. Y axis starts at 15% to differentiate error bars.

Regarding main effects, results showed no main effect of job, $F(1, 533) = .63$, $p = .427$, with a small effect size of $\eta p^2 = .01$. There was however a main effect of weekly income, $F(2, 533) = 3.64$, $p = .027$, with a small effect size of $\eta p^2 = .01$. There was no significant main effect of education attained, $F(2, 533) = 1.83$, $p = .162$, with a small effect size of $\eta p^2 = .01$. There was a significant main effect of budget, $F(1, 533) = 5.44$, $p = .020$, with a small effect size of $\eta p^2 = .01$. Table 8.9 shows Estimated Marginal Means and Standard Error.

Table 8.9

Women's Estimated Marginal Means and Standard Errors (SE) of Percentage of Budget Spent on Physical Attractiveness by Budget, Employment, Weekly Income, and Education Attained

			95% Confidence Interval	
	EMM	*SE*	Lower Bound	Upper Bound
Current Employment				
Yes	25.01	1.07	22.90	27.11
No	26.10	1.28	23.59	28.62
Weekly Income				
Low	25.52	0.57	24.40	26.64
Medium	27.81	1.29	25.27	30.34
High	20.57	2.99	14.69	26.44
Education Attained				
Low	24.90	1.55	21.86	27.94
Medium	24.30	1.56	21.23	27.37
High	27.13	1.12	24.93	29.33
Budget				
Low	27.42	1.27	24.91	29.92
High	23.47	0.57	22.36	24.59

Note: EMM = Estimated Marginal Mean

There was no significant interaction between budget and job, $F(1, 533) = 1.82$, $p = .178$, with a small effect size of $\eta p^2 = .01$. There was however a significant interaction between budget and weekly income, $F(2, 533) = 6.73$, $p = .001$, with a small effect size of ηp^2

= .03. There was also a significant interaction between budget and education attained, $F(2, 533) = 4.99$, $p = .007$, with a small effect size of $\eta p^2 = .02$.

Post-hoc analyses with a Bonferroni adjustment showed that no pairwise comparisons for the main effect of income reached significance. Regarding the main effect of budget, women in the low budget spent significantly more mate dollars on a short-term mate's physical attractiveness compared to when in the high budget, $p = .001$.

Post-hoc analyses with a Bonferroni adjustment showed that, for the two-way interaction of budget and education attained, women of both medium and high education attained spent significantly more mate dollars on a short-term mate's physical attractiveness in the low budget compared to the high budget, $p = .001$ and .042, respectively. For the two-way interaction of budget and weekly income, women of both low and medium weekly income spent significantly more mate dollars on a short-term mate's physical attractiveness in the low budget compared to the high budget, $p = .001$ and .001, respectively.

8.9.3.4 Women's employment, education attained, income and percentage of dollars spent on social level. A 2x2x3x3 mixed models ANOVA was run, with budget (2 levels: Low and high) as the within subjects variable, and employment (2 levels: Currently employed, not currently employed), income (3 levels: Low, medium and high) and education attained (3 levels: Low, medium, and high) as the between subjects variables. The dependent variable was percentage of budget spent on social level. See Table 8.10 for descriptive statistics, including women spending more mate dollars in the high budget compared to the low budget. Means and standard errors are depicted graphically in Figure 8.6.

Table 8.10

Women's Means and Standard Deviations of Percentage of Budget Spent on a Short-Term Mate's Social Level by Budget, Employment, Weekly Income, and Education Attained

	Budget					
	Low			High		
	M	*SD*	*N*	*M*	*SD*	*N*
Current Employment						
Yes	15.75	9.43	370	18.41	6.37	370
No	16.7	8.74	178	18.19	5.78	178
Weekly Income						
Low	16.25	8.55	374	18.17	5.81	374
Medium	15.7	10.57	160	18.55	6.78	160
High	15.03	10.38	14	20.49	8.27	14
Education Attained						
Low	16.41	9.22	287	18.44	5.77	287
Medium	15.73	8.75	78	17.69	6.36	78
High	15.65	9.43	183	18.45	6.72	183
Total	16.06	9.22	548	18.34	6.18	548

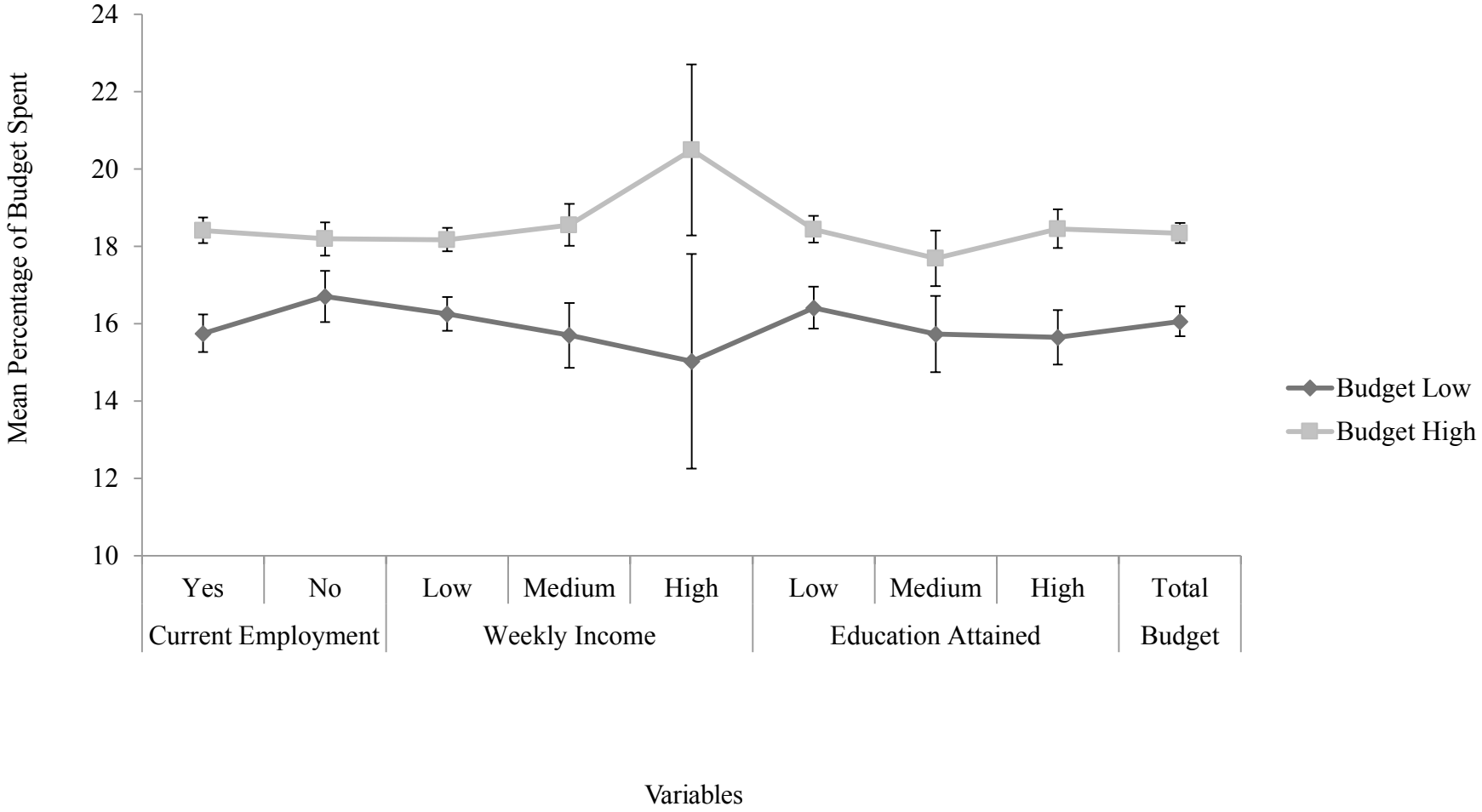

Figure 8.6. Women's mean percentage of budget spent on a short-term mate's social level by budget (low and high), current employment (yes and no), weekly income (low, medium and high) and education attained (low, medium and high). Errors bars represent standard error. Y axis starts at 10% to differentiate error bars.

Regarding main effects, results showed no main effect of job, $F(1, 533) = 1.11$, $p = .292$, with a small effect size of $\eta p^2 = .01$. There was also no main effect of weekly income, $F(2, 533) = .79$, $p = .453$, with a small effect size of $\eta p^2 = .01$. There was no significant main effect of education attained, $F(2, 533) = .59$, $p = .554$, with a small effect size of $\eta p^2 = .01$. There was however a significant main effect of budget, $F(1, 533) = 5.30$, $p = .022$, with a small effect size of $\eta p^2 = .01$. See Table 8.11 for Estimated Marginal Means and Standard Error.

Table 8.11

Women's Estimated Marginal Means and Standard Errors (SE) of Percentage of Budget Spent on Social Level by Budget, Employment, Weekly Income, and Education Attained

			95% Confidence Interval	
	EMM	*SE*	Lower Bound	Upper Bound
Current Employment				
Yes	17.54	0.78	16.01	19.08
No	18.06	0.93	16.22	19.89
Weekly Income				
Low	17.01	0.42	16.19	17.82
Medium	18.02	0.94	16.17	19.87
High	18.69	2.18	14.41	22.97
Education Attained				
Low	18.68	1.13	16.47	20.9
Medium	16.99	1.14	14.75	19.23
High	17.57	0.82	15.97	19.17
Budget				
Low	16.73	0.83	15.11	18.36
High	18.77	0.55	17.68	19.85

Note: EMM = Estimated Marginal Mean

There was no significant interaction between budget and job, $F(1, 553) = 3.58$, $p = .059$, with a small effect size of $\eta p^2 = .01$. There was no significant interaction between budget and weekly income, $F(2, 533) = .55$, $p = .575$, with a small effect size of $\eta p^2 = .01$. There was no significant interaction between budget and education attained, $F(2, 553) = .27$, $p = .764$, with a small effect size of $\eta p^2 = .01$.

Post-hoc analyses with a Bonferroni adjustment showed women spent a significantly higher percentage of dollars on social level in the high budget compared to the low budget, $p = .006$.

8.10 Discussion of Experiment 3b

The aim of Experiment 3b was to assess the variables of weekly income, education attained, and current employment, and their independent and combined relationship on men and women's physical attractiveness necessity scores and social level necessity scores of a short-term mate. Firstly, it was predicted that there would be an effect of men's level of current employment, weekly income, and education attained on their necessity scores of a short-term mate's physical attractiveness; specifically that current employment, high weekly income and high education attained would be related to a higher percentage of mate dollars spent on physical attractiveness. Results did not support this hypothesis, as the only significant effect was different budget levels (replicating results of Experiment 3 that men spent significantly more mate dollars on a short-term mate's physical attractiveness in the low budget compared to the high budget).

It was also predicted that there would be an effect of men's level of current employment, weekly income, and education attained on their necessity scores of a short-term mate's social level; specifically that no current employment, low weekly income and low education attained would be related to a higher percentage of mate dollars spent on social level. This hypothesis was partially supported, as there were effects of current employment and weekly income. Men with and without current employment spent significantly more mate dollars on social level in the high budget compared to the low budget. In addition, results showed that men of low, medium and high weekly income all spent significantly more mate

dollars on social level in the high budget compared to in the low budget condition. It appears that regardless of employment and weekly income, men continue to consider social level a luxury, instead of a necessity. This result was not, however, found for the variable of education attained.

It was also hypothesised that there would be an effect of women's level of current employment, weekly income, and education attained on their necessity scores of a short-term mate's physical attractiveness; specifically that current employment, high weekly income and high education attained would be related to a higher percentage of mate dollars spent on physical attractiveness, and results partially supported this prediction. Results showed that women who attained medium and high (but not low) education spent significantly more mate dollars on a short-term mate's physical attractiveness in the low budget compared to the high budget. In addition, women of low and medium (but not high) weekly income spent significantly more mate dollars on a short-term mate's physical attractiveness in the low budget compared to the high budget. It appears that when considering the physical attractiveness of a short-term mate, women who had attained medium and high levels of education, and low and medium weekly incomes, consider this trait significantly more of a necessity, as more mate dollars were spent on this trait in the low budget compared to the high budget. Of interest is that this effect was not found for women of low education attained and high weekly income. Future research should endeavour to explore if preference for a short-term mate's physical attractiveness is at all related to women's education attained and weekly income, without the implication of a causal relationship.

Finally, it was predicted that there would be an effect of women's level of current employment, weekly income, and education attained on their necessity scores of a short-term

mate's social level; specifically that no current employment, low weekly income and low education attained would be related to a higher percentage of mate dollars spent on social level. This hypothesis was not supported, as results showed no effect of current employment, weekly income, and education attained on amount of mate dollars women spent on a short-term mate's social level in both the low and high conditions.

In relation to origin theories of sex differences in short-term mate preferences, results of Experiment 3B have provided additional support for social-economic theories, as variables of SES were found to influence the percentage of budget spent on a short-term mate's social level (for men) and physical attractiveness (for women). Of interest is that the variables of current employment and weekly income (but not education attained) were found to effect men's percentage of mate dollars spent on a short-term mate's social level. Meanwhile, education attained and weekly income (but not current employment) were found to have an effect women's percentage of mate dollars spent on a short-term mate's physical attractiveness. Future research should endeavour to explore why employment and weekly income effect men's short-term mate preferences, while education and weekly income effect women's short-term mate preferences. Specifically, why is the effect present when weekly income and employment are combined for men, and when weekly income and education are combined for women.

8.11 Summary of Chapter

This chapter presented Experiment 3, which assessed the main and interactive effects of gender roles and SES on percentage of mate dollars men and women spent on a short-term mate's physical attractiveness and social level in varying budgets. To further explore the effects of SES, additional analyses were conducted to explore the individual effects of current

employment, education level attained and weekly income on the percentage of mate dollars men and women spent on a short-term mate's physical attractiveness and social level. The next chapter will restate the overall aim of this dissertation, and discuss results of Experiment 1, Experiment 2 and Experiment 3 in detail, both independently and combined.

Chapter Nine – General Discussion and Conclusion

"Let the children lose it,

Let the children use it,

Let all the children boogie"

– David Bowie, *Starman, The Rise and Fall of Ziggy Stardust and the Spiders from Mars*

9.1 Overview of Chapter

In this chapter the overall aims of the thesis are restated, including a discussion of sex differences in mate preferences in long-term relationships and short-term relationships. Both origin theories (evolutionary and social-economic) of sex differences in mate preferences are reiterated, along with the strengths and limitations associated with each origin theory. Firstly, the chapter includes the overall aim of the thesis, and then a brief overview of mate preferences in long-term and short-term preferences. Next, a discussion of results of Experiments 1, 2 (including 2b), and 3 (including 3b) follows, making specific reference to evolutionary theory and social-economic theory. Then, a presentation of new directions for theoretical research on sex differences in mate preferences follows (biosocial-exchange model), including a discussion of strengths and limitations of the dissertation.

9.2 Overall Aim of Thesis

Extensive research has documented the sex differences that are found in men and women's mate preferences; specifically, that men desire the physical attractiveness of a potential mate more than women , and women desire the status and resources of a potential mate more than men (Cottrell et al., 2007; Greitemeyer, 2007; Moore & Cassidy, 2007). These sex differences in mate preferences are often attributed to evolutionary and/or social-economic origins. However, to date, research has only examined the factors associated with

social-economic theory independently, and not in conjunction. Therefore, the aim of this dissertation was to explore, for the first time, the individual and combined effects of gender roles and SES on the characteristics men and women consider a necessity in long-term and short-term mates. Furthermore, the aim was to relate these results to both social-economic and evolutionary theories of sex differences in mate preferences.

9.3 Evolutionary and Social-Economic Theory of Sex Differences in Mate Preferences

9.3.1 Long-Term Relationships

Evolutionary theory suggests that long-term mate selection is a function of level of parental investment (Trivers, 1972) and reproductive potential (Geary et al., 2004). As men's level of parental investment is considerably lower than women's (Kenrick et al., 1993), men are able to initially focus on the physical reproductive potential of a mate (Montoya, 2005). As women's level of parental investment is considerably higher than men's (Schulte-Hostedde et al., 2008), women seek a mate who is willing and has the ability to provide resources to ensure an offspring's survival (Jonason, Li, & Cason, 2009). However, researchers have argued that evolutionary theory gives limited attention to individual, situational and cultural conditions influencing sex differences in mate preferences (e.g., Eagly & Wood, 1999). Social-economic theory of sex differences in mate preferences states that these differences are due to different gender roles assumed by the sexes in society (Wood & Eagly, 2002), and individuals who ascribe to a more traditional masculine or feminine gender role exhibit stronger traditional mate preferences (Eastwick et al., 2006). Social-economic theory also suggests that due to historical economic inequalities between the sexes, women have placed higher emphasis on the status and resources of a mate compared to men (Moore & Cassidy,

2007). Structural powerlessness theory (Buss & Barnes, 1986) implies that as women's SES vary, their desire for a potential long-term mate's status and resources will also vary.

9.3.2 Short-Term Relationships

Men's and women's mate preferences are considered to be context-dependent and influenced by whether the duration is considered to be long-term or short-term (Buss & Schmitt, 1993). Due to the different levels of parental investment that are required of each sex, evolutionary theory suggests that pursuing short-term mating may be more advantageous for men than for women. However, despite the sex differences in the costs and benefits of short-term mating, women still seek short-term mates (Kruger & Fisher, 2008). Furthermore, research has found that when women do engage in short-term mating, their requisite for a short-term mate's physical attractiveness increases significantly. As a result, researchers have theorised that, consistent with evolutionary theory, women's increased physical attractiveness ratings for a short-term mate are related to attempting to secure good genes (i.e., consistent with strategic pluralism theory; Gangestad & Simpson, 2000). Alternatively, proponents of sexual strategies theory (Buss & Schmitt, 1993) have proposed that, in line with women investing more in relationships relative to men (i.e., parental investment theory), women use short-term mating to evaluate men as potential long-term partners (Scheib, 2001). Thus, relative to men's preferences, women's preferences for short-term mates are similar to their preferences for long-term mates (Scheib, 2001).

As previously stated in Chapter Eight, a gap exists in the research regarding origin theories and sex differences in short-term mate preferences. Specifically, men and women's short-term mate preferences have largely been explored with reference to evolutionary theory, and as a result short-term mate preferences are often explained in an evolutionary framework.

To date, research has not yet properly explored the individual and interactive effect of gender roles and SES (the variables associated with social-economic theory) in relation to sex differences in short-term mate preferences.

To explore the individual and interactive effects of social-economic variables on men's and women's long-term and short-term mate preferences, the current study entailed three experiments. Results of these experiments are discussed below, first independently and then together.

9.4 Experiment 1: Results of Men's and Women's Long- and Short-Term Mate Preferences in Relation to Evolutionary and Social-Economic Theory

The aim of Experiment 1 was to replicate the experiment by Li and colleagues (2002), specifically to test if the percentage of mate dollars men and women spend on a long- and short-term mate's physical attractiveness and social level in constrained and unconstrained budgets could be replicated. Li and colleagues (2002) proposed that previous research into sex differences in mate preferences had not thoroughly considered the inherent trade-offs made when men and women select a mate, and developed a novel methodology to explicitly assess necessities of long-term mate characteristics. Li and colleagues found that when considering a long-term mate, men considered physical attractiveness a necessity, whereas women considered social level a necessity.

Li and Kenrick (2006) replicated this methodology to investigate characteristics men and women considered necessities in a short-term mate. Results of their experiment showed that when considering a short-term mate, both men and women considered physical attractiveness a necessity. Additionally, women considered a short-term mate's social level significantly less of a necessity than a long-term mate's social level.

As an alternative to the generally employed mate selection questionnaire (e.g., Lippa, 2007), the current study aimed to assess necessities (e.g., Li et al., 2002), using methodology that has been limitedly employed in mate selection research. Experiment 1 was conducted to explore whether the results of Li and colleagues (2002) and Li and Kenrick (2006) were replicable. Regarding long-term mates, results of Experiment 1 were consistent with Li et al. (2002), showing that men considered the physical attractiveness of a long-term mate a necessity. However, results did not provide support for Li et al. (2002), as results showed that women did not consider the social level of a long-term mate a necessity. Regarding short-term mates, results of Experiment 1 supported Li and Kenrick (2006), showing that both men and women considered physical attractiveness a necessity. Additional results of Experiment 1 showed that men spent significantly more mate dollars in the low budget on a long-term mate's physical attractiveness than women did, which are in line with previous research suggesting men consider the physical attractiveness of a long-term mate more of a necessity than women do (e.g., Li et al., 2002). However, results of Experiment 1 also showed that women spent significantly more mate dollars in the high budget on a long-term mate's social level than men did, thus considering the social level of a long-term mate significantly more of a luxury compared to men. This result does not corroborate previous research, which suggests women will consider the social level of a long-term mate significantly more of a *necessity* compared to men. In addition, men spent significantly more mate dollars in the low budget on a short-term mate's physical attractiveness than women did. This result does not corroborate previous results of Kenrick and colleagues (1990), who found no difference between men's and women's preference for a short-term mate's physical attractiveness. Finally, women spent significantly more mate dollars in the low budget on a short-term mate's social level than men

did, corroborating Wiederman and Dubois's (1998) statement that women are expected to value financial resources more in short-term mates compared to men.

Results of Experiment 1 indicated that men considered the physical attractiveness of a long-term mate a necessity, and that this necessity was able to be replicated in a population outside of America. Therefore, the results of Experiment 1 indicate that this result is, at least, replicable in different Western cultures (i.e., the United States and Australia). This replication could be indicative of a cross-cultural effect which would be consistent with evolutionary theory of sex differences in mate preferences; however, further research across cultures is required to substantiate this conclusion. It remains to be determined if these results are also consistent with social-economic theory because the results have only been replicated in another Western culture.

Experiment 1 showed that women did not consider the social level of a long-term mate a necessity. This did not corroborate previous findings of Li and colleagues (2002). Furthermore, these results do not support Trivers' (1972) theory of parental investment, and subsequently evolutionary theory of sex differences in mate preferences. If evolutionary mechanisms were the main cause of women's long-term mate preferences, there should be no significant differences in their necessity of a long-term mate's social level across cultures. As such, untested factors of social-economic theory of sex differences in mate preferences, such as gender roles, level of income, and level of education, may be of importance when explaining women's necessity for a long-term mate's social level.

Regarding short-term relationships, results showed that both men and women considered physical attractiveness a necessity. This result supports previous research (e.g., Li & Kenrick, 2006) and also suggests that this result can be replicated across cultures (at least

across Western cultures). Additionally, results showed that men spent a higher percentage of mate dollars on a short-term mate's physical attractiveness when budgets were constrained, implying that men may consider a short-term mate's physical attractiveness significantly more of a necessity compared with women. Finally, although women did not consider the social level of a short-term mate a necessity, they did consider a short-term mate's social level significantly more of a necessity than men.

Men and women's short-term mate preferences are often interpreted by utilising an evolutionary framework, and the ability to replicate these results may be indicative of biological mechanisms. For example, both strategic pluralism theory (Gangestad & Simpson, 2000) and sexual strategies theory (Buss & Schmitt, 1993; see Chapter Seven for a full discussion) attempt explain men's and women's short-term mate preferences, both appealing to an evolutionary basis. It was also hypothesised that, according to strategic pluralism theory, both men and women would consider physical attractiveness a necessity in a short-term, as strategic pluralism theory posits men and women will significantly value the physical attractiveness of a short-term mate. This hypothesis was supported, as results showed both men and women spent significantly more mate dollars on physical attractiveness in the short-term mate low budget than a long-term mate low budget. Finally, the current study predicted that, according to sexual strategies theory, women would consider social level a necessity in a short-term mate, as sexual strategies theory posits women's short-term mate preferences will reflect their long-term mate preferences. At first glance, it appears this hypothesis was not supported as women did not spend significantly more mate dollars on a short-term mate's social level in the low budget. However, upon further consideration of results, it is seen that women did not consider the social level of a long-term mate a necessity. Most interestingly,

when considering all mate traits included in the current study (i.e., physical attractiveness, creativity, kindness, liveliness, and social level), women's consideration of whether these traits are a necessity or a luxury for a short-term mate to possess mirror their long-term mate preferences. As such, it appears results of Experiment 1 provide support for both strategic pluralism theory and sexual strategies theory.

9.5 Experiment 2 and Experiment 2b: Results of Gender Roles and SES on Men's and Women's Long-Term Mate Preferences in Relation to Evolutionary and Social-Economic Theory

Results of Experiment 2 and Experiment 2b provide support for both evolutionary and social-economic origin theories of sex differences in mate preferences. Firstly, both variables of social-economic status (gender roles and SES) were found to correlate with men and women's mate dollars spent on a long-term mate's physical attractiveness. Gender roles (masculine) and SES (low) were associated with the percentage of mate dollars men spent on a long-term mate's physical attractiveness in the low budget. However, for women, gender roles (masculine) and SES (high) were associated with the percentage of mate dollars spent on a long-term mate's physical attractiveness in the high budget. Results of Experiment 2 show support social-economic theory, as the factors of this theory (i.e., gender roles and SES) can have an effect on the percentage of mate dollars men and women spend on a long-term mate's physical attractiveness. However, these results also suggest that these factors influence men's and women's mate preferences differently. Specifically, a masculine gender role and a low SES led men to consider a long-term mate's physical attractiveness significantly more of a necessity. Meanwhile, a masculine gender role and a high SES led women to consider a long-term mate's physical attractiveness significantly more of a luxury.

Results of Experiment 2b also provide support for social-economic theory of sex differences in mate preferences, showing that men's current employment, high weekly income and low educational attainment (all individual variables of SES) were associated with the percentage of mate dollars spent on physical attractiveness in the low budget condition. However, this result also provides support for evolutionary theory of sex differences in mate preferences, showing that individual resources can influence a man's selectivity.

Specifically, men with a higher degree of immediate resources that are prized for parental investment (i.e., monetary resources), will be more selective ('choosier') about the reproductive potential (i.e., physical attractiveness) of a mate. For women, the lack of main and interactive effects of current employment, weekly income and education obtained on their preference for a long-term mate's physical attractiveness suggests biological mechanisms might be a better fit to explain this preference (such as seeking reproductive capabilities and quality; Braun & Bryan, 2006).

The lack of effect of SES, in addition to the lack of effect of the components of SES (current employment, weekly income and education obtained) on women's preference for a long-term mate's social level, do not provide support for social-economic theory which suggests these variables will effect women's mate preferences. In particular, these results do not support structural powerlessness theory which predicts a decrease in women's SES will be associated with an increased preference for a mate's status and resources (e.g., Buss & Barnes, 1986). However, it is possible that variables not measured in the current study (i.e., variables other than gender roles and SES) might account for variance in women's preference for a long-term mate's social level.

The results for men, which included independent and interactive effects of current employment, weekly income and education attained on preference for a long-term mate's social level, provide support for social-economic theory. However, these results do not support structural powerlessness theory because an increase in weekly income and education attained was not related to increased necessity of a long-term mate's social level, (Buss & Barnes, 1986). Rather, these results provide support for support social-exchange theory (Regan, 1998a), which predicts people choose mates based on similarity to themselves. A social-exchange framework provides an explanation for why men of high SES would seek a mate of high social status.

9.6 Experiment 3 and Experiment 3b: Results of Gender Roles and SES on Men's and Women's Short-Term Mate Preferences in Relation to Evolutionary and Social-Economic Theory

Results of Experiment 3 and Experiment 3b provide support for both evolutionary and social-economic theories of sex differences in mate preferences. Results showed that both components of social-economic status (i.e., gender roles and SES) were associated with men's and women's percentage of mate dollars spent on a short-term mate's physical attractiveness and social level. Interestingly, when considering a short-term mate's physical attractiveness, a high SES paired with a feminine gender role was associated with individuals spending more mate dollars in the low budget. Meanwhile, when considering a short-term mate's social level, a low SES paired with a masculine gender role was associated with individuals spending more mate dollars in the low budget. As both SES and gender roles were found to be associated with the amount of mate dollars men and women spent on a short-term mate's physical

attractiveness and social level, this provides support for a social-economic view of sex differences in mate preferences.

Results of Experiment 3 also showed that men of a high SES and a masculine gender role spent significantly more mate dollars on a short-term mate's physical attractiveness in the low budget compared to men of a high SES and an androgynous or undifferentiated gender role. The association of a traditional gender role with a sex-typed mate preference provides support for social-economic theory of mate preferences. However, the selectivity exercised by men with a high SES for a mate's physical attractiveness may provide support for evolutionary theory of mate preferences (discussed in further detail in section 9.7).

Men of low SES (compared to a high SES) spent a higher percentage of mate budget on a short-term mate's social level in both low and high budgets compared to men of higher SES. Structural powerlessness theory predicts low SES will lead to higher preference for status and resources, whereas support social-exchange theory predicts a positive relationship between SES and percentage of mate dollars spent on social level. As such, this result provides support for structural powerlessness theory (Buss & Barnes, 1986) over social-exchange theory (Regan, 1998a).

9.6.1 Women's short-term mate preferences, strategic pluralism theory and sexual strategies theory. To reiterate, previous research has explained women's short-term mate preferences as either a strategy to immediately secure good genes that might be transferred to potential offspring (strategic pluralism theory; Gangestad & Simpson, 2000), or a strategy to evaluate short-term mates as potential long-term partners (sexual strategies theory; Buss & Schmitt, 1993). These theories suggest different preferences when women are considering a short-term mate. Specifically, strategic pluralism theory predicts that women

will prioritise short-term mate's physical attractiveness, whereas sexual strategies theory predicts that women's short-term mate preferences should reflect their long-term mate preferences (i.e., prioritising status and resources). Results of Experiment 3 showed women considered the physical attractiveness of a short-term mate a necessity, thus providing support for strategic pluralism theory. Interestingly, although women did not consider the social level of a short-term mate a necessity (which might potentially confound sexual strategies theory), women did not consider the social level of a long-term mate a necessity either, suggesting that their short-term mate preferences *do* reflect their long-term mate preferences. Interestingly, women also considered a long-term mate's physical attractiveness a necessity, once again reflecting their short-term mate preferences. Therefore, it appears women's short-term mate preferences are best explained by sexual strategies theory, and not strategic pluralism theory.

9.7 Sex Differences and Long-Term and Short-Term Mate Preferences: Evolutionary and Social Economic Theory

Results of the current dissertation suggest that long-term and short-term mate preferences are complex and cannot be attributed to a single theory (evolutionary or social-economic). Results of Experiment 1 show that results from previous investigations of men's perceived necessity of a long-term mate's physical attractiveness were able to be replicated whereas women's perceived necessity of a long-term mate's social level were not replicated. Given that the current sample was recruited from a Western culture (Australia) which is comparable with the population sampled in the original study (America; Li et al., 2002), it was expected that the results of the original study would be replicated. As such, results of the current study suggests that perhaps evolved, distal and cultural mechanisms may guide men's perceived necessity for a long-term mate's physical attractiveness, whereas women's

perceived necessity for a long-term mate's social level is more consistent with the cultural and social context (such as economic resources and gender roles).

Experiment 2 showed that both SES and gender roles have an effect on men's and women's long-term mate preferences for physical attractiveness. Consistent with social-economic theory, for both men and women a traditional masculine gender role was associated with increased preference for physical attractiveness. In addition, consistent with social-economic theory, both men's and women's SES was found to correlate with preference for a long-term mate's physical attractiveness. This result suggests that variation in SES is also associated with preference for a long-term mate's physical attractiveness, in addition to a long-term mate's status and resources (as predicted by structural powerlessness theory; Buss & Barnes, 1986). Thus far, Results of Experiment 1 suggest that biological factors (consistent with evolutionary theory) may explain men's preference for a long-term mate's physical attractiveness. However, results of Experiment 2 suggest that cultural factors consistent with social-economic theory (such as gender roles and SES) may also explain this preference. However, results of Experiment 2 showed that men's and women's SES and gender role had *no* effect on their preference for a long-term mate's social level. Experiment 1 showed that previous findings pertaining to women's necessity of a long-term mate's social level was unable to be replicated, and this was not consistent with evolutionary theory. As such, it was suggested that perhaps more culturally specific variables consistent with social-economic theory (such as gender roles and SES) might explain this preference.

However, Experiment 2 shows no effect of gender roles and SES on women considering a long-term mate's social level a necessity, thus these results did not provide support for social-economic theory. The results pertaining to women and whether they

consider a long-term mate's social level a necessity appears to be inconsistent with both evolutionary theory and social-economic theory. Experiment 2b showed that men's current employment, weekly income, and education attained could be associated with the percentage of mate dollars they spent on mate traits. The results supported the suggestion of Kurzban and Weeden (2005) that men of high resources are selective of a mate's reproductive potential. It may also be that the selectivity of one sex (i.e., women) influences the selectivity of the other sex (i.e., men). Future research should endeavour to explore variables that influence selectivity of *both* sexes, rather than focusing predominantly on women.

Results of Experiment 1, 2 and 2b show evolutionary theory and social-economic theory explain men's and women's long-term mate preferences through a dynamic relationship. However, as previous research has not considered the variables of social-economic theory (SES and gender roles) in relation to short-term mate preferences, the relation between these theories and short-term mate preferences is unclear. Results of Experiment 3 showed, for the first time, that both SES and gender roles are associated with the perceived necessity of a short-term mate's physical attractiveness and social level, thus providing support for a social-economic origin theory of short-term mate preferences. Specifically, men of high SES and a masculine gender role spend a greater percentage of mate dollars on a short-term mate's physical attractiveness when budgets are constrained, and women of low SES and a masculine gender role spend a greater percentage of mate dollars on a short-term mate's social level when budgets are constrained. Once again, these results suggest further exploration into men's selectivity is warranted, as men of high SES expressed higher preference for a mate's physical attractiveness. Additionally, these results provide support for structural powerlessness theory (Buss & Barnes, 1986) which predicts that women

of low SES express higher preference for a mate's status and resources (i.e., social level). Experiment 3b assessed the individual variables of SES (current employment, weekly income, and education obtained), and also provided support for a social-economic origin theory of short-term mate preferences, indicating that employment and income were related to the percentage of a high mate budgets men spent on a short-term mate's social level, whereas education and income were related to the percentage of a low budget women spent on a short-term mate's physical attractiveness.

Finally, as discussed above in section 9.6.1, results of Experiment 1 and 3 suggest that women are strategically approaching short-term mating, assessing these short-term mates as potential long-term mates. Specifically, women's preference for physical attractiveness, social level, and kindness (as shown in Experiment 1) as a necessity or luxury in a short-term mate reflect their long-term mate preferences. As such, these results are consistent with sexual strategies theory (Buss & Schmitt, 1993), over strategic pluralism theory (Gangestad & Simpson, 2000), as sexual strategies theory suggests women's short-term mate preferences will reflect their long-term mate preferences.

9.8 Biosocial-Exchange Model

As shown by results of Experiment 1, Experiment 2, Experiment 2b, Experiment 3, and Experiment 3b, the nature of origin theories of sex differences in mate preferences are dynamic and interactive. Rather than explaining men's and women's long-term and short-term mate preferences separately, results of the current dissertation suggest that evolutionary and social-economic processes interact to explain men's and women's mate preferences. However, the nature of this interaction has not been effectively conveyed by existing theories of sex differences in mate preferences.

To address this gap in the literature, a new model of sex differences in mate preferences is proposed, namely, the biosocial-exchange model. This model aims to encapsulate three important determinations of sex differences in mate preferences.

Biological: Distal, evolved mechanisms mediate and construct men's and women's preference for both a long-term and short-term mate's physical attractiveness and status and resources. This premise is supported in the current thesis by several results. First, some results pertaining to necessities and luxuries were shown to be replicable (i.e., men and necessity of long-term mate's physical attractiveness, men and women and necessity of short-term mate's physical attractiveness) and as such, may be underpinned by evolutionary explanations of sex differences in mate preferences. Secondly, mate preferences cannot always be explained by social factors (i.e., SES and gender roles had no effect on women's preference for a long-term mate's social level). Thirdly, a proposition of parental investment theory (Trivers, 1972), a theory that appeals to an evolutionary explanation of sex differences in mate preferences, is that both sexes are more selective in relationships that may lead to children. Results of the current study showed that men (like women) expressed selectivity when considering long-term mates, was shown by the relation between men's own high level of resources and their subsequent necessity of a long- and short-term mate's physical attractiveness.

Social: Social factors, alongside these evolved mechanisms, can influence men's and women's short term mate preferences. This idea is supported by results showing that SES and gender roles can influence men's necessity of a long- and short-term mate's physical attractiveness, women's luxury of a long-term mate's physical attractiveness, and women's preference for a short-term mate's social level. In addition, subsequent analyses show that the individual variables of SES can work independently and interactively to have an effect on

some of men's and women's preference of a long- and short-term mate's physical attractiveness and social level.

Exchange: In addition to evolutionary and social-economic theories of sex differences in mate preferences, a biosocial-exchange model includes social-exchange theory (Regan, 1998a) to explain sex differences in mate preferences. Social-exchange theory suggests that men and women assortatively mate, and predicts that women (and men) of high SES would place higher importance on a mate's status and resources. Alternatively, structural powerlessness theory (Buss & Barnes, 1986) predicts that women of low SES would place higher importance on a mate's status and resources. In the current study, it appears short-term mate preferences support structural powerlessness theory, as both men and women of low SES spent a higher percentage of mate dollars on a short-term mate's social level. However, for long-term mates, men of high income and high of educational attainment was associated with more mate dollars being spent on social level. Therefore, when considering a long-term mate, men (and women e.g., Moore et al., 2006) might assortatively mate, choosing mates on the basis of similar qualities (such as status and resources). Meanwhile, when considering a short-term mate, men and women of low SES seek to secure a high level of status and resources.

In sum, the biosocial-exchange model accounts for men's and women's long-term and short-term mate preferences being a product of both proximal and distal mechanisms, where evolutionary mechanisms and social mechanisms work independently and in interaction. In addition, the 'exchange' component accounts for positive relations between an individual's SES and preference for a mate's status and resources (Eagly & Wood, 1999; Moore et al., 2006; Townsend & Roberts, 1993).

9.9 Strengths of the Current Research

A strength of the current research was the assessment for the first time of the interactions between the variables of social-economic theory (i.e., gender roles and SES) on men's and women's necessity of long-term and short-term mate's physical attractiveness and social level. A further strength was the employment of the methodology developed by Li and colleagues (2002) which allowed the examination of trade-offs made when considering a long-term and short-term mate. Li and colleagues argued that previous research of sex differences in mate preferences has not adequately addressed the fact that individuals make trade-offs when seeking a mate. For example, in a general mate characteristics questionnaire, one might consider all of the traits important for a potential mate, but this does not take into account how realistic it is to expect a potential mate to possess a high level of every trait. In reality, people make trade-offs when selecting a mate (i.e., trading off physical attractiveness for a sense of humour; see Li et al. 2002 for a full discussion). Using the design developed by Li and colleagues, the current study was able to directly address which characteristics men and women consider a necessity in a long-term and short-term relationship.

Another strength was that this study was the first to examine relations between sex differences in mate preferences and gender roles, assessing four different gender roles. Previous research has not yet considered the gender roles of masculinity, femininity, androgyny and undifferentiated in relation to mate preferences. Furthermore, rather than dichotomising masculinity and femininity into high and low, the current study developed a method for categorising individuals into one of the four gender roles. Categorisation of gender roles into four domains revealed a potential paradigm for future research. Specifically, future research should endeavour to compare conventional gender roles (i.e., masculine and

feminine) to non-conventional (i.e., androgynous and undifferentiated) gender roles. For example, results of Experiment 3 suggested that traditional short-term mate preferences may be associated with conventional (i.e., masculine and feminine) gender roles compared to non-conventional gender roles (i.e., androgyny and undifferentiated). Specifically, both masculinity and femininity were associated with increased preference for a short-term mate's physical attractiveness, rather than masculinity alone. This result suggests contemporary mate preferences may be associated with both traditional gender roles, in comparison to non-conventional gender roles. Future research should substantiate the relations between mate preferences and gender roles as this relationship may be dynamic, changing in relation to men's and women's social changes.

An additional strength of the current research was the large sample size ($N = 1635$), compared to previous studies (e.g., Study 1 of Li et al. 2002 has 78 participants, Study 2 had 178 participants and Study 3 had 58 participants). Furthermore, the participant sample consisted of both university students and individuals who did not attend university, enhancing the generalisability of results. Unfortunately, however, the ratio of women to men was uneven, and women made up a large proportion of the sample.

An additional strength of the current study was that the participants completed the questionnaire online. Participants have reported more positive reactions to online assessment than paper-and-pen assessment, specifically feeling more comfortable and less intimidated when completing online assessment (Naus, Philipp, & Samsi, 2009; Salgado & Moscoso, 2003). As a result, research has reported that online assessment may be less subject to social bias (van Gelder, Bretveld, & Roeleveld, 2010) as lack of controllability (i.e., controlling the experimental setting) and anonymity may encourage participants to disclose more intimate

and personal information (Mesch, 2012). In sum, a particular strength of the current study was that the online questionnaire may have reduced socially biased responses.

9.10 Limitations and Future Research Directions

There were a number of potential limitations with the current study. Firstly, the combination of variables of SES into a single categorical variable was a limitation because the combination of these variables appeared to mask the separate main independent effects of current employment, weekly income, and education attained. However, an attempt to rectify this problem was undertaken by running further analyses on these separate variables. However, as some results suggested interactions between gender roles and SES, it would have been beneficial to further examine the nature of these interactions. This could have been done by assessing if there was an interaction between gender role and any individual facet of SES. However, as already stated, sample size (particularly the male sample size) rendered this analysis problematic. Therefore, a suggestion for future research is to examine the interactions between the four gender roles and different factors of SES. Considering the current research found interactions between gender roles and SES, further studies that can deconstruct these interactions may reveal what particular aspect of SES is interacting with gender roles. Additionally, future research should include measures of SES on a continuous scale, rather than in categories. For examine, participants could specify their actual weekly income, rather than indicating one of three categories, and regression analyses could be conducting predicting mate preferences from a continuous scale.

It should be noted that, although already discussed in previous discussions of Experiment 2, Experiment 2b, Experiment 3 and Experiment 3b, sample size was a particular limitation in the current study when studying the individual elements of SES, as some groups

were particularly small. However, this might be a limitation encountered in all future studies, as it may be difficult to find, for example, individuals who are currently unemployed with high weekly income. Therefore, it is suggested that this limitation is not necessarily a methodological limitation, and as such results may still be able to be generalised to the population as the sample sizes are, to some degree, reflective of the size of these groups in the population. However, future research could address this potential limitation with purposeful sampling techniques.

A further limitation of the current study was the relation of gender roles to mate preferences. In particular, the current study found mixed effects (i.e., hypotheses received partial support) between an individual's self-reported gender role and traditional mate preferences. The current study assessed individual's gender roles using the BSRI for the several reasons. First, Kenrick and colleagues (1993) measured participant's gender roles using the Personal Attributes Questionnaire (PAQ), and found no significant relations between self-reported masculinity and femininity and mate selection. Second, the PAQ only measures masculine and feminine gender roles, whereas an aim of the current study was to assess masculine, feminine, androgynous and undifferentiated gender roles. Third, Bem (1977) originally proposed assessment of these four gender roles with the BSRI, so the obvious choice for the assessment of these gender roles was the BEM. Finally, the BSRI short-form has shown better reliability and validity than the full BSRI.

An additional limitation was that alongside self-reported gender roles, it may have been of value to measure an individual's support of traditional gender roles. Previous research has found significant relations between support and endorsement of traditional gender roles and traditional mate preferences (e.g., Moore et al., 2010; Johannesen-Schmidt & Eagly,

2002), the current study may have also benefited from assessing endorsement of traditional gender roles. This would have allowed a direct comparison between self-reported gender roles and mate preferences, and support of traditional gender roles and mate preferences. Future research assessing gender roles and sex differences in mate preferences is encouraged to measure both self-reported gender roles *and* endorsement of traditional gender roles. This comparison will allow further exploration of whether traditional mate preferences can be influenced by an individual's *own* gender role, or the amount they *support* a gender role ideology.

Future research should also seek to investigate variables of social-economic theory (i.e., gender roles and SES) and biosocial-exchange model using alternative methodologies. Although the current explicitly examined the trade-offs made when selecting a mate (thus directly assessing necessities and luxuries), the results of the current study may be limited by this methodology. For example, there may be an interaction between men's gender roles and SES when considering the physical attractiveness of a long-term mate, just not when considering the necessity of the physical attractiveness of a long-term mate. Future research should examine these interactions where participants rate the 'importance' and 'desirability' of these traits. Research findings may reveal an interaction between men's gender roles and SES when considering the importance of a long-term mate's physical attractiveness.

Furthermore, it is of interest that Australian women did not consider the social level of a long-term mate a necessity. Previous research has found that Australian women do consider the status and resources of a long-term mate significantly more desirable than men do (March & Bramwell, 2012). However, as suggested earlier, it may be that Australian women (unlike American women included in the original study) do not consider the social level of a long-

term mate a necessity. Specifically, this trait may be desirable and important, but may not be a necessity. Of additional interest, previous research has suggested that greater gender equality leads to women express mate preferences typical with men's mate preferences (i.e., lower preference for status and resources, higher preference for physical attractiveness) (Gustavsson et al., 2008; Moore et al., 2010). The result of women not considering social level a necessity may even be indicative of greater social equality between the sexes in Australia compared to America. The 2013 Gender Development Index, a composite measure reflecting disparity between men and women in the domains of health, education and living standards, shows both Australia and the United States with very high human development composite scores (United Nations Development Programme, 2013). However, research conducted by the Australian Bureau of Statistics suggests greater pay equality between men and women in Australia compared to men and women in the United States (Diversity Council Australia, 2013). The discrepancy between the results of Australia and the United States, two Western cultures, provides an impetus to examine women's necessity of a long-term mate's social level across different cultures, particularly highly egalitarian cultures (e.g., Sweden; Gustavsson et al., 2008).

An additional potential limitation of the current study was that sex differences in mate preferences were not assessed according to differing sexual orientations of participants. Sexual orientation and mate preferences have received limited attention, particularly in comparison with biological sex differences. A homosexual sexual orientation is considered to produce different mating behaviour compared to a heterosexual sexual orientation (Bailey et al., 1994). Furthermore, previous research suggests that differences exist between the mate preferences of heterosexual individuals and the mate preferences of homosexual individuals

(e.g., March, Grieve, & Marx, 2015). Although beyond the scope of the current study, future research should endeavour to assess the necessities of physical attractiveness and social level in men and women of differing sexual orientations to examine the relationship between these preferences, sexual orientation, gender roles and biological sex. Studying relationships between sexual orientation and mate preferences may add new dimensions to origin theories of sex differences in mate preferences (Lippa, 2007). For example, it would be of interest to explore if homosexual women express the same selectivity as heterosexual women, as posited by parental investment theory (e.g., Trivers, 1972).

Furthermore, the current study did not assess sex differences in mate preferences demonstrated by individuals of differing age cohorts. Based on suggestions of previous research (e.g., Buss, 1989; Buss et al., 1990; Tadinac & Hromatko, 2006), the dissertation was concerned with collecting information only from men and women aged 18 – 30 years. However, studies have also reported that sex differences in mate preferences fluctuate corresponding to an individual's age (de Sousa Campos et al., 2002). Therefore, future research should include investigations of the necessity of physical attractiveness and social level among men and women of differing age groups. Results of studies such as these may elucidate the ages of men and women when these characteristics decline in their level of necessity. For example, future researchers could endeavour to examine the necessity of long-term and short-term mate's physical attractiveness and social level using selection criteria employed in Buunk, Dijkstra, Kenrick, and Warntjes (2001), where only participants of 20, 30, 40, 50 and 60 years of age were asked to participate. Using this methodology would allow comparisons to be drawn across different age cohorts. In addition, support for declining

necessity of physical attractiveness and social level with age might add additional support to an evolutionary origin of sex differences in mate preferences.

Future research should also endeavour to explore men and women's necessity ratings of characteristics of long-term and short-term mates in non-Western cultures. Results of the current research do add to cross-cultural studies, as these necessity ratings were explored in a culture that was not American (a Western culture). However, this exploration may offer limited support to evolutionary theory, as the Australian culture is also a Western culture. Cross-cultural studies should not be limited to comparisons of Eastern and Western cultures, and it would be beneficial to explore these necessities in a range of cultures.

Finally, it might also be beneficial for future research to explore these necessities in the context of participant's own current relationship involvement. For example, research has shown positive relations between ideal mate characteristics and higher relationship satisfaction (e.g., Botwin, Buss, & Shackelford, 1997). Specifically, the more a mate matches one's ideal mate standards, the higher relationship satisfaction is expected to be (Zentner, 2005). It would be of interest to explore whether men's and women's necessities of a long-term and short-term mate's physical attractiveness could be influenced by being less satisfied in their own current relationship, or if their current mate did not meet their ideals.

9.11 Conclusion

The overall aim of the current dissertation was to explore the main and interactive effects of the factors associated with social-economic theory (gender roles and SES) on the characteristics men and women considered a necessity in long-term and short-term mates. To explore necessities, a methodology that measured the trade-offs made when selecting a mate was employed. Results showed that men considered physical attractiveness of a long-term

mate significantly more of a necessity than did women. However, there was no significant difference between the amount men and women considered a long-term mate's social level a necessity. Additionally, both men and women considered physical attractiveness a necessity in a short-term mate. The aim of the current research was to explore whether individual gender roles and SES would have an effect on these preferences. For long-term mates, gender roles and SES were found to be associated with men's and women's preferences of physical attractiveness, but not social level. For short-term mates, gender roles and SES were found to be associated with on men's and women's preferences of physical attractiveness and social level. Due to the replicability of results, combined with the effects of SES and gender roles on mate preferences, results of the dissertation suggest that both evolutionary factors and social factors (SES and gender roles) are associated with sex differences in mate preferences.

Due to the interactive nature of the mechanisms of both evolutionary and social-economic theories of sex differences in mate preferences, combined with results suggesting support for social-exchange theory, a new model of sex differences was proposed to account for these limitations, namely, the biosocial-exchange model. In embarking on future research, investigators should seek to test the stability of biosocial-exchange model by exploring men and women's necessities and luxuries of mate preferences across cultures and ages. Finally, future research could also explore if additional, unexplored social factors may also be influence these sex differences in mate preferences. The results of the current dissertation suggest that the mechanisms of theories of sex differences in mate preferences may be more dynamic and interactive than previously thought.

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Appendix A

Long-Term Mate Condition Questionnaire

Demographics Information

Please indicate responses by ticking boxes or providing the appropriate information

Age: _____ years

Sex: Male ☐ Female ☐

Is English your primary language?

Yes ☐ No ☐

If no, please indicate your primary language: _____

Please indicate your sexual orientation

Heterosexual ☐ Homosexual ☐ Bisexual ☐

Please indicate your current romantic relationship status:

Single ☐ Dating ☐ Long-term relationship ☐ Married ☐ Separated/Divorced ☐

If other than single, please supply the duration of the relationship: _____ years_____ months

Do you currently hold a steady job?

Yes ☐ No ☐

Please indicate your weekly income bracket:

$0 - $335 ☐

☐

$336 - $990

$990+ ☐

If applicable, please indicate your current education status:

University undergraduate (degree) ☐

University postgraduate ☐

N/A ☐

Please indicate your highest level of education attained:

Primary school ☐

High school ☐

University undergraduate ☐

University postgraduate ☐

The following questions are based on your parent's income and education. If you are unable to answer the questions, please leave the boxes blank.

Please indicate your parent's combined weekly income

$0 - $335 ☐

$336 - $990 ☐

$990+ ☐

Unsure ☐

Does your mother currently hold a steady job?

Yes ☐ No ☐ Unsure ☐

Please provide your mother's weekly income

$0 - $335

$336 - $990 ☐

$990+ ☐

Unsure ☐

Does your father currently hold a steady job?

Yes ☐ No ☐ Unsure ☐

Please provide your father's weekly income

$0 - $335

$336 - $990 ☐

$990+ ☐

Unsure ☐

Please indicate the highest level of education your mother has obtained:

Primary school ☐

High school ☐

University undergraduate ☐

University postgraduate ☐

Unsure ☐

Please indicate the highest level of education your father has obtained:

Primary school ☐

High school ☐

University undergraduate ☐

University postgraduate ☐

Unsure ☐

Thank you for completing the demographics. Please proceed to the next page.

Introduction

For this survey, you will be using percentile scales to describe the characteristics pertaining to your ideal romantic partners. The percentile scales correspond to how a person measures against all others of the same sex that you might encounter on a busy street during a typical week.

For example, suppose you are male and that your relevant population of potential mates are women. Let's look at the characteristic of height. If we could rank all the women by their height, then the tallest woman would be at the 100^{th} percentile of height (she is taller than 100% of all the women). The woman at the 50^{th} percentile is of median or roughly average height (she is taller than 50% of women). The shortest woman is at the 0^{th} percentile of height (she is taller than 0% of women).

There will be 5 characteristics that describe a romantic partner. The characteristics sheet tells you what each characteristic means and what a typical 50^{th} percentile and 0^{th} percentile person might be like. Please read these examples carefully.

All your responses are anonymous, so please respond as honestly and candidly as possible (do not worry about how politically correct or socially desirable your selections are).

Please take your time and read your instructions **thoroughly**.

Characteristics Sheet

The population of comparison is anyone who might be seen on the busy street during a given week.

Social level

A person's social situation or social class – what kind of job they have or intend to have (if at all), their education, living arrangement, car, the type of clothes they (can afford to) wear, etc.

- 50th percentile (average) = undergraduate university student or TAFE student, works a part-time job with flexible hours, has a used car, lives in apartment with a roommate
- 0th percentile = person with the lowest social level seen on the busy street - no job and no intention of holding one, no education, no car, etc.

Creativity

A person's level of artistic ability and originality – how artistically talented they are and the level of their individuality and uniqueness.

- 50th percentile (average) = may occasionally demonstrate originality, perhaps able to write a poem or play a song
- 0th percentile = lowest creativity of anyone seen on the busy street - no creativity or artistic talent at all

Kindness

A person's benevolence and/or willingness to be helpful to others.

- 50th percentile (average) = usually helpful to close friends, especially when there is time
- 0th percentile = least kind person seen on the busy street - no willingness to help others

Liveliness

How lively a person's mannerisms or behavior is and how outgoing they are.

- 50th percentile (average) = moderately lively, energetic at times, somewhat extroverted
- 0th percentile = least lively person seen on the busy street

Physical attractiveness

A person's physical appearance (i.e., body & face). Does not include how they dress.

- 50th percentile (average) = pleasant-looking, may have a nice feature or two, reasonable face, but they're not striking
- 0th percentile = least physically attractive person seen on the busy street

Please continue to the questionnaire

Please design your ideal *long-term mate* by circling a percentile level for each of the following 5 characteristics. Assume that this is someone who you will be with for many years and possibly marry and have a family with. Of course, you may not be currently looking for someone like this, but for this part of the survey, assume that you are. To prevent you from choosing a "10" in everything, you will have to pay for each of your selections. Assume that each level is also your cost in "mate dollars" (example: 50th percentile = level 5 = 5 mate dollars; 80th percentile = level 8 = 8 mate dollars). You have only ***10*** mate dollars to spend, so make sure that all the numbers you circle add up to **10**. If you do not circle a level for a characteristic, it will be assumed that the bottom level is chosen for that characteristic!

Characteristics that describe your long-term mate

Percentile	Physical Attractiveness	Creativity	Kindness	Liveliness	Social Level
100th = ***the top***	10	10	10	10	10
90th = above 90%	9	9	9	9	9
80th = above 80%	8	8	8	8	8
70th = above 70%	7	7	7	7	7
60th = above 60%	6	6	6	6	6
50th - ***middle***	5	5	5	5	5
40th = above 40%	4	4	4	4	4
30th = above 30%	3	3	3	3	3
20th = above 20%	2	2	2	2	2
10th = above 10%	1	1	1	1	1
0th - ***the bottom***	0	0	0	0	0

- Add up the value of your selections (must equal 10): _____

Please design your ideal *long-term mate* by circling a percentile level for each of the following 5 characteristics. Assume that this is someone who you will be with for many years and possibly marry and have a family with. Of course, you may not be currently looking for someone like this, but for this part of the survey, assume that you are. To prevent you from choosing a "10" in everything, you will have to pay for each of your selections. Assume that each level is also your cost in "mate dollars" (example: 50th percentile = level 5 = 5 mate dollars; 80th percentile = level 8 = 8 mate dollars). You have ***30*** mate dollars to spend, so make sure that all the numbers you circle add up to **30**. If you do not circle a level for a characteristic, it will be assumed that the bottom level is chosen for that characteristic!

Characteristics that describe your long-term mate

	Physical				Social
Percentile	Attractiveness	Creativity	Kindness	Liveliness	Level
100th = ***the top***	10	10	10	10	10
90th = above 90%	9	9	9	9	9
80th = above 80%	8	8	8	8	8
70th = above 70%	7	7	7	7	7
60th = above 60%	6	6	6	6	6
50th - ***middle***	5	5	5	5	5
40th = above 40%	4	4	4	4	4
30th = above 30%	3	3	3	3	3
20th = above 20%	2	2	2	2	2
10th = above 10%	1	1	1	1	1
0th - ***the bottom***	0	0	0	0	0

- Add up the value of your selections (must equal 30): _____

End of questionnaire. Thank you for your time.

Appendix B

Short-Term Mate Condition

Please design your ideal *short-term mate* by circling a percentile level for each of the following 5 characteristics. Assume that this is someone who you will have casual sex with, perhaps for one evening. Of course, you may not be currently looking for someone like this, but for this part of the survey, assume that you are. To prevent you from choosing a "10" in everything, you will have to pay for each of your selections. Assume that each level is also your cost in "mate dollars" (example: 50th percentile = level 5 = 5 mate dollars; 80th percentile = level 8 = 8 mate dollars). You have only ***10*** mate dollars to spend, so make sure that all the numbers you circle add up to **10**. If you do not circle a level for a characteristic, it will be assumed that the bottom level is chosen for that characteristic!

Characteristics that describe your short-term mate

Percentile	Physical Attractiveness	Creativity	Kindness	Liveliness	Social Level
100th = ***the top***	10	10	10	10	10
90th = above 90%	9	9	9	9	9
80th = above 80%	8	8	8	8	8
70th = above 70%	7	7	7	7	7
60th = above 60%	6	6	6	6	6
50th - ***middle***	5	5	5	5	5
40th = above 40%	4	4	4	4	4
30th = above 30%	3	3	3	3	3
20th = above 20%	2	2	2	2	2
10th = above 10%	1	1	1	1	1
0th - ***the bottom***	0	0	0	0	0

- Add up the value of your selections (must equal 10): _____

Please design your ideal *short-term mate* by circling a percentile level for each of the following 5 characteristics. Assume that this is someone who you will have casual sex with, perhaps for one evening. Of course, you may not be currently looking for someone like this, but for this part of the survey, assume that you are. To prevent you from choosing a "10" in everything, you will have to pay for each of your selections. Assume that each level is also your cost in "mate dollars" (example: 50th percentile = level 5 = 5 mate dollars; 80th percentile = level 8 = 8 mate dollars). You have ***30*** mate dollars to spend, so make sure that all the numbers you circle add up to **30**. If you do not circle a level for a characteristic, it will be assumed that the bottom level is chosen for that characteristic!

	Characteristics that describe your short-term mate				
	Physical				Social
Percentile	Attractiveness	Creativity	Kindness	Liveliness	Level
100th = ***the top***	10	10	10	10	10
90th = above 90%	9	9	9	9	9
80th = above 80%	8	8	8	8	8
70th = above 70%	7	7	7	7	7
60th = above 60%	6	6	6	6	6
50th - ***middle***	5	5	5	5	5
40th = above 40%	4	4	4	4	4
30th = above 30%	3	3	3	3	3
20th = above 20%	2	2	2	2	2
10th = above 10%	1	1	1	1	1
0th - ***the bottom***	0	0	0	0	0

- Add up the value of your selections (must equal 30): _____

End of questionnaire. Thank you for your time.

Appendix C

Information Letter to Participants and Consent Form

TITLE OF PROJECT: Human attraction and dating

PRINCIPAL SUPERVISOR: Dr Eric Marx

STUDENT RESEARCHER: Evita March

Dear Participant,

You are invited to participate in an anonymous questionnaire designed to examine the emphasis people place on certain characteristics when choosing a mate. This project is designed for a Doctorate of Philosophy and requires participants aged between 18 – 30 years. Please take the time to complete the following questionnaire. This will take roughly 15 – 20 minutes of your time.

Participation in the current study may benefit participants by gaining insight into personal preferences and standards of attraction and dating. Students at the Australian Catholic University may receive 1% of credit towards their grade upon completing the questionnaire. The 1% of credit may only be eligible to specific courses. To receive the 1% of credit, please supply your name, course information and the questionnaire code to the School of Psychology. The questionnaire code is available on the first page of the questionnaire. Please put your name, course information and the questionnaire code in a marked drop box at the School of Psychology, Australian Catholic University, McAuley Campus, Building F Level C. You are strongly assured your identification will be kept confidential. There will be no

way to identify your questionnaire responses from the identification information you supply for your course credit, and therefore your questionnaire responses will continue to be completely anonymous.

Your participation in this project is voluntary. Participants are free to refuse consent without having to justify the decision. There are no potential risks when completing this questionnaire. However, should you feel any discomfort when completing this questionnaire you are encouraged to withdraw your participation at any time. If you do experience any discomfort during the questionnaire you are encouraged to contact either ACU Student Counselling Service (for ACU students only) via their online booking service at: http://www.acu.edu.au/student_resources/office_of_student_success/service_areas/counselling_services/making_an_appointment/, or Lifeline on PH: 13 11 14.

The current research will extend previous research on human attraction and dating. The information and results gathered for this research has the potential to be publicised in either journal or conference form. Results published will be published in an aggregated form that would not identify the participant in any way.

If you have any questions about this research or wish to enquire about the results, please contact the Principal Supervisor or the Student Researcher.

Principal Supervisor

Name: Dr Eric Marx

School: Australian Catholic University School of Psychology

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This study has been approved by the Human Research Ethics Committee at the Australian Catholic University.

In the event that you have any concerns about the nature of how you were treated during this study, or any questions about the Principal Supervisor and the Student Researcher, you may write to the Chair of the Human Research Ethics Committee care of the nearest branch of the Research Services Unit. Any complaint or concern will be treated in confident and fully investigated. The participant will be informed of the outcome.

Address: Chair, HREC

C/- Research Services

Australian Catholic University

Brisbane Campus

PO BOX 456

Virginia QLD 4014

Tel: 07 3623 7429

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If you are willing to participate, please click on the link and answer 'yes' to the first question to indicate your consent. Your support for the research project would be most appreciated

Dr Eric Marx
Principal Supervisor

Evita March
Student Researcher

PLEASE SELECT ONLY ONE OF THE LINKS BELOW. PLEASE SELECT THE LINK AT RANDOM

Link #1

Link #2

Link # 3

Link #4

Appendix D

Human Research Ethics Committee
Committee Approval Form

Principal Investigator/Supervisor: Dr Eric Marx Brisbane Campus

Co-Investigators: Dr Bob Paddle Melbourne Campus

Student Researcher: Ms Evita March Brisbane Campus

Ethics approval has been granted for the following project:
Sex differences in mate selection: a further investigation into the evolutionary and social-economic theories (Human attraction and dating)

for the period: 1 April 2011 to 28 February 2013

Human Research Ethics Committee (HREC) Register Number: Q2011 09

Special Condition/s of Approval

Prior to commencement of your research, the following permissions are required to be submitted to the ACU HREC:

N/A

The following standard conditions as stipulated in the *National Statement on Ethical Conduct in Research Involving Humans* (2007) apply:

(i) that Principal Investigators / Supervisors provide, on the form supplied by the Human Research Ethics Committee, annual reports on matters such as:
- security of records
- compliance with approved consent procedures and documentation
- compliance with special conditions, and

(ii) that researchers report to the HREC immediately any matter that might affect the ethical acceptability of the protocol, such as:
- proposed changes to the protocol
- unforeseen circumstances or events
- adverse effects on participants

The HREC will conduct an audit each year of all projects deemed to be of more than low risk. There will also be random audits of a sample of projects considered to be of negligible risk and low risk on all campuses each year.

Within one month of the conclusion of the project, researchers are required to complete a *Final Report Form* and submit it to the local Research Services Officer.

If the project continues for more than one year, researchers are required to complete an *Annual Progress Report Form* and submit it to the local Research Services Officer within one month of the anniversary date of the ethics approval.

K. Pashley.

Signed: .....Date: .... 01.04.2011.....
(Research Services Officer, McAuley Campus)

Appendix E

Long-Term Data Screening as a Function of Sex

Low Budget

For men, the low budget scales of physical attractiveness, creativity, kindness, liveliness and social level were all found to breach normality (Kolmogorov-Smirnov p = .001, .001, .001, .001, and .001, respectively). For women, the low budget scales of physical attractiveness, creativity, kindness, liveliness and social level were all found to breach normality (Kolmogorov-Smirnov p = .001, .001, .001, .001, and .001, respectively). To further check these violations of normality, skew and kurtosis variables were standardised and assessed for significance of an alpha of .05 ($z = \pm 3.29$). Details are presented in Table E1.

Regarding men's outliers, three cases were found on the low budget physical attractiveness scale (higher than +3 *SD* above the *M*; Field, 2005), one case was found on the low budget creativity scale (higher than +3 *SD* above the *M*), three cases were found on the low budget kindness scale (higher than +3 *SD* above the *M*), three cases were found on the low budget liveliness scale (higher than +3 *SD* above the *M*), and two cases were found on the low budget social level scale (higher than +3 *SD* above the *M*).

Regarding women's outliers, five cases were found on the low budget physical attractiveness scale (higher than +3 *SD* above the *M*), six cases were found on the low budget creativity scale (higher than +3 *SD* above the *M*), four cases were found on the low budget kindness scale (higher than +3 *SD* above the *M*), six cases were found on the low budget liveliness scale (higher than +3 *SD* above the *M*), and six cases were found on the low budget social level scale (higher than +3 *SD* above the *M*). These outliers were removed from the distributions, and standardised kurtosis and skew was reassessed (Table E2).

Table E.1

Men's and Women's Low Budget Physical Attractiveness, Creativity, Kindness, Liveliness and Social Level Distribution Standardised Skew and Kurtosis

	Low Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
Men						
PA	1.592	0.145	10.979*	5.726	0.289	19.813*
CR	1.811	0.145	12.490*	10.459	0.289	36.190*
KIN	1.803	0.145	12.434*	8.146	0.289	28.187*
LIV	0.566	0.145	3.903*	1.805	0.289	6.246*
SL	0.357	0.145	2.462	0.505	0.289	1.747
Women						
PA	0.666	0.102	6.529*	1.511	0.204	7.407*
CR	0.763	0.102	7.480*	1.963	0.204	9.623*
KIN	1.637	0.102	16.049*	7.317	0.204	35.868*
LIV	0.423	0.102	4.147*	2.660	0.204	13.039*
SL	0.221	0.102	2.167	0.446	0.204	2.186

Note: SE = Standard Error, PA = Physical Attractiveness Scale, CR = Creativity Scale, KIN = Kindness Scale, LIV = Liveliness Scale, SL = Social Level Scale
* = $p < .001$

Table E.2

Men's and Women's Low Budget Physical Attractiveness, Creativity, Kindness, Liveliness and Social Level Distribution Standardised Skew and Kurtosis After Removal of Univariate Outliers

	Low Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
Men						
PA	0.853	0.148	5.764*	1.057	0.295	3.583*
CR	0.439	0.148	2.966	0.262	0.295	0.888
KIN	0.620	0.148	4.189*	2.159	0.295	7.319*
LIV	0.010	0.148	0.068	-0.002	0.295	-0.007
SL	0.131	0.148	0.885	-0.046	0.295	-0.156
Women						
PA	0.496	0.105	4.724*	1.005	0.209	4.809*
CR	0.301	0.105	2.867	0.382	0.209	1.828
KIN	0.866	0.105	8.248*	2.040	0.209	9.761*
LIV	-0.284	0.105	-2.705	0.060	0.209	0.287
SL	-0.134	0.105	-1.276	-0.311	0.209	-1.488

Note: SE = Standard Error, PA = Physical Attractiveness Scale, CR = Creativity Scale, KIN = Kindness Scale, LIV = Liveliness Scale, SL = Social Level Scale
* = $p < .001$

Removing univariate outliers corrected violations of normality for men's and women's creativity and liveliness scales. However, for the inferential statistics, univariate outliers were retained, as (1) analyses were run with and without outliers and there were no significant changes, (2) the violations of normality were considered minor, and (3) the *F* test is considered robust to violations of normality (Keppel& Wickens, 2004).

High Budget

For men, the high budget scales of physical attractiveness, creativity, kindness, liveliness and social level were all found to breach normality (Kolmogorov-Smirnov p = .001, .001, .001, .001, and .001, respectively). For women, the high budget scales of physical attractiveness, creativity, kindness, liveliness and social level were all found to breach normality (Kolmogorov-Smirnov p = .001, .001, .001, .001, and .001, respectively). To further check these violations of normality, skew and kurtosis variables were standardised and assessed for significance of an alpha of .05 ($z = \pm 3.29$). Details are presented in Table E3.

Regarding men's univariate outliers, one case was found on the high budget physical attractiveness scale (lower than -3 *SD* below the *M*), no cases were found on the high budget creativity scale, no cases were found on the high budget kindness scale, no cases were found on the high budget liveliness scale, and no cases were found on the high budget social level scale.

Regarding women's univariate outliers, no cases were found on the high budget physical attractiveness scale, no cases were found on the high budget creativity scale, one case was found on the high budget kindness scale (lower than -3 *SD* below the *M*), one case was found on the high budget liveliness scale (lower than -3 *SD* below the *M*), and no cases were found on the high budget social level scale. These outliers were removed from the distributions, and standardised kurtosis and skew was reassessed (Table E4).

Table E.3

Men's and Women's High Budget Physical Attractiveness, Creativity, Kindness, Liveliness and Social Level Distribution Standardised Skew and Kurtosis

	High Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
Men						
PA	-0.306	0.145	-2.110	1.895	0.289	6.557*
CR	-0.251	0.145	-1.731	0.374	0.289	1.294
KIN	-0.779	0.145	-5.372*	2.498	0.289	8.644*
LIV	-0.615	0.145	-4.241*	1.440	0.289	4.983*
SL	-0.551	0.145	-3.800*	0.861	0.289	2.979
Women						
PA	-0.213	0.102	-2.088	0.837	0.204	4.103*
CR	-0.094	0.102	-0.922	0.281	0.204	1.377
KIN	-0.244	0.102	-2.392	0.507	0.204	2.485
LIV	-0.342	0.102	-3.353*	1.224	0.204	6.000*
SL	-0.476	0.102	-4.667*	1.256	0.204	6.157*

Note: SE = Standard Error, PA = Physical Attractiveness Scale, CR = Creativity Scale, KIN = Kindness Scale, LIV = Liveliness Scale, SL = Social Level Scale
* = $p < .001$

Table E.4

Men's and Women's High Budget Physical Attractiveness, Creativity, Kindness, Liveliness and Social Level Distribution Standardised Skew and Kurtosis After Removal of Univariate Outliers

	High Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
Men						
PA	-0.357	0.149	-2.396	2.296	0.296	7.757*
CR	-0.307	0.149	-2.060	0.359	0.296	1.213
KIN	-0.721	0.149	-4.839*	2.403	0.296	8.118*
LIV	-0.651	0.149	-4.369*	1.495	0.296	5.051*
SL	-0.596	0.149	-4.000*	1.006	0.296	3.399*
Women						
PA	-0.203	0.105	-1.933	0.794	0.210	3.781*
CR	-0.123	0.105	-1.171	0.325	0.210	1.548
KIN	-0.242	0.105	-2.305	0.587	0.210	2.795
LIV	-0.283	0.105	-2.696	1.126	0.210	5.362*
SL	-0.517	0.105	-4.924*	1.383	0.210	6.586*

Note: SE = Standard Error, PA = Physical Attractiveness Scale, CR = Creativity Scale, KIN = Kindness Scale, LIV = Liveliness Scale, SL = Social Level Scale
* = $p < .001$

Removing univariate outliers did not change violations of normality. However, further transformation of the data was considered unnecessary, as (1) the violations of normality were considered minor, and (2) the *F* test is considered robust to violations of normality (Keppel & Wickens, 2004).

Short-Term Data Screening as a Function of Sex

Low Budget

For men, the low budget scales of physical attractiveness, creativity, kindness, liveliness and social level were all found to breach normality (Kolmogorov-Smirnov p = .001, .001, .001, .001, and .001, respectively). For women, the low budget scales of physical attractiveness, creativity, kindness, liveliness and social level were all found to breach normality (Kolmogorov-Smirnov p = .001, .001, .001, .001, and .001, respectively). To further check these violations of normality, skew and kurtosis variables were standardised and assessed for significance of an alpha of .05 ($z = \pm 3.29$). Details are presented in Table E5.

Table E.5

Men's and Women's Low Budget Physical Attractiveness, Creativity, Kindness, Liveliness and Social Level Distribution Standardised Skew and Kurtosis

	Low Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
Men						
PA	0.488	0.158	3.089	-0.199	0.316	-0.630
CR	1.527	0.158	9.665*	7.008	0.316	22.177*
KIN	1.349	0.158	8.538*	4.763	0.316	15.073*
LIV	0.449	0.158	2.842	1.830	0.316	5.791*
SL	0.288	0.158	1.823	-0.358	0.316	-1.133
Women						
PA	0.661	0.104	6.356*	0.454	0.208	2.183
CR	2.104	0.104	20.231*	4.744	0.208	22.808*
KIN	1.052	0.104	10.115*	3.644	0.208	17.519*
LIV	0.777	0.104	7.471*	2.266	0.208	10.894*
SL	0.232	0.104	2.231	0.531	0.208	2.553

Note: SE = Standard Error, PA = Physical Attractiveness Scale, CR = Creativity Scale, KIN = Kindness Scale, LIV = Liveliness Scale, SL = Social Level Scale
* = $p < .001$

Regarding men's outliers, no cases were found on the low budget physical attractiveness scale, two cases were found on the low budget creativity scale (higher than +3 *SD* above the *M*), three cases were found on the low budget kindness scale (higher than +3 *SD* above the *M*), two cases were found on the low budget liveliness scale (higher than +3 *SD* above the *M*), and no cases were found on the low budget social level scale.

Regarding women's outliers, two cases were found on the low budget physical attractiveness scale (higher than +3 *SD* above the *M*), eight cases were found on the low budget creativity scale (higher than +3 *SD* above the *M*), five cases were found on the low budget kindness scale (higher than +3 *SD* above the *M*), eleven cases were found on the low budget liveliness scale (higher than +3 *SD* above the *M*), and three cases were found on the low budget social level scale (higher than +3 *SD* above the *M*). These outliers were removed from the distributions, and standardised kurtosis and skew was reassessed (Table E6).

Table E.6

Men's and Women's Low Budget Physical Attractiveness, Creativity, Kindness, Liveliness and Social Level Distribution Standardised Skew and Kurtosis After Removal of Univariate Outliers

	Low Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
Men						
PA	0.521	0.161	3.236	-0.223	0.320	-0.697
CR	0.379	0.161	2.354	-0.223	0.320	-0.697
KIN	0.420	0.161	2.609	0.316	0.320	0.988
LIV	-0.199	0.161	-1.236	-0.473	0.320	-1.478
SL	0.267	0.161	1.658	-0.304	0.320	-.950
Women						
PA	0.733	0.107	6.850*	0.266	0.214	1.243
CR	0.533	0.107	4.981*	0.465	0.214	2.173
KIN	0.509	0.107	4.757*	0.862	0.214	4.028*
LIV	-0.022	0.107	-0.206	0.086	0.214	0.402
SL	0.060	0.107	0.561	0.156	0.214	0.729

Note: SE = Standard Error, PA = Physical Attractiveness Scale, CR = Creativity Scale, KIN = Kindness Scale, LIV = Liveliness Scale, SL = Social Level Scale
* = $p < .001$

Removing univariate outliers corrected violations of normality for men's creativity, kindness, and liveliness scales and women's liveliness scale. However, for the inferential statistics, univariate outliers were retained, as (1) analyses were run with and without outliers and there were no significant changes, (2) the violations of normality were considered minor, and (3) the *F* test is considered robust to violations of normality (Keppel & Wickens, 2004).

High Budget

For men, the high budget scales of physical attractiveness, creativity, kindness, liveliness and social level were all found to breach normality (Kolmogorov-Smirnov p = .001, .001, .001, .001, and .001, respectively). For women, the high budget scales of physical attractiveness, creativity, kindness, liveliness and social level were all found to breach normality (Kolmogorov-Smirnov p = .001, .001, .001, .001, and .001, respectively). To further check these violations of normality, skew and kurtosis variables were standardised and assessed for significance of an alpha of .05 ($z = \pm 3.29$). Details are presented in Table E7.

Table E.7

Men's and Women's High Budget Physical Attractiveness, Creativity, Kindness, Liveliness and Social Level Distribution Standardised Skew and Kurtosis

	High Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
Men						
PA	-1.160	0.158	-7.342	2.242	0.316	7.095
CR	-0.064	0.158	-0.405	0.059	0.316	0.187
KIN	-0.587	0.158	-3.715	1.035	0.316	3.275
LIV	-0.469	0.158	-2.698	1.366	0.316	4.323
SL	-0.291	0.158	-1.842	0.237	0.316	0.750
Women						
PA	-0.383	0.104	-3.683	0.337	0.208	1.620
CR	-0.139	0.104	-1.337	0.025	0.208	0.120
KIN	-0.745	0.104	-7.163	1.573	0.208	7.563
LIV	-0.297	0.104	-2.856	1.176	0.208	5.654
SL	-0.440	0.104	-4.230	0.603	0.208	2.899

Note: SE = Standard Error, PA = Physical Attractiveness Scale, CR = Creativity Scale, KIN = Kindness Scale, LIV = Liveliness Scale, SL = Social Level Scale
* = $p < .001$

Regarding men's outliers, one case was found on the high budget physical attractiveness scale (lower than -3 *SD* below the *M*), no cases were found on the high budget creativity scale, no cases were found on the high budget kindness scale, no cases were found on the high budget liveliness scale, and no cases were found on the high budget social level scale.

Regarding women's outliers, no cases were found on the high budget physical attractiveness scale, no cases were found on the high budget creativity scale, no caseswere found on the high budget kindness scale, one case was found on the high budget liveliness scale, and no cases were found on the high budget social level scale. These outliers were removed from the distributions, and standardised kurtosis and skew was reassessed (Table E8).

Table E.8

Men's and Women's High Budget Physical Attractiveness, Creativity, Kindness, Liveliness and Social Level Distribution Standardised Skew and Kurtosis After Removal of Univariate Outliers

	High Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
Men						
PA	-1.160	0.158	-7.342	2.242	0.316	7.095
CR	-0.064	0.158	-0.405	0.059	0.316	0.187
KIN	-0.587	0.158	-3.715	1.035	0.316	3.275
LIV	-0.469	0.158	-2.698	1.366	0.316	4.323
SL	-0.291	0.158	-1.842	0.237	0.316	0.750
Women						
PA	-0.383	0.104	-3.683	0.337	0.208	1.620
CR	-0.139	0.104	-1.337	0.025	0.208	0.120
KIN	-0.745	0.104	-7.163	1.573	0.208	7.563
LIV	-0.297	0.104	-2.856	1.176	0.208	5.654
SL	-0.440	0.104	-4.230	0.603	0.208	2.899

Note: SE = Standard Error, PA = Physical Attractiveness Scale, CR = Creativity Scale, KIN = Kindness Scale, LIV = Liveliness Scale, SL = Social Level Scale
* = $p < .001$

Appendix F

Low Budget and High Budget Long-Term Data Screening as a Function of Sex, SES and Gender Roles

Low Budget

Sex, low SES and gender roles (masculinity, femininity, androgyny, and undifferentiated). For men of low SES and a masculine gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .001, and .001, respectively). For men of low SES and a feminine gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro- Wilk p = .001, and .027, respectively).For men of low SES and an androgynous gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .004, and .002, respectively). Finally, for men of low SES and an undifferentiated gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .008, and .001, respectively).

For women of low SES and a masculine gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .038, and .004, respectively). For women of low SES and a feminine gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro- Wilk p = .001, and .027, respectively).For women of low SES and an androgynous gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .004, and .002, respectively). Finally, for women of low SES and an undifferentiated gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .008, and .001, respectively).

To further check these violations of normality, skew and kurtosis variables were standardised and assessed for significance of an alpha of .05 ($z = \pm 3.29$). Details are presented in Table F1.

Table F.1

Men and Women of low SES and Differing Gender Roles and Low Budget Physical Attractiveness and Social Level Distribution's Standardised Skew and Kurtosis

	Low Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
Men of Low SES, Masculine Gender Role						
PA	1.787	0.491	3.640*	3.635	0.953	3.814*
SL	0.023	0.491	0.047	0.487	0.953	0.511
Men of Low SES, Feminine Gender Role						
PA	0.341	0.524	0.651	0.010	1.014	0.010
SL	-0.340	0.524	-.649	0.235	1.014	0.232
Men of Low SES, Androgynous Gender Role						
PA	1.061	0.441	2.406	1.182	0.858	1.378
SL	-0.482	0.441	-1.093	0.645	0.858	0.752
Men of Low SES, Undifferentiated Gender Role						
PA	0.484	0.347	1.395	0.689	0.681	1.012

(table continues)

	Low Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
SL	-0.409	0.347	-1.179	-0.291	0.681	-0.427
Women of Low SES, Masculine Gender Role						
PA	0.198	0.403	0.491	-0.139	0.788	-0.176
SL	-0.421	0.403	-1.045	0.086	0.788	0.109
Women of Low SES, Feminine Gender Role						
PA	0.754	0.316	2.386	2.152	0.623	3.454*
SL	-0.034	0.316	-0.108	-0.796	0.623	-1.278
Women of Low SES, Androgynous Gender Role						
PA	0.644	0.247	2.607	1.259	0.490	2.569
SL	0.165	0.247	0.668	1.267	0.490	2.586
Women of Low SES, Undifferentiated Gender Role						
PA	0.545	0.281	1.940	1.567	0.555	2.823
SL	0.375	0.281	1.335	1.458	0.555	2.627

Note: SE = Standard Error, PA = Physical Attractiveness Scale, SL = Social Level Scale
* = $p < .001$

Regarding the standardised values for skew and kurtosis, not many were found to deviate more than three standard deviations from the mean (±3.29), thus normality of the distributions was satisfied (Field, 2005). For the variables that did exceed ±3.29 standard deviations from the mean, it was decided to assess these variables for univariate outliers.

Regarding the distribution of men of low SES and a masculine gender role and physical attractiveness scores, no univariate outliers were found to exceed ±3standard deviations from the mean. Regarding the distribution of women of low SES and a feminine gender role and physical attractiveness scores, no univariate outliers were found to exceed ±3standard deviations from the mean. As such, the violations of normality reported above cannot be attributed to univariate outliers. However, further transformations of the data were deemed unnecessary, as (1) the violations were considered minor, and (2) the *F* test is considered robust to violations of normality (Keppel & Wickens, 2004).

Low Budget

Sex, high SES and gender roles (masculinity, femininity, androgyny, and undifferentiated). For men of high SES and a masculine gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .001$, and .006, respectively). For men of high SES and a feminine gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro- Wilk $p = .002$, and .009, respectively). For men of high SES and an androgynous gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .001$, and .001, respectively). Finally, for men of high SES and an undifferentiated gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .014$, and .001, respectively).

For women of high SES and a masculine gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .001$, and .002, respectively). For women of high SES and a feminine gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro- Wilk $p = .001$, and .001, respectively). For women of high SES

and an androgynous gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .001, and .001, respectively). Finally, for women of high SES and an undifferentiated gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .001, and .001, respectively).

To further check these violations of normality, skew and kurtosis variables were standardised and assessed for significance of an alpha of .05 (z = ±3.29). Details are presented in Table F2.

Distributions where the standardised skew and kurtosis values deviated more than three standard deviations from the mean (±3.29) were assessed for univariate outliers.

Regarding the distributions of men of high SES and a masculine gender role, men of high SES and a feminine gender role, and men of high SES and an androgynous gender role and physical attractiveness scores, no univariate outliers were found to exceed ±3standard deviations from the mean. Regarding the distribution of women of high SES and a feminine gender role and physical attractiveness scores, two univariate outliers were found (+3 SD *above* mean).For the distribution of women of high SES and an androgynous gender role and physical attractiveness scores, one univariate outlier was found (+3 SD above mean). After removal of these univariate outliers, standardised skew and kurtosis were reassessed (Table F3).

Table F.2

Men and Women of High SES and Differing Gender Roles and Low Budget Physical Attractiveness and Social Level Distribution's Standardised Skew and Kurtosis

	Low Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
Men of High SES, Masculine Gender Role						
PA	1.261	0.357	3.532*	2.791	0.702	3.976*
SL	0.083	0.357	0.232	-0.521	0.702	-0.742
Men of High SES, Feminine Gender Role						
PA	1.870	0.524	3.569*	5.169	1.014	5.098*
SL	-0.368	0.524	-0.702	-0.760	1.014	-0.750
Men of High SES, Androgynous Gender Role						
PA	1.331	0.350	3.803*	2.326	0.688	3.381*
SL	1.094	0.350	3.126	2.245	0.688	3.263
Men of High SES, Undifferentiated Gender Role						
PA	0.156	0.322	0.484	0.119	0.634	0.188
SL	0.653	0.322	2.028	0.243	0.634	0.383
Women of High SES, Masculine Gender Role						

(table continues)

	Low Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
PA	0.408	0.299	1.365	1.131	0.590	1.917
SL	0.259	0.299	0.866	0.235	0.590	0.398
Women of High SES, Feminine Gender Role						
PA	0.851	0.293	2.904	2.441	0.578	4.223*
SL	0.720	0.293	2.457	1.121	0.578	1.939
Women of High SES, Androgynous Gender Role						
PA	0.603	0.240	2.513	2.942	0.476	6.181*
SL	-0.072	0.240	-0.300	-0.282	0.476	-0.592
Women of High SES, Undifferentiated Gender Role						
PA	0.625	0.281	2.224	0.556	0.555	1.002
SL	0.203	0.281	0.722	0.115	0.555	0.207

Note: SE = Standard Error, PA = Physical Attractiveness Scale, SL = Social Level Scale
* = $p < .001$

Table F.3

Women of High SES, Feminine and Androgynous Gender Roles and Low Budget Physical Attractiveness Distribution's Standardised Skew and Kurtosis After Removal of Outliers

	Low Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
Women of High SES, Feminine Gender Role						
PA	-0.258	0.297	-0.869	-0.348	0.586	-0.594
SL	0.729	0.297	2.455	1.254	0.586	2.140
Women of High SES, Androgynous Gender Role						
PA	-0.190	0.241	-0.788	0.155	0.478	0.324
SL	-0.072	0.241	-0.299	-0.230	0.478	-0.481

Note: SE = Standard Error, PA = Physical Attractiveness Scale, SL = Social Level Scale
* = $p < .001$

Removing univariate outliers corrected violations of normality. However, for the inferential statistics, univariate outliers were retained, as (1) analyses were run with and without outliers and there were no significant changes, (2) the violations of normality were considered minor, and (3) the *F* test is considered robust to violations of normality (Keppel & Wickens, 2004).

High Budget

Sex, low SES and gender roles (masculinity, femininity, androgyny, and undifferentiated). For men of low SES and a masculine gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .030$, and .001, respectively). For men of low SES and a feminine gender

role, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk $p = .129$), whereas the distribution of social level scores was found to breach normality (Shapiro- Wilk $p = .012$, respectively).For men of low SES and an androgynous gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .049$, and .010, respectively). Finally, for men of low SES and an undifferentiated gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .001$, and .001, respectively).

For women of low SES and a masculine gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .007$, and .012, respectively). For women of low SES and a feminine gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro- Wilk $p = .022$, and .019, respectively).For women of low SES and an androgynous gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .001$, and .002, respectively). Finally, for women of low SES and an undifferentiated gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .001$, and .001, respectively).

To further check these violations of normality, skew and kurtosis variables were standardised and assessed for significance of an alpha of .05 ($z = \pm 3.29$). Details are presented in Table F4.

Table F.4

Men and Women of Low SES and Differing Gender Roles and High Budget Physical Attractiveness and Social Level Distribution's Standardised Skew and Kurtosis

	High Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
Men of Low SES, Masculine Gender Role						
PA	0.811	0.491	1.652	1.009	0.953	1.059
SL	-1.490	0.491	-3.035	3.675	0.953	3.856*
Men of Low SES, Feminine Gender Role						
PA	-0.292	0.524	-0.557	-0.815	1.014	-0.804
SL	0.757	0.524	1.445	1.516	1.014	1.495
Men of Low SES, Androgynous Gender Role						
PA	0.357	0.441	0.810	0.807	0.858	0.941
SL	-0.419	0.441	-0.950	1.717	0.858	2.001
Men of Low SES, Undifferentiated Gender Role						
PA	-1.163	0.347	-3.352*	3.405	0.681	5.000*
SL	-1.261	0.347	-3.634*	4.052	0.681	5.950*
Women of Low SES, Masculine Gender Role						

(table continues)

	High Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
PA	0.942	0.403	2.337	0.901	0.788	1.143
SL	-0.928	0.403	-2.303	3.445	0.788	4.372*
Women of Low SES, Feminine Gender Role						
PA	-0.042	0.316	-0.133	-0.198	0.623	-0.318
SL	-0.421	0.316	-1.332	0.273	0.623	0.438
Women of Low SES, Androgynous Gender Role						
PA	-0.168	0.247	-0.680	0.580	0.490	1.184
SL	0.208	0.247	0.842	0.529	0.490	1.080
Women of Low SES, Undifferentiated Gender Role						
PA	-0.466	0.281	-1.658	1.157	0.555	2.085
SL	-0.875	0.281	-3.114	2.044	0.555	3.683*

Note: SE = Standard Error, PA = Physical Attractiveness Scale, SL = Social Level Scale
* = $p < .001$

Distributions where the standardised skew and kurtosis values deviated more than three standard deviations from the mean (±3.29) were assessed for univariate outliers.

Regarding the distribution of men of low SES and a masculine gender role and social level scores, no univariate outliers were found to exceed ±3 standard deviations from the mean. Regarding the distributions of men of low SES and an undifferentiated feminine gender role and physical attractiveness and social level scores, no univariate outliers were

found to exceed ±3 standard deviations from the mean. Regarding the distribution of women of low SES and a masculine gender role and social level scores, one univariate outlier was found (-3 *SD* below mean). Finally, regarding the distribution of women of low SES and an undifferentiated gender role and social level scores, no univariate outliers were found to exceed ±3 standard deviations from the mean. After removal of the univariate outlier, standardised skew and kurtosis were reassessed (Table F5).

Table F.5

Women of Low SES and an Undifferentiated Gender Role and High Budget Social Level Distribution's Standardised Skew and Kurtosis After Removal of Outliers

	High Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
Women of Low SES, Undifferentiated Gender Role						
SL	-0.875	0.281	-3.114	2.044	0.555	3.683*

Note: SE = Standard Error, PA = Physical Attractiveness Scale, SL = Social Level Scale
* = $p < .001$

Removal of the univariate outlier did not improve normality. However, further transformations of the data were deemed unnecessary, as (1) the violations were considered minor, and (2) the *F* test is considered robust to violations of normality (Keppel & Wickens, 2004).

High Budget

Sex, high SES and gender roles (masculinity, femininity, androgyny, and undifferentiated). For men of high SES and a masculine gender role, the distribution of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .001$, and .019, respectively). For men of high SES and a feminine gender

role, the distribution of physical attractiveness scores and social level scores did not breach normality (Shapiro-Wilk p = .406, and .096, respectively).For men of high SES and an androgynous gender role, the distribution of physical attractiveness scores did not breach normality (Shapiro-Wilk p = .092), but the distribution of social level scores did breach normality (Shapiro-Wilk p = .001). Finally, for men of high SES and an undifferentiated gender role, the distribution of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .002, and .024, respectively).

For women of high SES and a masculine gender role, the distribution of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .014, and .012, respectively). For women of high SES and a feminine gender role, the distribution of physical attractiveness scores and social level scores were both found to breach normality (Shapiro- Wilk p = .008, and .001, respectively).For women of high SES and an androgynous gender role, the distribution of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .001, and .001, respectively). Finally, for women of high SES and an undifferentiated gender role, the distribution of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .003, and .005, respectively).

To further check these violations of normality, skew and kurtosis variables were standardised and assessed for significance of an alpha of .05 (z = ±3.29). Details are presented in Table F6.

Table F.6

Men and Women of High SES and Differing Gender Roles and High Budget Physical Attractiveness and Social Level Distribution's Standardised Skew and Kurtosis

	High Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
Men of High SES, Masculine Gender Role						
PA	-1.399	0.357	-3.919*	4.601	0.702	6.554*
SL	-0.740	0.357	-2.073	0.513	0.702	0.731
Men of High SES, Feminine Gender Role						
PA	-0.587	0.524	-1.120	0.550	1.014	0.542
SL	0.556	0.524	1.061	0.674	1.014	0.665
Men of High SES, Androgynous Gender Role						
PA	0.543	0.350	1.551	0.703	0.688	1.022
SL	-0.561	0.350	-1.603	0.333	0.688	0.484
Men of High SES, Undifferentiated Gender Role						
PA	0.020	0.322	0.062	-0.102	0.634	-0.161
SL	-0.317	0.322	-0.984	-0.125	0.634	-0.197
Women of High SES, Masculine Gender Role						

(table continues)

	High Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
PA	0.347	0.299	1.161	0.230	0.590	0.390
SL	0.314	0.299	1.050	0.010	0.590	0.017
Women of High SES, Feminine Gender Role						
PA	-0.491	0.293	-1.676	0.159	0.578	0.275
SL	0.531	0.293	1.812	0.783	0.578	1.355
Women of High SES, Androgynous Gender Role						
PA	-0.573	0.240	-2.388	1.411	0.476	2.964
SL	-1.084	0.240	-4.517*	1.083	0.476	2.275
Women of High SES, Undifferentiated Gender Role						
PA	0.057	0.281	0.203	-0.306	0.555	-0.551
SL	-0.648	0.281	-2.306	1.113	0.555	2.005

Note: SE = Standard Error, PA = Physical Attractiveness Scale, SL = Social Level Scale
* = $p < .001$

Distributions where the standardised skew and kurtosis value deviated more than three standard deviations from the mean (±3.29) were assessed for univariate outliers.

Regarding the distribution of men of high SES and a masculine gender role and physical attractiveness scores, one univariate outlier was found (-3 *SD* below mean). Regarding the distribution of women of high SES and an androgynous gender role and social level scores, no univariate outliers were found to exceed ±3 standard deviations from the

mean. After removal of the univariate outlier, standardised skew and kurtosis were reassessed (Table F7).

Table F.7

Men of High SES and a Masculine Gender Role and High Budget Physical Attractiveness Distribution's Standardised Skew and Kurtosis After Removal of Outliers

	High Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
Men of High SES, Masculine Gender Role						
PA	-0.216	0.361	-0.598	0.412	0.709	0.581

Note: SE = Standard Error, PA = Physical Attractiveness Scale, SL = Social Level Scale
* = $p<.001$

Removing univariate outliers corrected violations of normality. However, for the inferential statistics, univariate outliers were retained, as (1) analyses were run with and without outliers and there were no significant changes, (2) the violations of normality were considered minor, and (3) the *F* test is considered robust to violations of normality (Keppel & Wickens, 2004).

Appendix G

Table G.1

Men's Means (and Standard Deviations) of Percentage of Budget Spent on Physical Attractiveness by Budget, Employment, Weekly Income, and Education Attained

		Low Budget								High Budget							
		Education Attained								Education Attained							
Job	Income	Low	*n*	Medium	*n*	High	*n*	Total	N	Low	*n*	Medium	*n*	High	*n*	Total	N
No	Low	29.09	57	28.19	11	25.85	11	28.51	79	22.11	57	22.44	11	21.55	11	22.08	79
		(17.12)		(14.01)		(11.10)		(15.89)		(6.32)		(4.24)		(7.52)		(6.19)	
	Med	28.01	23	26.84	19	25.26	39	26.41	81	24.30	23	23.49	19	21.29	39	22.66	81
		(14.10)		(12.50)		(10.73)		(12.08)		(6.39)		(7.61)		(5.60)		(6.57)	
	High	46.67	6	30.71	7	22.46	12	30.58	25	23.89	6	23.81	7	22.34	12	23.12	25
		(19.66)		(17.90)		(12.01)		(18.01)		(6.47)		(6.21)		(4.99)		(5.51)	
	Total	30.02	86	27.97	37	24.82	62	27.87	185	22.82	86	23.24	37	21.53	62	22.48	185
		(16.99)		(13.72)		(10.93)		(14.66)		(6.36)		(6.38)		(6.03)		(6.25)	

(table continues)

		Low Budget							High Budget						
		Education Attained							Education Attained						
Job	Income	Low	*n*	Medium	*n*	High	*n*	Total N	Low	*n*	Medium	*n*	High	*n*	Total N
Yes	Low	24.27	47	27.67	14	25.63	23	25.21 84	22.29	47	21.35	14	21.97	23	22.04 84
		(11.67)		(13.72)		(13.12)		(12.34	(5.49)		(4.89)		(5.74)		(5.42)
	Med	26.62	5	30.00	1	40.55	6	33.87 12	25.33	5	33.33	1	28.89	6	27.78 12
		(8.52)		(.)		(8.28)		(10.35)	(6.50)		(6.32)		(3.44)		(5.19)
	High	30.92	4	32.30	3	44.31	4	34.12 11	33.33	4	34.25	3	37.32	4	35.78 11
		(11.21)		(10.24)		(6.52)		(11.47)	(4.25)		(5.34)		(6.45)		(5.76)
	Total	25.92	56	27.83	18	28.72	33	27.05 107	22.78	56	22.15	18	23.40	33	22.87 107
		(15.30)		(13.23)		(13.62)		(14.42)	(5.74)		(5.64)		(6.02)		(5.76)

Table G.2

Men's Means (and Standard Deviations) of Percentage of Budget Spent on Social Level by Budget, Employment, Weekly Income, and Education Attained

		Low Budget							High Budget						
		Education Attained							Education Attained						
Job	Income	Low	*n*	Medium	*n*	High	*n*	Total N	Low	*n*	Medium	*n*	High	*n*	Total N
No	Low	17.27	57	17.27	11	11.22	11	16.43 79	17.60	57	18.57	11	18.67	11	17.49 79
		(8.73)		(9.05)		(6.88)		(8.70)	(6.29)		(8.20)		(6.42)		(6.54)
	Med	18.19	23	18.95	19	14.71	39	16.69 81	19.39	23	19.18	19	14.35	39	16.91 81
		(10.36)		(12.43)		(8.77)		(10.22)	(5.75)		(7.94)		(8.05)		(7.76)
	High	10.00	6	8.57	7	24.03	12	16.35 25	17.22	6	16.19	7	18.94	12	17.76 25
		(6.32)		(12.15)		(14.89)		(14.28)	(6.47)		(10.44)		(9.15)		(8.71)
	Total	17.01	86	16.49	37	15.89	62	16.53 185	18.05	86	18.43	37	15.51	62	17.28 185
		(9.18)		(11.84)		(10.65)		(10.21)	(6.14)		(8.34)		(8.09)		(7.37)

(table continues)

		Low Budget								High Budget							
		Education Attained								Education Attained							
Job	Income	Low	*n*	Medium	*n*	High	*n*	Total	N	Low	*n*	Medium	*n*	High	*n*	Total	N
Yes	Low	15.20	47	14.25	14	12.17	23	14.21	84	17.41	47	19.73	14	15.74	23	17.34	84
		(7.74)		(6.15)		(7.95)		(7.59)		(4.48)		(4.11)		(7.77)		(5.61)	
	Med	19.54	5	10.00	1	15.00	6	16.48	12	18.00	5	13.33	1	18.33	6	17.78	12
		(8.52)		(.)		(13.78)		(10.88)		(6.06)		(.)		(8.10)		(6.72)	
	High	11.23	4	13.26	3	9.68	4	11.97	11	17.22	4	15.89	3	16.01	4	15.34	11
		(8.98)		(9.84)		(10.55)		(9.96)		(5.63)		(7.21)		(8.80)		(7.32)	
	Total	15.32	56	13.97	18	12.76	33	14.35	107	17.77	56	19.31	18	16.28	33	17.56	107
		(8.01)		(6.03)		(9.22)		(8.13)		(5.03)		(4.29)		(7.77)		(5.92)	

Table G.3

Women's Means (and Standard Deviations) of Percentage of Budget Spent on Physical Attractiveness by Budget, Employment, Weekly Income, and Education Attained

		Low Budget								High Budget							
		Education Attained								Education Attained							
Job	Income	Low	*N*	Medium	*n*	High	*n*	Total	N	Low	*N*	Medium	*n*	High	*n*	Total	N
No	Low	20.30	93	15.63	18	22.02	36	20.15	147	19.97	93	19.32	18	20.23	36	19.96	147
		(10.98)		(6.41)		(12.60)		(11.06)		(5.05)		(4.04)		(5.67)		(5.08)	
	Med	22.37	7	20.00	2	13.33	9	17.59	18	21.28	7	25.00	2	18.89	9	20.50	18
		(7.62)		(14.14)		(9.34)		(9.34)		(6.86)		(11.79)		(5.53)		(6.57)	
	High	20.00	1	0	0	30.00	1	25.00	2	16.67	1	0	0	23.33	1	20.00	2
		(0)		(0)		(0)		(7.07)		(0)		(0)		(0)		(4.71)	
	Total	20.44	101	16.07	20	20.50	46	19.93	167	20.03	101	19.89	20	20.04	46	20.01	167
		(10.71)		(7.01)		(12.29)		(10.85)		(5.15)		(5.00)		(5.57)		(5.22)	

(table continues)

		Low Budget								High Budget							
		Education Attained								Education Attained							
Job	Income	Low	*n*	Medium	*n*	High	*n*	Total	N	Low	*n*	Medium	*n*	High	*n*	Total	N
Yes	Low	21.90	149	20.35	36	22.32	43	21.73	228	19.67	149	19.27	36	20.56	43	19.77	228
		(9.89)		(9.93)		(10.77)		(10.04)		(4.77)		(6.93)		(4.14)		(5.06)	
	Med	23.47	52	24.96	25	20.21	71	22.16	148	19.98	52	21.50	25	19.78	71	20.14	148
		(11.35)		(10.82)		(10.65)		(11.03)		(5.62)		(3.73)		(5.25)		(5.17)	
	High	28.80	2	9.10	1	23.94	23	23.74	26	20.58	2	23.33	1	21.04	23	21.10	26
		(1.70)		(0)		(13.18)		(12.79)		(5.02)		(0)		(4.86)		(4.69)	
	Total	22.37	203	22.03	62	21.50	137	22.02	402	19.76	203	20.23	62	20.24	137	19.99	402
		(10.25)		(10.52)		(11.15)		(10.59)		(4.98)		(5.87)		(4.85)		(5.08)	

Table G.4

Women's Means (and Standard Deviations) of Percentage of Social Level on Physical Attractiveness by Budget, Employment, Weekly Income, and Education Attained

		Low Budget							High Budget						
		Education Attained							Education Attained						
Job	Income	Low	*N*	Medium	*n*	High	*n*	Total N	Low	*N*	Medium	*n*	High	*n*	Total N
No	Low	14.07	93	17.12	18	14.44	36	14.54 147	18.71	93	18.76	18	18.77	36	18.73 147
		(8.49)		(7.60)		(11.10)		(9.09)	(5.16)		(5.28)		(6.73)		(5.56)
	Med	13.34	7	15.00	2	16.67	9	15.19 18	15.63	7	11.67	2	19.63	9	17.19 18
		(5.44)		(7.07)		(10.00)		(7.94)	(3.60)		(7.07)		(5.88)		(5.62)
	High	20.00	1	0	0	10.00	1	15.00 2	10.00	1	0	0	16.67	1	13.33 2
		(0)		(0)		(0)		(7.07)	(0)		(0)		(0)		(4.71)
	Total	14.08	101	16.91	20	14.78	46	14.61 167	18.41	101	18.05	20	18.89	46	18.50 167
		(8.27)		(7.40)		(10.72)		(8.91)	(5.16)		(5.69)		(6.45)		(5.58)

(table continues)

		Low Budget								High Budget							
		Education Attained								Education Attained							
Job	Income	Low	*n*	Medium	*n*	High	*n*	Total	N	Low	*n*	Medium	*n*	High	*n*	Total	N
Yes	Low	17.22	149	16.08	36	16.51	43	16.91	228	18.87	149	18.71	36	18.86	43	18.84	228
		(9.17)		(10.28)		(10.00)		(9.48)		(5.46)		(5.43)		(5.30)		(5.40)	
	Med	16.77	52	17.47	25	16.96	71	16.98	148	19.75	52	19.23	25	19.07	71	19.33	148
		(10.22)		(10.60)		(9.60)		(9.92)		(6.48)		(6.10)		(6.75)		(6.52)	
	High	10.00	2	27.30	1	21.10	23	20.48	26	19.25	2	23.33	1	21.33	23	21.25	26
		(14.14)		(0)		(14.77)		(14.77)		(2.85)		(0)		(5.55)		(5.29)	
	Total	17.04	203	16.82	62	17.51	137	17.17	402	19.10	203	18.99	62	19.38	137	19.18	402
		(9.46)		(10.35)		(10.84)		(10.06)		(5.71)		(5.65)		(6.16)		(5.85)	

Appendix H

Low Budget and High Budget Long-Term Data Screening as a Function of Sex, Current Employment, Weekly Income and Education Obtained

Low Budget

Men, current employment, weekly income, and education obtained. For men who were currently employed with low weekly income and low education obtained, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk $p = .066$), whereas the distribution of social level scores was found to breach normality (Shapiro-Wilk $p = .001$). For men who were currently employed with low weekly income and medium education obtained, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk $p = .296$), whereas the distribution of social level scores was found to breach normality (Shapiro-Wilk $p = .014$). For men who were currently employed with low weekly income and high education obtained, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk $p = .069$), whereas the distribution of social level scores was found to breach normality (Shapiro-Wilk $p = .005$).

For men who were currently employed with medium weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were both found to not breach normality (Shapiro-Wilk $p = .192$, and .300, respectively). For men who were currently employed with medium weekly income and medium education obtained, the distributions of physical attractiveness scores and social level were constant and as such normality checks were omitted. For men who were currently employed with medium weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were both found to not breach normality (Shapiro-Wilk $p = .359$, and .178, respectively).

For men who were currently employed with high weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were not found to breach normality (Shapiro-Wilk p = .226, and .136, respectively). For men who were currently employed with high weekly income and medium education obtained, the distributions of physical attractiveness scores and social level scores were not found to breach normality (Shapiro-Wilk p = .347, and .175, respectively). For men who were currently employed with high weekly income and high education obtained, the distribution of physical attractiveness scores was found to breach normality (Shapiro-Wilk p = .006), whereas the distribution of social level scores was not found to breach normality (Shapiro-Wilk p = .057).

For men who were not currently employed with low weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .001, and .001, respectively). For men who were not currently employed with low weekly income and medium education obtained, the distributions of physical attractiveness scores and social level scores were not found to breach normality (Shapiro-Wilk p = .256, and .181, respectively). For men who were not currently employed with low weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were not found to breach normality (Shapiro-Wilk p = .107, and .079, respectively).

For men who were not currently employed with medium weekly income and low education obtained, the distribution of physical attractiveness scores was found to breach normality (Shapiro-Wilk p = .017), whereas the distribution of and social level scores was not found to breach normality (Shapiro-Wilk p = .085). For men who were not currently employed with medium weekly income and medium education obtained, the distributions of physical attractiveness scores and social level scores were not found to breach normality (Shapiro-Wilk p = .004, and .049, respectively). For men who were not currently employed

with medium weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .004, and .004, respectively).

For men who were not currently employed with high weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were not found to breach normality (Shapiro-Wilk p = .557, and .101, respectively). For men who were not currently employed with high weekly income and medium education obtained, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk p = .432), whereas the distribution of social level scores was found to breach normality (Shapiro-Wilk p = .022). For men who were not currently employed with high weekly income and high education obtained, the distribution of physical attractiveness scores was found to breach normality (Shapiro-Wilk p = .046), whereas the distribution of social level scores was not found to breach normality (Shapiro-Wilk p = .292).

To further check these violations of normality, skew and kurtosis variables were standardised and assessed for significance of an alpha of .05 (z = ±3.29). Details are presented in Table H1.

Table H.1

Men, Current Employment, Weekly Income and Education Obtained and Low Budget Physical Attractiveness and Social Level Distribution's Standardised Skew and Kurtosis

		Low Budget																	
		Education Obtained																	
		Low						Medium						High					
Job	Income	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD
Physical Attractiveness Distributions																			
Yes	Low	2.611	0.316	8.263*	8.917	0.623	14.313*	0.390	0.661	0.590	-0.816	1.279	-0.638	0.551	0.661	0.834	1.496	1.279	1.170
	Medium	0.911	0.481	1.894	2.944	0.935	3.149	0.866	0.524	1.653	-0.155	1.014	-0.153	0.612	0.378	1.619	2.070	0.741	2.794
	High	-0.254	0.845	-0.301	-1.828	1.741	-1.050	-0.132	0.794	-0.166	2.036	1.587	1.283	-0.975	0.637	-1.531	0.646	1.232	0.524
No	Low	0.205	0.347	0.591	-0.172	0.681	-0.253	0.478	0.597	0.801	2.202	1.154	1.908	0.767	0.481	1.595	1.377	0.935	1.473
	Medium	1.219	0.913	1.335	0.574	2.000	0.287	.	.	.	.	.		0.070	0.845	0.083	-1.626	1.741	-0.934
	High	0.688	0.321	2.143	0.871	0.544	1.601	-1.120	0.833	-1.453	-0.868	1.250	-0.694	2.609	0.851	3.066	1.326	0.798	1.662

(table continues)

		Low Budget																	
		Education Obtained																	
		Low						Medium						High					
Job	Income	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD
Social Level Distributions																			
Yes	Low	-0.101	0.316	-0.320	0.077	0.623	0.124	-0.344	0.661	-0.520	-0.054	1.279	-0.042	-0.431	0.661	-0.652	-0.455	1.279	-0.356
	Medium	-0.140	0.481	-0.291	-0.076	0.935	-0.081	0.220	0.524	0.420	-1.066	1.014	-1.051	0.134	0.378	0.354	-0.219	0.741	-0.296
	High	0.000	0.845	0.000	2.500	1.741	1.436	1.147	0.794	1.445	-0.057	1.587	-0.036	0.543	0.637	0.852	0.182	1.232	0.148
No	Low	-0.641	0.347	-1.847	-0.171	0.681	-0.251	-0.884	0.597	-1.481	0.350	1.154	0.303	0.167	0.481	0.347	-0.241	0.935	-0.258
	Medium	-0.434	0.913	-0.475	2.101	2.000	1.051	.	.		.	.		1.375	0.845	1.627	2.355	1.741	1.353
	High	0.366	0.321	1.140	0.952	0.544	1.750	2.100	0.833	2.521	3.511	1.250	2.809	1.599	0.851	1.879	2.530	0.798	3.170

* = $p < .05$, *SD* = Standardised score

Regarding the standardised values for skew and kurtosis, not many were found to deviate more than three standard deviations from the mean (±3.29), thus normality of the distributions was satisfied (Field, 2005). For the variables that did exceed ±3.29 standard deviations from the mean, it was decided to assess these variables for univariate outliers. Regarding the distribution of men of current employment, low weekly income and low education obtained, two univariate outliers were found (+3 standard deviations above mean). After removal of these outliers, standardised skew and kurtosis were reassessed (Table H2).

Removal of the univariate outlier did improve normality. However, for the analyses the univariate outliers were retained, as (1) analyses were run with the inclusion of the outliers and without, and results did not differ, and (2) the *F* test is considered robust to violations of normality (Keppel & Wickens, 2004).

High Budget

Men, current employment, weekly income, and education obtained. For men who were currently employed with low weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .031$, and .001, respectively). For men who were currently employed with low weekly income and medium education obtained, the distributions of physical attractiveness scores and social level scores were both found to not breach normality (Shapiro-Wilk $p = .583$, and .354, respectively). For men who were currently employed with low weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were both found to not breach normality (Shapiro-Wilk $p = .626$, and .444, respectively).

Table H.2

Men, Current Employment, Weekly Income and Education Obtained and Low Budget Physical Attractiveness Distribution's Standardised Skew and Kurtosis After Removal of Outliers

Low Budget																			
Education Obtained																			
Low								Medium						High					
Job	Income	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD
Physical Attractiveness Distributions																			
	Low	0.690	0.322	2.142	-0.094	0.634	-0.148	0.390	0.661	0.590	-0.816	1.279	-0.638	0.551	0.661	0.834	1.496	1.279	1.170

* = $p < .05$, *SD* = Standardised score

For men who were currently employed with medium weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were both found to not breach normality (Shapiro-Wilk p = .758, and .826, respectively). For men who were currently employed with medium weekly income and medium education obtained, the distributions of physical attractiveness scores and social level were constant and as such normality checks were omitted. For men who were currently employed with medium weekly income and high education obtained, the distribution of physical attractiveness scores was found to breach normality (Shapiro-Wilk p = .001), whereas the distribution of social level scores was not found to breach normality (Shapiro-Wilk p = .221).

For men who were currently employed with high weekly income and low education obtained, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk p = .121), whereas the distribution of social level scores was found to breach normality (Shapiro-Wilk p = .032). For men who were not currently employed with high weekly income and medium education obtained, the distributions of physical attractiveness scores and social level scores were not found to breach normality (Shapiro-Wilk p = .562, and .089, respectively). For men who were not currently employed with high weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were not found to breach normality (Shapiro-Wilk p = .201, and .077, respectively).

For men who were not currently employed with low weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .001, and .001, respectively). For men who were not currently employed with low weekly income and medium education obtained, the distribution of physical attractiveness scores was found to breach normality (Shapiro-Wilk p = .033), whereas the distribution of social level scores was found to not

breach normality (Shapiro-Wilk p = .376). For men who were not currently employed with low weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .035, and .039, respectively).

For men who were not currently employed with medium weekly income and low education obtained, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk p = .076), whereas the distribution of social level scores was found to breach normality (Shapiro-Wilk p = .027). For men who were not currently employed with medium weekly income and medium education obtained, the distribution of physical attractiveness scores was found to breach normality (Shapiro-Wilk p = .018), whereas the distribution of social level scores was not found to breach normality (Shapiro-Wilk p = .213). For men who were not currently employed with medium weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .001, and .005, respectively).

For men who were not currently employed with high weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were found to not breach normality (Shapiro-Wilk p = .452, and .452, respectively). For men who were not currently employed with high weekly income and medium education obtained, the distributions of physical attractiveness scores and social level scores were found to not breach normality (Shapiro-Wilk p = .271, and .131, respectively). For men who were not currently employed with high weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were found to not breach normality (Shapiro-Wilk p = .123, and .462, respectively).

To further check these violations of normality, skew and kurtosis variables were standardised and assessed for significance of an alpha of .05 ($z = \pm 3.29$). Details are presented in Table H3.

Regarding the standardised values for skew and kurtosis, variables that did exceed ±3.29 standard deviations from the mean were assessed for univariate outliers. For the distribution of men of current employment, low weekly income, low education obtained and physical attractiveness scores, no univariate outliers were found to exceed ±3 standard deviations from the mean. For men of current employment, medium weekly income, high education obtained and physical attractiveness scores, no univariate outliers were found to exceed ±3 standard deviations from the mean. For the distribution of men of current employment, low weekly income, low education obtained and social level scores, no univariate outliers were found to exceed ±3 standard deviations from the mean. Finally, for the distribution of men not currently employed, with low weekly income, low education obtained and social level scores, no univariate outliers were found to exceed ±3 standard deviations from the mean. As such, the violations of normality reported above cannot be attributed to univariate outliers. However, further transformations of the data were deemed unnecessary, as (1) the violations were considered minor, and (2) the *F* test is considered robust to violations of normality (Keppel & Wickens, 2004).

Table H.3

Men, Current Employment, Weekly Income and Education Obtained and High Budget Physical Attractiveness and Social Level Distribution's Standardised Skew and Kurtosis

High Budget																			
		Education Obtained																	
		Low						Medium						High					
Job	Income	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD
Physical Attractiveness Distributions																			
	Low	-1.144	0.316	-3.620*	3.990	0.623	6.404*	-1.171	0.661	-1.772	0.911	1.279	0.712	-1.606	0.661	-2.430	2.832	1.279	2.214
Yes	Medium	1.118	0.481	2.324	2.501	0.935	2.675	0.075	0.524	0.143	-1.456	1.014	-1.436	-1.302	0.378	-3.444*	4.390	0.741	5.924*
	High	0.638	0.845	0.755	-1.243	1.741	-0.714	0.145	0.794	0.183	-1.070	1.587	-0.674	0.523	0.637	0.821	1.179	1.232	0.957
	Low	0.695	0.347	2.003	1.595	0.681	2.342	-0.091	0.597	-0.152	-0.891	1.154	-0.772	-0.166	0.481	-0.345	-0.134	0.935	-0.143
No	Medium	-0.081	0.913	-0.089	-0.817	2.000	-0.409	.	.		.	.		0.968	0.845	1.146	-1.875	1.741	-1.077
	High	1.969	0.688	2.862	1.860	0.632	2.896	1.254	0.522	2.402	1.206	0.988	1.221	2.002	0.687	2.914	3.021	1.521	1.986

Social Level Distributions

	Low	-0.82	0.316	-2.595	2.281	0.623	3.661*	-1.066	0.661	-1.613	1.791	1.279	1.400	-1.618	0.661	-2.448	3.258	1.279	2.547
Yes	Medium	-0.901	0.481	-1.873	1.854	0.935	1.983	-0.253	0.524	-0.483	0.591	1.014	0.583	-0.363	0.378	-0.960	-0.319	0.741	-0.430
	High	0.146	0.845	0.173	-0.848	1.741	-0.487	-0.909	0.794	-1.145	-0.941	1.587	-0.593	-0.584	0.637	-0.917	0.706	1.232	0.573
	Low	-1.845	0.347	-5.317*	5.809	0.681	8.530*	0.709	0.597	1.188	0.772	1.154	0.669	0.177	0.481	0.368	-0.605	0.935	-0.647
No	Medium	0.267	0.913	0.292	1.074	2.000	0.537	.	.		.	.		1.507	0.845	1.783	2.887	1.741	1.658
	High	0.899	0.688	1.307	1.089	0.632	1.723	0.653	0.522	1.251	0.877	0.988	0.888	0.500	0.687	0.728	2.050	1.521	1.348

* = $p < .05$, *SD* = Standardised score

Low Budget

Women, current employment, weekly income, and education obtained. For women who were currently employed with low weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .001, and .001, respectively). For women who were currently employed with low weekly income and medium education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .004, and .001, respectively). For women who were currently employed with low weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .033, and .003, respectively).

For women who were currently employed with medium weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .001, and .001, respectively). For women who were currently employed with medium weekly income and medium education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .008, and .040, respectively). For women who were currently employed with medium weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .001, and .001, respectively).

For women who were currently employed with high weekly income and low education obtained, the distributions of physical attractiveness scores and social level were constant and as such normality checks were omitted. For women who were currently employed with high weekly income and medium education obtained, the distributions of physical attractiveness scores and social level were constant and as such normality checks

were omitted. Finally, for women who were not currently employed with high weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were found to breach normality (Shapiro-Wilk p = .044, and .021, respectively).

For women who were not currently employed with low weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .001, and .001, respectively). For women who were not currently employed with low weekly income and medium education obtained, the distribution of physical attractiveness scores was found to breach normality (Shapiro-Wilk p = .010), whereas the distribution of social level scores was not found to breach normality (Shapiro-Wilk p = .097). For women who were not currently employed with low weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .001, and .003, respectively).

For women who were not currently employed with medium weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were not found to breach normality (Shapiro-Wilk p = .563, and .115, respectively). For women who were not currently employed with medium weekly income and medium education obtained, the distributions of physical attractiveness scores and social level were constant and as such normality checks were omitted. For women who were not currently employed with medium weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were not found to breach normality (Shapiro-Wilk p = .132, and .364, respectively).

For women who were not currently employed with high weekly income and low, medium and high education obtained, the distributions of physical attractiveness scores and social level were constant and as such normality checks were omitted.

To further check these violations of normality, skew and kurtosis variables were standardised and assessed for significance of an alpha of .05 ($z = \pm 3.29$). Details are presented in Table H4.

Regarding the standardised values for skew and kurtosis, variables that did exceed ±3.29 standard deviations from the mean were assessed for univariate outliers. For the distribution of women of current employment, low weekly income, low education obtained and physical attractiveness scores, one univariate outlier was found (+3 standard deviations above the mean). For women of current employment, medium weekly income, low education obtained and physical attractiveness scores, no univariate outliers were found to exceed ±3 standard deviations from the mean. After removal of these outliers, standardised skew and kurtosis were reassessed (Table H5).

Table H.4

Women, Current Employment, Weekly Income and Education Obtained and Low Budget Physical Attractiveness and Social Level Distribution's Standardised Skew and Kurtosis

		Low Budget																	
		Education Obtained																	
		Low						Medium						High					
Job	Income	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD
Physical Attractiveness Distributions																			
Yes	Low	0.781	0.199	3.925*	2.073	0.395	5.248*	0.201	0.393	0.511	1.422	0.768	1.852	0.027	0.361	0.075	0.475	0.709	0.670
	Medium	1.520	0.334	4.606*	3.571	0.650	5.494*	0.763	0.464	1.644	0.675	0.902	0.748	0.097	0.285	0.340	0.381	0.563	0.677
	High	.	.	.	.	.	.	.	.	.	.	.	.	1.017	0.481	2.114	1.846	0.935	1.974
No	Low	0.363	0.252	1.452	0.328	0.495	0.663	-0.828	0.536	-1.545	0.187	1.038	0.180	1.218	0.393	3.099	1.911	0.768	2.488
	Medium	-0.097	0.794	-0.122	0.298	1.587	0.188	.	.	.	.	.	.	0.660	0.717	0.921	0.825	1.402	0.589
	High	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Social Level Distributions

Yes	Low	0.314	0.199	1.578	1.121	0.395	2.838	0.550	0.393	1.399	2.263	0.768	2.947	-0.142	0.361	-0.393	-0.391	0.709	-0.551
	Medium	-0.323	0.330	-0.979	-0.951	0.650	-1.463	-0.129	0.464	-0.278	-0.259	0.902	-0.287	-0.061	0.285	-0.214	-0.485	0.563	-0.861
	High	.	.	.	.	.	.	.	.	.	.	.	.	0.540	0.481	1.123	0.024	0.935	0.026
No	Low	-0.335	0.250	-1.340	-0.718	0.495	-1.451	-0.311	0.536	-0.580	0.325	1.038	0.313	0.620	0.393	1.578	-0.122	0.768	-0.159
	Medium	0.323	0.794	0.407	-2.002	1.587	-1.261	.	.	.	.	.	.	-0.107	0.717	-0.149	-0.643	1.400	-0.459
	High	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

* = $p < .05$, *SD* = Standardised score

Table H.5

Women, Current Employment, Weekly Income and Education Obtained and Low Budget Physical Attractiveness Distribution's Standardised Skew and Kurtosis After Removal of Outliers

Low Budget																			
Education Obtained																			
Low								Medium						High					
Job	Income	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD
Physical Attractiveness Distributions																			
	Low	0.528	0.199	2.653	1.400	0.395	3.535*	0.201	0.393	0.511	1.422	0.768	1.852	0.027	0.361	0.075	0.475	0.709	0.670

* = $p < .05$, *SD* = Standardised score

Removal of the univariate outlier did improve normality. However, for the analyses the univariate outliers were retained, as (1) analyses were run with the inclusion of the outliers and without, and results did not differ, and (2) the *F* test is considered robust to violations of normality (Keppel & Wickens, 2004).

High Budget

Women, current employment, weekly income, and education obtained. For women who were currently employed with low weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .001$, and .001, respectively). For women who were currently employed with low weekly income and medium education obtained, the distributions of physical attractiveness scores and social level scores were both found to not breach normality (Shapiro-Wilk $p = .152$, and .072, respectively). For women who were currently employed with low weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .004$, and .013, respectively).

For women who were currently employed with medium weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .001$, and .004, respectively). For women who were currently employed with medium weekly income and medium education obtained, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk $p = .061$), whereas the distribution of social level scores was found to breach normality (Shapiro-Wilk $p = .001$). For women who were currently employed with medium weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .001$, and .001, respectively).

For women who were currently employed with high weekly income and low education obtained, the distributions of physical attractiveness scores and social level were constant and as such normality checks were omitted. For women who were currently employed with high weekly income and medium education obtained, the distributions of physical attractiveness scores and social level were constant and as such normality checks were omitted. Finally, for women who were not currently employed with high weekly income and high education obtained, the distribution of physical attractiveness scores was found to breach normality (Shapiro-Wilk $p = .038$), whereas the distribution of social level scores was not found to breach normality (Shapiro-Wilk $p = .382$).

For women who were not currently employed with low weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .010$, and .001, respectively). For women who were not currently employed with low weekly income and medium education obtained, the distributions of physical attractiveness scores and social level scores were not found to breach normality (Shapiro-Wilk $p = .199$, and .624, respectively). For women who were not currently employed with low weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were not found to breach normality (Shapiro-Wilk $p = .148$, and .144, respectively).

For women who were not currently employed with medium weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were not found to breach normality (Shapiro-Wilk $p = .280$, and .618, respectively). For women who were not currently employed with medium weekly income and medium education obtained, the distributions of physical attractiveness scores and social level were constant and as such normality checks were omitted. For women who were not currently employed with medium weekly income and high education obtained, the distributions of

physical attractiveness scores and social level scores were not found to breach normality (Shapiro-Wilk $p = .066$, and .435, respectively).

For women who were not currently employed with high weekly income and low, medium and high education obtained, the distributions of physical attractiveness scores and social level were constant and as such normality checks were omitted. To further check these violations of normality, skew and kurtosis variables were standardised and assessed for significance of an alpha of .05 ($z = \pm 3.29$). Details are presented in Table H6.

Table H.6

Women, Current Employment, Weekly Income and Education Obtained and High Budget Physical Attractiveness and Social Level Distribution's Standardised Skew and Kurtosis

		High Budget																	
		Education Obtained																	
		Low						Medium						High					
Job	Income	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD
Physical Attractiveness Distributions																			
	Low	-0.453	0.199	-2.276	1.579	0.395	3.997*	-0.382	0.393	-0.972	0.203	0.768	0.264	-0.101	0.361	-0.280	-1.013	0.709	-1.429
Yes	Medium	-0.835	0.330	-2.530	1.731	0.650	2.663	-0.313	0.464	-0.675	-0.655	0.902	-0.726	0.539	0.285	1.891	0.750	0.563	1.332
	High	.	.	.	.	.	.	.	.	.	.	.	.	-0.605	0.481	-1.258	-0.333	0.935	-0.356
	Low	0.220	0.250	0.880	0.336	0.495	0.679	-0.430	0.536	-0.802	0.899	1.038	0.866	-0.353	0.393	-0.898	0.167	0.768	0.217
No	Medium	0.233	0.794	0.293	2.451	1.587	1.544	.	.	.	.	.	.	0.258	0.717	0.360	-0.534	1.400	-0.381
	High	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Social Level Distributions

	Low	-0.735	0.199	-3.693*	1.736	0.395	4.395*	-0.010	0.393	-0.025	0.820	0.768	1.068	-0.782	0.361	-2.166	0.876	0.709	1.236
Yes	Medium	-0.752	0.330	-2.279	2.123	0.650	3.266	-1.687	0.464	-3.636	3.490	0.902	3.869*	-0.874	0.285	-3.067	1.317	0.563	2.339
	High	.	.	.	.	.	.	.	.	.	.	.	.	0.204	0.481	0.424	-0.108	0.935	-0.116
	Low	-0.123	0.250	-0.492	1.836	0.495	3.709*	0.094	0.536	0.175	-0.032	1.038	-0.031	0.483	0.393	1.229	-0.238	0.768	-0.310
No	Medium	-0.313	0.794	-0.394	-0.874	1.587	-0.551	.	.	.	.	.	.	0.39	0.717	0.544	0.550	1.400	0.393
	High	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

* = $p < .05$, *SD* = Standardised score

Regarding the standardised values for skew and kurtosis, variables that did exceed ±3.29 standard deviations from the mean were assessed for univariate outliers. For the distribution of women of current employment, low weekly income, low education obtained and physical attractiveness scores, one univariate outlier was found (-3 standard deviations below the mean). For women of current employment, low weekly income, low education obtained and social level scores, two univariate outliers were found (-3 standard deviations below the mean). For women of current employment, medium weekly income, medium education obtained and social level scores no univariate outliers were found to exceed ±3 standard deviations from the mean. For women not currently employed, low weekly income, low education obtained and social level scores, one univariate outlier was found (-3 standard deviations below the mean). After removal of these outliers, standardised skew and kurtosis were reassessed (Table H7).

Table H.7

Women, Current Employment, Weekly Income and Education Obtained and High Budget Physical Attractiveness and Social Level Distribution's Standardised Skew and Kurtosis After Removal of Outliers

High Budget																			
Education Obtained																			
Low								Medium						High					
Job	Income	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD
Physical Attractiveness Distributions																			
	Low	-0.058	0.199	-0.291	0.254	0.396	.641	-0.382	0.393	-0.972	0.203	0.768	0.264	-0.101	0.361	-0.280	-1.013	0.709	-1.429
Social Level Distributions																			
Yes	Low	-0.375	0.200	-1.875	0.934	0.397	2.353	-0.010	0.393	-0.025	0.820	0.768	1.068	-0.782	0.361	-2.166	0.876	0.709	1.236
No	Low	0.380	0.251	-0.772	0.786	0.498	1.578	0.094	0.536	0.175	-0.032	1.038	-0.031	0.483	0.393	1.229	-0.238	0.768	-0.310

* = $p < .05$, *SD* = Standardised score

Removal of univariate outliers improved normality. However, for the analyses the univariate outliers were retained, as (1) analyses were run with the inclusion of the outliers and without, and results did not differ, and (2) the *F* test is considered robust to violations of normality (Keppel & Wickens, 2004).

Appendix I

Low Budget and High Budget Short-Term Data Screening as a Function of Sex, SES and Gender Roles

Low Budget

Sex, low SES and gender roles (masculinity, femininity, androgyny, and undifferentiated). For men of low SES and a masculine gender role, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk $p = .051$). For men of low SES and a masculine gender role, the distribution of social level scores did breach normality (Shapiro- Wilk $p = .003$). For men of low SES and a feminine gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro- Wilk $p = .008, .013$, respectively).For men of low SES and an androgynous gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .014, .003$, respectively). Finally, for men of low SES and an undifferentiated gender role, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk $p = .122$), whereas for men of low SES and an undifferentiated gender role, the distribution of social level scores was found to breach normality (Shapiro-Wilk $p = .001$).

For women of low SES and a masculine gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .001, .003$, respectively). For women of low SES and a feminine gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro- Wilk $p = .001, .001$, respectively).For women of low SES and an androgynous gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .001, .001$, respectively). Finally, for women of low SES and an undifferentiated gender role, the distributions of

physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .001, .001, respectively).

To further check these violations of normality, skew and kurtosis variables were standardised and assessed for significance of an alpha of .05 (z = ±3.29). Details are presented in Table I1.

Regarding the standardised values for skew and kurtosis, not many were found to deviate more than three standard deviations from the mean (±3.29), thus normality of the distributions was satisfied (Field, 2005). For the variables that did exceed ±3.29 standard deviations from the mean, it was decided to assess these variables for univariate outliers.

Regarding the distribution of women of low SES and an androgynous gender role and physical attractiveness scores, no univariate outliers were found to exceed ±3 standard deviations from the mean. Regarding the distribution of women of low SES and an undifferentiated gender role and physical attractiveness scores, no univariate outliers were found to exceed ±3 standard deviations from the mean. As such, the violations of normality reported above cannot be attributed to univariate outliers. However, further transformations of the data were deemed unnecessary, as (1) the violations were considered minor, and (2) the F test is considered robust to violations of normality (Keppel & Wickens, 2004).

Table I.1

Men and Women of Low SES and Differing Gender Roles and Low Budget Physical Attractiveness and Social Level Distribution's Standardised Skew and Kurtosis

	Low Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
Men of Low SES, Masculine Gender Role						
PA	0.237	0.464	0.511	-1.012	0.902	-1.122
SL	0.276	0.464	0.595	-1.151	0.902	-1.276
Men of Low SES, Feminine Gender Role						
PA	0.667	0.414	1.611	.746	0.809	0.922
SL	0.412	0.414	0.995	-.263	0.809	-0.325
Men of Low SES, Androgynous Gender Role						
PA	0.896	0.409	2.191	0.874	0.798	1.095
SL	-0.090	0.409	-0.220	-0.415	0.798	-0.520
Men of Low SES, Undifferentiated Gender Role						
PA	0.550	0.388	1.418	0.242	0.759	0.319
SL	-0.202	0.388	-0.521	-1.402	0.759	-1.847

(table continues)

	Low Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
Women of Low SES, Masculine Gender Role						
PA	1.247	0.491	2.540	0.804	0.953	0.844
SL	1.316	0.491	2.680	4.970	0.953	5.215
Women of Low SES, Feminine Gender Role						
PA	0.598	0.226	2.646	.181	0.447	0.405
SL	0.243	0.226	1.075	1.285	0.447	2.875
Women of Low SES, Androgynous Gender Role						
PA	0.875	0.223	3.924*	0.862	0.442	1.950
SL	0.430	0.223	1.928	1.297	0.442	2.934
Women of Low SES, Undifferentiated Gender Role						
PA	1.080	0.314	3.439*	1.315	0.618	2.128
SL	0.046	0.314	0.146	-0.219	0.618	-0.354

Note: SE = Standard Error, PA = Physical Attractiveness Scale, SL = Social Level Scale
* = $p<.001$

Low Budget

Sex, high SES and gender roles (masculinity, femininity, androgyny, and undifferentiated). For men of high SES and a masculine gender role, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk $p = .132$). For men of high SES and a masculine gender role, the distribution of social level scores was

found to breach normality (Shapiro-Wilk p = .001). For men of high SES and a feminine gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro- Wilk p = .043, .005, respectively).For men of high SES and an androgynous gender role, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk p = .163). For men of high SES and an androgynous gender role, the distribution of social level scores was found to breach normality (Shapiro-Wilk p = .003).For men of high SES and an undifferentiated gender role, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk p = .136). For men of high SES and an undifferentiated gender role, the distribution of social level scores was found to breach normality (Shapiro-Wilk p = .003).

For women of high SES and a masculine gender role, the distributions of physical attractiveness scores and social level scores were not found to breach normality (Shapiro-Wilk p = .099, p = .171, respectively). For women of high SES and a feminine gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro- Wilk p = .004, .001, respectively).For women of high SES and an androgynous gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .025, .001, respectively). Finally, for women of high SES and an undifferentiated gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .001, .007, respectively).

To further check these violations of normality, skew and kurtosis variables were standardised and assessed for significance of an alpha of .05 (z = ±3.29). Details are presented in Table I2.

Table I.2

Men and Women of High SES and Differing Gender Roles and Low Budget Physical Attractiveness and Social Level Distribution's Standardised Skew and Kurtosis

	Low Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
Men of High SES, Masculine Gender Role						
PA	-.328	0.501	-0.655	-1.075	0.972	-1.106
SL	0.604	0.501	1.206	-1.275	0.972	-1.312
Men of High SES, Feminine Gender Role						
PA	-0.099	0.481	-0.206	-1.218	0.935	-1.303
SL	0.139	0.481	0.289	-1.152	0.935	-1.232
Men of High SES, Androgynous Gender Role						
PA	0.274	0.374	0.733	0.466	0.733	0.636
SL	0.396	0.374	1.059	0.367	0.733	0.501
Men of High SES, Undifferentiated Gender Role						
PA	0.220	0.464	0.474	-0.603	0.902	-0.669
SL	0.592	0.464	1.276	0.343	0.902	0.380
Women of High SES, Masculine Gender Role						

(table continues)

	Low Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
PA	0.519	0.481	1.079	0.358	0.935	0.383
SL	0.227	0.481	0.472	0.019	0.935	0.020
Women of High SES, Feminine Gender Role						
PA	0.474	0.269	1.762	-0.203	0.532	-0.382
SL	-0.004	0.269	-0.015	-0.060	0.532	-0.113
Women of High SES, Androgynous Gender Role						
PA	0.109	0.258	0.422	-0.582	0.511	-1.139
SL	0.008	0.258	0.031	-0.006	0.511	-0.012
Women of High SES, Undifferentiated Gender Role						
PA	0.913	0.354	2.579	1.084	0.695	1.560
SL	0.370	0.354	1.045	-0.357	0.695	-0.514

Note: SE = Standard Error, PA = Physical Attractiveness Scale, SL = Social Level Scale
* = $p < .001$

For all distributions, no standardised skew and kurtosis values deviated more than three standard deviations from the mean (±3.29). Therefore, the assumption of normality was met (Field, 2005).

High Budget

Sex, low SES and gender roles (masculinity, femininity, androgyny, and undifferentiated). For men of low SES and a masculine gender role, the distribution of

physical attractiveness scores was found to breach normality (Shapiro-Wilk p = .004), whereas for men of low SEs and a masculine gender role, the distribution of social level scores was not found to breach normality ((Shapiro-Wilk p = .183). For men of low SES and a feminine gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .002, p = .030, respectively.). For men of low SES and an androgynous gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .001, .003, respectively). Finally, for men of low SES and an undifferentiated gender role, the distributionof physical attractiveness scores was found to breach normality (Shapiro-Wilk p = .003), whereas for men of low SES and an undifferentiated gender role, the distribution of social level scores was not found to breach normality (Shapiro-Wilk p = .250).

For women of low SES and a masculine gender role, the distributions of physical attractiveness scores and social level scores were not found to breach normality (Shapiro-Wilk p = .271, .313, respectively). For women of low SES and a feminine gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro- Wilk p = .001, .001, respectively).For women of low SES and an androgynous gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .001, .003, respectively). Finally, for women of low SES and an undifferentiated gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .002, .012, respectively).

To further check these violations of normality, skew and kurtosis variables were standardised and assessed for significance of an alpha of .05 (z = ±3.29). Details are presented in Table I3.

Table I.3

Men and Women of low SES and Differing Gender Roles and High Budget Physical Attractiveness and Social Level Distribution's Standardised Skew and Kurtosis

	High Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
Men of Low SES, Masculine Gender Role						
PA	-1.134	0.464	-2.444	1.916	0.902	2.124
SL	0.606	0.464	1.306	0.146	0.902	0.162
Men of Low SES, Feminine Gender Role						
PA	-1.004	0.414	-2.425	2.412	0.809	2.981
SL	-0.811	0.414	-1.959	0.581	0.809	0.718
Men of Low SES, Androgynous Gender Role						
PA	-1.287	0.409	-3.147	2.786	0.798	3.491*
SL	-1.027	0.409	-2.511	0.545	0.798	0.683
Men of Low SES, Undifferentiated Gender Role						
PA	-0.753	0.388	-1.941	1.916	0.759	2.524
SL	-0.078	0.388	-0.201	0.730	0.759	0.962
Women of Low SES, Masculine Gender Role						

(table continues)

	High Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
PA	0.042	0.491	0.086	-0.389	0.953	-0.408
SL	0.140	0.491	0.285	-0.126	0.953	-0.132
Women of Low SES, Feminine Gender Role						
PA	-0.665	0.226	-2.942	1.502	0.447	3.360*
SL	-0.670	0.226	-2.965	0.923	0.447	2.065
Women of Low SES, Androgynous Gender Role						
PA	-0.158	0.223	-0.709	-0.399	0.442	-0.903
SL	-0.409	0.223	-1.834	0.710	0.442	1.606
Women of Low SES, Undifferentiated Gender Role						
PA	0.214	0.314	0.682	-0.607	0.618	-0.982
SL	0.148	0.314	0.471	1.008	0.618	1.631

Note: SE = Standard Error, PA = Physical Attractiveness Scale, SL = Social Level Scale
* = $p < .001$

Distributions where the standardised skew and kurtosis values deviated more than three standard deviations from the mean (±3.29) were assessed for univariate outliers.

Regarding the distribution of men of low SES and an androgynous gender role and physical attractiveness scores, no univariate outliers were found to exceed ±3 standard deviations from the mean. Regarding the distribution of women of low SES and a feminine gender role and physical attractiveness scores, no univariate outliers were found to exceed ±3

standard deviations from the mean. As such, the violations of normality reported above cannot be attributed to univariate outliers. However, further transformations of the data were deemed unnecessary, as (1) the violations were considered minor, and (2) the *F* test is considered robust to violations of normality (Keppel & Wickens, 2004).

High Budget

Sex, high SES and gender roles (masculinity, femininity, androgyny, and undifferentiated). For men of high SES and a masculine gender role, the distribution of physical attractiveness scores was found to breach normality (Shapiro-Wilk $p = .005$), whereas for men of high SES and a masculine gender role, the distribution of social level scores was not found to breach normality (Shapiro-Wilk $p = .245$). For men of high SES and a feminine gender role, the distribution of physical attractiveness scores was found to breach normality (Shapiro-Wilk $p = .046$), whereas for men of high SES and a feminine gender role, the distribution of social level scores was not found to breach normality (Shapiro-Wilk $p = .168$). For men of high SES and an androgynous gender role, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .001, .008$, respectively). Finally, for men of high SES and an undifferentiated gender role, the distribution of physical attractiveness scores was found to breach normality (Shapiro-Wilk $p = .010$), whereas for men of high SES and an undifferentiated gender role, the distribution of social level scores was not found to breach normality (Shapiro-Wilk $p = .228$).

For women of high SES and a masculine gender role, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk $p = .130$), whereas for women of high SES and a masculine gender role, the distribution of social level scores was found to breach normality (Shapiro-Wilk $p = .002$). For women of high SES and a feminine gender role, the distribution of physical attractiveness scores and social level scores were

both found to breach normality (Shapiro- Wilk p = .016, .013, respectively).For women of high SES and an androgynous gender role, the distribution of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .004, .028, respectively). Finally, for women of high SES and an undifferentiated gender role, the distribution of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .019, .043, respectively).

To further check these violations of normality, skew and kurtosis variables were standardised and assessed for significance of an alpha of .05 (z = ±3.29). Details are presented in Table I4.

Table I.4

Men and Women of High SES and Differing Gender Roles and High Budget Physical Attractiveness and Social Level Distribution's Standardised Skew and Kurtosis

	High Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
Men of High SES, Masculine Gender Role						
PA	-1.407	0.501	-2.808	2.607	0.972	2.682
SL	-0.050	0.501	-0.100	-0.763	0.972	-0.785
Men of High SES, Feminine Gender Role						
PA	-0.340	0.481	-0.707	0.074	0.935	0.079
SL	0.342	0.481	0.711	0.900	0.935	0.963
Men of High SES, Androgynous Gender Role						
PA	-1.433	0.374	-3.832*	2.803	0.733	3.824*
SL	-0.716	0.374	-1.914	-0.155	0.733	-0.211
Men of High SES, Undifferentiated Gender Role						
PA	-1.023	0.464	-2.205	1.229	0.902	1.363
SL	0.213	0.464	0.459	0.502	0.902	0.557
Women of High SES, Masculine Gender Role						

(table continues)

	High Budget					
	Skew	*SE*	Standardised score	Kurtosis	*SE*	Standardised score
PA	0.480	0.481	0.998	-0.179	0.935	-0.191
SL	-1.427	0.481	-2.967	3.139	0.935	3.357*
Women of High SES, Feminine Gender Role						
PA	-0.181	0.269	-0.673	-0.113	0.532	-0.212
SL	-0.418	0.269	-1.554	0.415	0.532	0.780
Women of High SES, Androgynous Gender Role						
PA	-0.578	0.258	-2.240	0.805	0.511	1.575
SL	-0.274	0.258	-1.062	0.326	0.511	0.638
Women of High SES, Undifferentiated Gender Role						
PA	-0.587	0.354	-1.658	-0.019	0.695	-0.027
SL	-0.429	0.354	-1.212	-0.589	0.695	-0.847

Note: SE = Standard Error, PA = Physical Attractiveness Scale, SL = Social Level Scale
* = $p < .001$

Distributions where the standardised skew and kurtosis value deviated more than three standard deviations from the mean (±3.29) were assessed for univariate outliers.

Regarding the distribution of men of high SES and an androgynous gender role and physical attractiveness scores, no univariate outliers were found to exceed ±3 standard deviations from the mean. Regarding women of high SES and a masculine gender role and social level scores, one univariate outlier was found (-3 *SD* below mean). Regarding the

distribution of women of high SES and an androgynous gender role and social level scores, no univariate outliers were found to exceed ±3 standard deviations from the mean. As such, the violations of normality reported above cannot be attributed to univariate outliers. However, further transformations of the data were deemed unnecessary, as (1) the violations were considered minor, and (2) the *F* test is considered robust to violations of normality (Keppel & Wickens, 2004).

Appendix J

Table J.1

Men's Means (and Standard Deviations) of Percentage of Budget Spent on Physical Attractiveness by Budget, Employment, Weekly Income, and Education Attained

		Low Budget								High Budget							
		Education Attained								Education Attained							
Job	Income	Low	*n*	Medium	*n*	High	*n*	Total	N	Low	*n*	Medium	*n*	High	*n*	Total	N
No	Low	33.55	45	30.31	24	43.33	12	34.04	81	24.20	45	22.93	24	29.17	12	24.56	81
		(17.30)		(14.74)		(15.57)		(16.66)		(6.18)		(9.23)		(5.34)		(7.31)	
	Med	30.00	1	0	0	47.34	10	45.76	11	23.33	1	0	0	24.21	10	24.13	11
		(0)		(0)		(29.21)		(28.20)		(0)		(0)		(9.16)		(8.70)	
	High	0	0	0	0	20.00	1	20.00	1	0	0	0	0	20.00	1	20.00	1
		(0)		(0)		(0)		(0)		(0)		(0)		(0)		(0)	
	Total	33.47	46	30.31	24	44.06	23	35.27	93	24.19	46	22.93	24	26.61	23	24.46	93
		(17.11)		(14.74)		(22.40)		(18.57)		(6.11)		(9.23)		(7.54)		(7.41)	

(table continues)

		Low Budget							High Budget						
		Education Attained							Education Attained						
Job	Income	Low	*n*	Medium	*n*	High	*N*	Total	N	Low	*n*	Medium	*n*	High	*n*	Total	N
Yes	Low	34.62	33	38.33	9	34.41	14	35.17	56	27.05	33	26.85	9	25.89	14	26.73	56
		(13.77)		(17.32)		(13.14)		(14.02)		(6.97)		(4.60)		(4.37)		(6.01)	
	Med	39.72	24	27.13	16	38.81	21	36.10	61	24.12	24	25.38	16	26.03	21	25.11	61
		(18.18)		(11.44)		(16.51)		(16.72)		(7.14)		(6.12)		(6.55)		(6.63)	
	High	53.20	5	27.70	4	42.35	17	42.18	26	29.33	5	23.33	4	24.51	17	25.26	26
		(26.33)		(15.84)		(23.06)		(23.22)		(5.96)		(8.16)		(9.64)		(8.80)	
	Total	38.10	62	30.69	29	38.78	52	36.84	143	26.10	62	25.55	29	25.50	52	25.77	143
		(17.20)		(14.49)		(18.09)		(17.20)		(7.07)		(5.87)		(7.17)		(6.84)	

Table J.2

Men's Means (and Standard Deviations) of Percentage of Budget Spent on Social Level by Budget, Employment, Weekly Income, and Education Attained

		Low Budget								High Budget							
		Education Attained								Education Attained							
Job	Income	Low	*n*	Medium	*n*	High	*n*	Total	N	Low	*n*	Medium	*n*	High	*n*	Total	N
No	Low	11.68 (9.56)	45	12.64 (7.74)	24	12.50 (10.55)	12	12.09 (9.11)	81	17.60 (6.29)	57	18.57 (8.20)	11	18.67 (6.42)	11	17.49 (6.54)	79
	Med	10.00 (0)	1	0 (0)	0	7.17 (9.94)	10	7.43 (9.47)	11	19.39 (5.75)	23	19.18 (7.94)	19	14.35 (8.05)	39	16.91 (7.76)	81
	High	0 (0)	0	0 (0)	0	0.00 (0)	1	0.00 (0)	1	17.22 (6.47)	6	16.19 (10.44)	7	18.94 (9.15)	12	17.76 (8.71)	25
	Total	11.65 (9.46)	46	12.64 (7.74)	24	9.64 (10.37)	23	11.41 (9.26)	93	18.05 (6.14)	86	18.43 (8.34)	37	15.51 (8.09)	62	17.28 (7.37)	185

(table continues)

		Low Budget								High Budget							
		Education Attained								Education Attained							
Job	Income	Low	*n*	Medium	*n*	High	*n*	Total	N	Low	*n*	Medium	*n*	High	*n*	Total	N
Yes	Low	14.85 (7.67)	33	8.89 (7.82)	9	13.41 (6.46)	14	13.53 (7.58)	56	17.64 (6.83)	33	15.56 (8.16)	9	13.99 (5.64)	14	16.39 (6.84)	56
	Med	15.33 (10.14)	24	9.13 (8.09)	16	16.95 (8.11)	21	14.26 (9.37)	61	17.60 (7.26)	24	15.58 (7.19)	16	19.68 (6.05)	21	17.79 (6.92)	61
	High	11.88 (11.05)	5	18.28 (6.24)	4	9.22 (9.47)	17	11.12 (9.61)	26	18.00 (1.83)	5	18.33 (3.33)	4	14.71 (8.34)	17	15.90 (7.01)	26
	Total	14.80 (8.86)	62	10.32 (8.20)	29	13.47 (8.69)	52	13.40 (8.77)	143	17.65 (6.68)	62	15.95 (6.99)	29	16.52 (7.16)	52	16.90 (6.90)	143

Table J.3

Women's Means (and Standard Deviations) of Percentage of Budget Spent on Physical Attractiveness by Budget, Employment, Weekly Income, and Education Attained

		Low Budget							High Budget						
		Education Attained							Education Attained						
Job	Income	Low	*N*	Medium	*n*	High	*n*	Total N	Low	*N*	Medium	*n*	High	*n*	Total N
No	Low	28.68	96	26.60	23	26.78	44	27.88 163	23.41	96	22.49	23	22.82	44	23.12 163
		(10.99)		(12.98)		(14.14)		(12.16)	(5.81)		(6.30)		(5.93)		(5.89)
	Med	25.00	6	25.00	4	40.00	5	30.00 15	22.44	6	25.83	4	24.16	5	23.92 15
		(8.37)		(12.91)		(10.00)		(11.95)	(5.52)		(5.69)		(5.46)		(5.33)
	High	28.47	102	26.36	27	28.13	49	28.05 178	23.35	102	22.99	27	22.96	49	23.19 178
		(10.86)		(12.73)		(14.27)		(12.12)	(5.77)		(6.23)		(5.84)		(5.83)
	Total	29.11	227	27.92	53	27.31	94	28.49 374	23.47	227	23.25	53	22.38	94	23.16 374
		(13.56)		(14.74)		(14.02)		(13.83)	(6.42)		(6.40)		(6.18)		(6.36)

(table continues)

		Low Budget							High Budget						
		Education Attained							Education Attained						
Job	Income	Low	*n*	Medium	*n*	High	*n*	Total N	Low	*n*	Medium	*n*	High	*n*	Total N
Yes	Low	29.43	131	28.94	30	27.77	50	28.97 211	23.51	131	23.84	30	21.99	50	23.20 211
		(15.20)		(16.09)		(14.03)		(15.01)	(6.85)		(6.52)		(6.42)		(6.71)
	Med	31.18	52	37.03	18	32.00	75	32.22 145	23.67	52	24.52	18	22.82	75	23.34 145
		(16.00)		(20.44)		(13.76)		(15.51)	(5.98)		(4.85)		(6.92)		(6.35)
	High	10.00	2	14.43	3	28.38	9	22.76 14	31.67	2	14.34	3	24.57	9	23.39 14
		(14.14)		(7.68)		(16.54)		(15.99)	(2.36)		(8.22)		(5.84)		(7.89)
	Total	29.71	185	30.94	51	30.18	134	30.05 370	23.64	185	23.52	51	22.63	134	23.26 370
		(15.50)		(18.08)		(14.10)		(15.36)	(6.62)		(6.39)		(6.66)		(6.60)

Table J.4

Women's Means (and Standard Deviations) of Percentage of Budget Spent on Social Level by Budget, Employment, Weekly Income, and Education Attained

		Low Budget							High Budget						
		Education Attained							Education Attained						
Job	Income	Low	*N*	Medium	*n*	High	*n*	Total	N	Low	*N*	Medium	*n*	High	*n*	Total	N
No	Low	16.67	96	16.08	23	15.95	44	16.39	163	18.70	96	17.73	23	17.33	44	18.19	163
		(8.27)		(6.75)		(9.68)		(8.44)		(5.43)		(4.79)		(6.83)		(5.76)	
	Med	21.67	6	17.50	4	20.00	5	20.00	15	16.33	6	19.17	4	19.54	5	18.16	15
		(14.72)		(5.00)		(12.25)		(11.34)		(6.78)		(5.69)		(6.84)		(6.26)	
	High	16.96	102	16.29	27	16.36	49	16.70	178	18.56	102	17.95	27	17.56	49	18.19	178
		(8.74)		(6.46)		(9.90)		(8.74)		(5.50)		(4.84)		(6.79)		(5.78)	
	Total	16.42	227	15.65	53	16.20	94	16.25	374	18.48	227	17.21	53	17.96	94	18.17	374
		(8.51)		(8.29)		(8.84)		(8.55)		(5.72)		(6.03)		(5.90)		(5.81)	

(table continues)

		Low Budget								High Budget							
		Education Attained								Education Attained							
Job	Income	Low	*n*	Medium	*n*	High	*n*	Total	N	Low	*n*	Medium	*n*	High	*n*	Total	N
Yes	Low	16.23	131	15.33	30	16.42	50	16.15	211	18.32	131	16.80	30	18.52	50	18.15	211
		(8.72)		(9.41)		(8.12)		(8.65)		(5.95)		(6.88)		(4.95)		(5.87)	
	Med	15.64	52	15.67	18	14.88	75	15.25	145	18.29	52	18.78	18	18.75	75	18.59	145
		(11.42)		(11.06)		(9.67)		(10.43)		(5.67)		(7.35)		(7.54)		(6.86)	
	High	20.00	2	15.00	3	13.93	9	15.03	14	25.00	2	17.83	3	20.37	9	20.49	14
		(0.00)		(8.66)		(12.20)		(10.38)		(11.79)		(9.13)		(8.07)		(8.27)	
	Total	16.10	185	15.43	51	15.39	134	15.75	370	18.38	185	17.56	51	18.77	134	18.41	370
		(9.49)		(9.80)		(9.27)		(9.43)		(5.93)		(7.08)		(6.69)		(6.37)	

Appendix K

Low Budget and High Budget Long-Term Data Screening as a Function of Sex, Current Employment, Weekly Income and Education Obtained

Low Budget

Men, current employment, weekly income, and education obtained. For men who were currently employed with low weekly income and low education obtained, the distribution of physical attractiveness scores was found to breach normality (Shapiro-Wilk p = .003), whereas the distribution of social level scores was not found to breach normality (Shapiro-Wilk p = .058). For men who were currently employed with low weekly income and medium education obtained, the distributions of physical attractiveness scores and social level scores were both found to not breach normality (Shapiro-Wilk p = .924, and .055, respectively). For men who were currently employed with low weekly income and high education obtained, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk p = .112), whereas the distribution of social level scores was found to breach normality (Shapiro-Wilk p = .001).

For men who were currently employed with medium weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .007, and .015, respectively). For men who were currently employed with medium weekly income and medium education obtained, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk p = .726), whereas the distribution of social level scores was found to breach normality (Shapiro-Wilk p = .025). For men who were currently employed with medium weekly income and high education obtained, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk p = .165), whereas the distribution of social level scores was found to breach normality (Shapiro-Wilk p = .041).

For men who were currently employed with high weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were not found to breach normality (Shapiro-Wilk p = .302, and .101, respectively). For men who were currently employed with high weekly income and medium education obtained, the distributions of physical attractiveness scores and social level scores were not found to breach normality (Shapiro-Wilk p = .338, and .825, respectively). For men who were currently employed with high weekly income and high education obtained, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk p = .106), whereas the distribution of social level scores was found to breach normality (Shapiro-Wilk p = .001).

For men who were not currently employed with low weekly income and low education obtained, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk p = .115), whereas the distribution of social level scores was found to breach normality (Shapiro-Wilk p = .001). For men who were not currently employed with low weekly income and medium education obtained, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk p = .567), whereas the distribution of social level scores was found to breach normality (Shapiro-Wilk p = .034). For men who were not currently employed with low weekly income and high education obtained, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk p = .189), whereas the distribution of social level scores was found to breach normality (Shapiro-Wilk p = .005).

For men who were not currently employed with medium weekly income and low, medium and high education obtained, the distributions of physical attractiveness scores and social level were constant and as such normality checks were omitted. To further check these violations of normality, skew and kurtosis variables were standardised and assessed for significance of an alpha of .05 (z = ±3.29). Details are presented in Table K1.

Table K.1

Men, Current Employment, Weekly Income and Education Obtained and Low Budget Physical Attractiveness and Social Level Distribution's Standardised Skew and Kurtosis

		Low Budget																	
		Education Obtained																	
		Low						Medium						High					
Job	Income	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD
Physical Attractiveness Distributions																			
Yes	Low	1.134	0.409	2.773	1.040	0.798	1.303	0.268	0.717	0.374	0.572	0.140	4.086*	0.451	0.597	0.755	-0.809	1.154	-0.701
	Medium	0.606	0.472	1.284	-0.729	0.918	-0.794	0.214	0.564	0.379	-0.223	1.091	-0.204	0.210	0.501	0.419	-1.040	0.972	-1.070
	High	0.050	0.913	0.055	-2.658	2.000	-1.329	-0.384	1.014	-0.379	-3.726	2.619	-1.423	-0.429	0.550	-0.780	-0.655	1.063	-0.616
No	Low	0.404	0.354	1.141	0.051	0.695	0.073	0.109	0.472	0.231	-0.262	0.918	-0.285	0.373	0.637	0.586	-1.007	1.232	-0.817
	Medium	.	.		.	.		.	.		.	.		-0.385	0.687	-0.560	-1.501	1.334	-1.125
	High	.	.		.	.		.	.		.	.		.	.		.	.	

Social Level Distributions

Yes	Low	-0.084	0.409	-0.205	-0.195	0.798	-0.244	0.216	0.717	0.301	-1.041	1.400	-0.744	1.625	0.597	2.722	2.038	1.154	1.766
	Medium	0.04	0.472	0.085	-0.973	0.918	-1.060	0.414	0.564	0.734	-0.986	1.091	-0.904	0.051	0.501	0.102	-0.454	0.972	-0.467
	High	-0.444	0.913	-0.486	-3.103	2.000	-1.552	-0.707	1.014	-0.697	1.352	2.619	0.516	0.140	0.550	0.255	-2.048	1.063	-1.927
No	Low	0.623	0.354	1.760	0.374	0.695	0.538	0.092	0.472	0.195	-0.324	0.918	-0.353	1.636	0.637	2.568	3.938	1.232	3.196
	Medium	.	.		.	.		.	.		.	.		0.912	0.687	1.328	-0.938	1.334	-0.703
	High	.	.		.	.		.	.		.	.		.	.		.	.	

* = $p < .05$, *SD* = Standardised score

Regarding the standardised values for skew and kurtosis, not many were found to deviate more than three standard deviations from the mean (±3.29), thus normality of the distributions was satisfied (Field, 2005). For the variables that did exceed ±3.29 standard deviations from the mean, it was decided to assess these variables for univariate outliers. Regarding the distribution of men of current employment, low weekly income, high education obtained and physical attractiveness scores, no univariate outliers were found to exceed ±3 standard deviations from the mean. As such, the violations of normality reported above cannot be attributed to univariate outliers. However, further transformations of the data were deemed unnecessary, as (1) the violations were considered minor, and (2) the *F* test is considered robust to violations of normality (Keppel & Wickens, 2004).

High Budget

Men, current employment, weekly income, and education obtained. For men who were currently employed with low weekly income and low education obtained, the distribution of physical attractiveness scores was found to breach normality (Shapiro-Wilk $p = .001$), whereas the distribution of social level scores did not breach normality (Shapiro-Wilk $p = .060$). For men who were currently employed with low weekly income and medium education obtained, the distributions of physical attractiveness scores and social level scores were both found to not breach normality (Shapiro-Wilk $p = .524$, and .807, respectively). For men who were currently employed with low weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were both found to not breach normality (Shapiro-Wilk $p = .194$, and .296, respectively).

For men who were currently employed with medium weekly income and low education obtained, the distribution of physical attractiveness scores was found to breach normality (Shapiro-Wilk $p = .001$), whereas the distribution of social level scores did not breach normality (Shapiro-Wilk $p = .182$). For men who were currently employed with

medium weekly income and medium education obtained, the distribution of physical attractiveness scores was found to breach normality (Shapiro-Wilk p = .037), whereas the distribution of social level scores did not breach normality (Shapiro-Wilk p = .181). For men who were currently employed with medium weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .011, and .043, respectively).

For men who were currently employed with high weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .046, and .006, respectively).For men who were not currently employed with high weekly income and medium education obtained, the distribution of physical attractiveness scores did not breach normality (Shapiro-Wilk p = .262), whereas the distribution of social level scores did breach normality (Shapiro-Wilk p = 001). For men who were not currently employed with high weekly income and high education obtained, the distribution of physical attractiveness scores did breach normality (Shapiro-Wilk p = .001), whereas the distribution of social level scores did not breach normality (Shapiro-Wilk p = .281).

For men who were not currently employed with low weekly income and low education obtained, the distribution of physical attractiveness scores did not breach normality (Shapiro-Wilk p = .081), whereas the distribution of social level scores did breach normality (Shapiro-Wilk p = .035). For men who were not currently employed with low weekly income and medium education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .009, and .011, respectively). For men who were not currently employed with low weekly income and high education obtained, For men who were not currently employed with low weekly income and low education obtained, the distribution of physical attractiveness scores did breach

normality (Shapiro-Wilk $p = .008$), whereas the distribution of social level scores did not breach normality (Shapiro-Wilk $p = .356$).

For men who were not currently employed with medium weekly income and low education obtained, the distributions of physical attractiveness scores and social level were constant and as such normality checks were omitted. For men who were not currently employed with medium weekly income and medium education obtained, the distributions of physical attractiveness scores and social level were constant and as such normality checks were omitted. For men who were not currently employed with medium weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were both found to not breach normality (Shapiro-Wilk $p = .162$, and .062, respectively).

For men who were not currently employed with high weekly income and low education obtained, the distributions of physical attractiveness scores and social level were constant and as such normality checks were omitted. For men who were not currently employed with high weekly income and medium education obtained, the distributions of physical attractiveness scores and social level were constant and as such normality checks were omitted. For men who were not currently employed with high weekly income and high education obtained, the distributions of physical attractiveness scores and social level were constant and as such normality checks were omitted. To further check these violations of normality, skew and kurtosis variables were standardised and assessed for significance of an alpha of .05 ($z = \pm 3.29$). Details are presented in Table K2.

Table K.2

Men, Current Employment, Weekly Income and Education Obtained and High Budget Physical Attractiveness and Social Level Distribution's Standardised Skew and Kurtosis

High Budget																			
		Education Obtained																	
		Low						Medium						High					
Job	Income	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD
Physical Attractiveness Distributions																			
Yes	Low	-1.885	0.409	-4.609*	5.848	0.798	7.328*	0.266	0.717	0.371	-0.886	1.400	-0.633	0.03	0.597	0.050	-1.165	1.154	-1.010
	Medium	-1.381	0.472	-2.926	4.817	0.918	5.247*	0.157	0.564	0.278	-1.465	1.091	-1.343	-1.236	0.501	-2.467	2.541	0.972	2.614
	High	-1.258	0.913	-1.378	0.313	2.000	0.157	0.544	1.014	0.536	-2.944	2.619	-1.124	-2.173	0.505	-3.951*	4.105	1.063	3.862*
No	Low	-0.171	0.354	-0.483	0.136	0.695	0.196	-0.774	0.472	-1.640	0.572	0.918	0.623	-1.262	0.637	-1.981	1.288	1.232	1.045
	Medium	.	.	.	.	.	.	.	.	.	.	.	.	-0.889	0.687	-1.294	-0.307	1.334	-0.230
	High	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Social Level Distributions

Yes	Low	-0.428	0.409	-1.046	-0.273	0.798	-0.342	-0.620	0.717	-0.865	0.260	1.400	0.186	0.207	0.597	0.347	-0.970	1.154	-0.841
	Medium	-0.252	0.472	-0.534	0.864	0.918	0.941	-0.450	0.564	-0.798	-1.016	1.091	-0.931	-0.344	0.501	-0.687	1.508	0.972	1.551
	High	0.609	0.913	0.667	-3.333	2.000	-1.667	2.000	1.014	1.972	4.000	2.619	1.527	-0.425	0.550	-0.773	-0.617	1.063	-0.580
No	Low	-0.115	0.354	-0.325	0.782	0.695	1.125	-0.922	0.472	-1.953	0.075	0.918	0.082	-0.690	0.637	-1.083	1.159	1.232	0.941
	Medium	.	.	.	.	.	.	.	.	.	.	.	.	1.374	0.687	2.000	2.076	1.334	1.556
	High	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

* = $p < .05$, *SD* = Standardised score

Regarding the standardised values for skew and kurtosis, not many were found to deviate more than three standard deviations from the mean (±3.29), thus normality of the distributions was satisfied (Field, 2005). For the variables that did exceed ±3.29 standard deviations from the mean, it was decided to assess these variables for univariate outliers. Regarding the distribution of men of current employment, low weekly income, low education obtained and physical attractiveness scores, one univariate outlier was found (-3 standard deviations below the mean). For the distribution of men of current employment, medium weekly income, low education obtained and physical attractiveness scores, one univariate outlier was found (-3 standard deviations below the mean). For the distribution of men of current employment, high weekly income, high education obtained and physical attractiveness scores, no univariate outliers were located. After removal of these outliers, standardised skew and kurtosis were reassessed (Table K3).

Table K.3

Men, Current Employment, Weekly Income and Education Obtained and High Budget Physical Attractiveness Distribution's Standardised Skew and Kurtosis After Removal of Outliers

		High Budget																	
		Education Obtained																	
		Low						Medium						High					
Job	Income	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD
Physical Attractiveness Distributions																			
Yes	Low	-0.388	0.414	-0.937	-0.937	.809	-1.158	0.266	0.717	0.371	-0.886	1.400	-0.633	0.03	0.597	0.050	-1.165	1.154	-1.010
	Medium	0.617	0.481	1.283	-0.635	0.935	-0.679	0.157	0.564	0.278	-1.465	1.091	-1.343	-1.236	0.501	-2.467	2.541	0.972	2.614
	High	-1.258	0.913	-1.378	0.313	2.000	0.157	0.544	1.014	0.536	-2.944	2.619	-1.124	-2.173	0.505	-3.951*	4.105	1.063	3.862*

* = $p < .05$, *SD* = Standardised score

Removal of the univariate outlier did, for most distributions, improve normality. However, for the analyses the univariate outliers were retained, as (1) analyses were run with the inclusion of the outliers and without, and results did not differ, and (2) the *F* test is considered robust to violations of normality (Keppel & Wickens, 2004).

Low Budget

Women, current employment, weekly income, and education obtained. For women who were currently employed with low weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Kolmogorov-Smirnov $p = .001$, and .001, respectively). For women who were currently employed with low weekly income and medium education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .006$, and .013, respectively). For women who were currently employed with low weekly income and high education obtained, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk $p = .154$), whereas the distribution of social level scores was found to breach normality (Shapiro-Wilk $p = .001$).

For women who were currently employed with medium weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .020$, and .001, respectively). For women who were currently employed with medium weekly income and medium education obtained, the distributions of physical attractiveness scores and social level scores were both found to not breach normality (Shapiro-Wilk $p = .201$, and .054, respectively). For women who were currently employed with medium weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .008$, and .001, respectively).

For women who were currently employed with high weekly income and low education obtained, the distributions of physical attractiveness scores and social level were constant and as such normality checks were omitted. For women who were currently employed with high weekly income and medium education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .001, and .001, respectively). For women who were currently employed with high weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were both found to not breach normality (Shapiro-Wilk p = .672, and .146, respectively).

For women who were not currently employed with low weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .001, and .001, respectively). For women who were not currently employed with low weekly income and medium education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .039, and .002, respectively). For women who were not currently employed with low weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .003, and .019, respectively).

For women who were not currently employed with medium weekly income and low and medium education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .006, and .020, respectively). For women who were not currently employed with medium weekly income and medium education obtained, the distribution of physical attractiveness scores was not found to breach normality (Shapiro-Wilk p = .972), whereas the distribution of social level scores was found to breach normality (Shapiro-Wilk p = .001). Finally, for women who were not

currently employed with medium weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were both found to not breach normality (Shapiro-Wilk p = .119, and .146, respectively). There were no cases for women without current employment, high weekly income, and low, medium and high education obtained. To further check these violations of normality, skew and kurtosis variables were standardised and assessed for significance of an alpha of .05 (z = ±3.29). Details are presented in Table K4.

Table K.4

Women, Current Employment, Weekly Income and Education Obtained and Low Budget Physical Attractiveness and Social Level Distribution's Standardised Skew and Kurtosis

Low Budget																			
		Education Obtained																	
		Low						Medium						High					
Job	Income	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD
Physical Attractiveness Distributions																			
Yes	Low	1.073	0.212	5.061*	1.299	0.420	3.093	0.685	0.427	1.604	-0.632	0.833	-0.759	0.232	0.337	0.688	-0.139	0.662	-0.210
	Medium	0.454	0.330	1.376	-0.108	0.650	-0.166	0.320	0.536	0.597	-0.600	1.038	-0.578	0.324	0.277	1.170	-0.292	0.548	-0.533
	High	.	.	.	.	.	.	1.732	1.225	1.414	.	.	.	-0.157	0.717	-0.219	-0.487	1.400	-0.348
No	Low	0.424	0.246	1.724	-0.359	0.488	-0.736	0.886	0.481	1.842	0.667	0.935	0.713	0.684	0.357	1.916	1.300	0.702	1.852
	Medium	-1.537	0.845	-1.819	1.429	1.741	0.821	0	1.014	0	-1.200	2.619	-0.458	0	0.913	0	-3.000	2.000	-1.500
	High	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

Social Level Distributions

Yes	Low	-0.185	0.212	-0.873	0.034	0.420	0.081	-0.206	0.427	-0.482	-0.749	0.833	-0.899	-0.677	0.337	-2.009	-0.021	0.662	-0.032
	Medium	1.013	0.330	3.070	1.732	0.650	2.665	0.123	0.536	0.229	-0.006	1.038	-0.006	0.457	0.277	1.650	0.274	0.548	0.500
	High	.	.	.	.	.	.	1.732	1.225	1.414	.	.	.	0.050	0.717	0.070	-1.553	1.400	-1.109
No	Low	0.009	0.246	0.037	-0.069	0.488	-0.141	-0.443	0.481	-0.921	0.088	0.935	0.094	0.238	0.357	0.667	-0.304	0.702	-0.433
	Medium	1.840	0.845	2.178	3.912	1.741	2.247	-2.000	1.014	-1.972	4.000	2.619	1.527	1.361	0.913	1.491	2.000	2.000	1.000
	High	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

* = $p < .05$, *SD* = Standardised score

Regarding the standardised values for skew and kurtosis, not many were found to deviate more than three standard deviations from the mean (±3.29), thus normality of the distributions was satisfied (Field, 2005). For the variables that did exceed ±3.29 standard deviations from the mean, it was decided to assess these variables for univariate outliers. Regarding the distribution of women of current employment, low weekly income, low education obtained and physical attractiveness scores, two univariate outliers were found (+3 standard deviations above the mean). After removal of these outliers, standardised skew and kurtosis were reassessed (Table K5).

Table K.5

Women, Current Employment, Weekly Income and Education Obtained and Low Budget Physical Attractiveness Distribution's Standardised Skew and Kurtosis After Removal of Outliers

Low Budget																			
		Education Obtained																	
		Low						Medium						High					
Job	Income	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD
Physical Attractiveness Distributions																			
	Low	0.424	0.246	1.724	-0.359	0.488	-0.736	0.685	0.427	1.604	-0.632	0.833	-0.759	0.232	0.337	0.688	-0.139	0.662	-0.210

* = $p < .05$, *SD* = Standardised score

Removal of the univariate outlier did, for most distributions, improve normality. However, for the analyses the univariate outliers were retained, as (1) analyses were run with the inclusion of the outliers and without, and results did not differ, and (2) the *F* test is considered robust to violations of normality (Keppel & Wickens, 2004).

High Budget

Women, current employment, weekly income, and education obtained. For women who were currently employed with low weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Kolmogorov-Smirnov $p = .001$, and .001, respectively). For women who were currently employed with low weekly income and medium education obtained, the distributions of physical attractiveness scores and social level scores were both found to not breach normality (Shapiro-Wilk $p = .147$, and .422, respectively). For women who were currently employed with low weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .032$, and .001, respectively).

For women who were currently employed with medium weekly income and low education obtained, the distribution of physical attractiveness scores breached normality (Shapiro-Wilk $p = .040$), whereas the distribution of social level scores did not breach normality (Shapiro-Wilk $p = .216$). For women who were currently employed with medium weekly income and medium education obtained, the distributions of physical attractiveness scores and social level scores were both found to not breach normality (Shapiro-Wilk $p = .545$, and .136, respectively). For women who were currently employed with medium weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk $p = .001$, and .010, respectively).

For women who were currently employed with high weekly income and low education obtained, the distributions of physical attractiveness scores and social level were constant and as such normality checks were omitted. For women who were currently employed with high weekly income and medium education obtained, the distributions of physical attractiveness scores and social level scores were both found to not breach normality (Shapiro-Wilk p = .627, and .599, respectively). For women who were currently employed with high weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were both found to not breach normality (Shapiro-Wilk p = .168, and .173, respectively).

For women who were not currently employed with low weekly income and low education obtained, the distributions of physical attractiveness scores and social level scores were both found to breach normality (Shapiro-Wilk p = .003, and .003, respectively). For women who were not currently employed with low weekly income and medium education obtained, the distribution of physical attractiveness scores did not breach normality (Shapiro-Wilk p = .277), whereas the distribution of social level scores did breach normality (Shapiro-Wilk p = .047). For women who were not currently employed with low weekly income and high education obtained, the distribution of physical attractiveness scores did not breach normality (Shapiro-Wilk p = .055), whereas the distribution of social level scores did breach normality (Shapiro-Wilk p = .002).

For women who were not currently employed with medium weekly income and low and medium education obtained, the distributions of physical attractiveness scores and social level scores were both found to not breach normality (Shapiro-Wilk p = .723, and .630, respectively). For women who were not currently employed with medium weekly income and medium education obtained, the distributions of physical attractiveness scores and social level were both found to not breach normality (Shapiro-Wilk p = .850, and .850,

respectively). Finally, for women who were not currently employed with medium weekly income and high education obtained, the distributions of physical attractiveness scores and social level scores were both found to not breach normality (Shapiro-Wilk $p = .105$, and .174, respectively). There were no cases for women without current employment, high weekly income, and low, medium and high education obtained. To further check these violations of normality, skew and kurtosis variables were standardised and assessed for significance of an alpha of .05 ($z = \pm 3.29$). Details are presented in Table K6.

Table K.6

Women, Current Employment, Weekly Income and Education Obtained and High Budget Physical Attractiveness and Social Level Distribution's Standardised Skew and Kurtosis

		High Budget																	
		Education Obtained																	
		Low						Medium						High					
Job	Income	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD
Physical Attractiveness Distributions																			
Yes	Low	-0.527	0.212	-2.486	0.510	0.420	1.214	-0.404	0.427	-0.946	-0.277	0.833	-0.333	-0.183	0.337	-0.543	-0.161	0.662	-0.243
	Medium	-0.269	0.330	-0.815	0.010	0.650	0.015	-0.346	0.536	-0.646	0.286	1.038	0.276	-0.915	0.277	-3.303*	1.763	0.548	3.217
	High	.	.	.	.	.	.	0.959	1.225	0.783	.	.	.	0.437	0.717	0.609	-0.455	1.400	-0.325
No	Low	0.045	0.246	0.183	-0.484	0.488	-0.992	0.122	0.481	0.254	-0.428	0.935	-0.458	0.149	0.357	0.417	-0.738	0.702	-1.051
	Medium	-0.582	0.845	-0.689	1.424	1.741	0.818	0.753	1.014	0.743	0.343	2.619	0.131	1.602	0.913	1.755	2.767	2.000	1.384
	High	.	.	.		.	.		.	.		.	.		.	.		.	.

Social Level Distributions

Yes	Low	-0.808	0.212	-3.811*	1.256	0.420	2.990	-0.182	0.427	-0.426	-0.418	0.833	-0.502	-1.441	0.337	-4.276*	4.352	0.662	6.574*
	Medium	-0.033	0.330	-0.100	0.316	0.650	0.486	0.316	0.650	0.486	0.007	1.038	0.007	-0.515	0.277	-1.859	0.191	0.548	0.349
	High	.	.	.	.	.	.	1.021	1.225	0.833	.	.	.	-0.845	0.717	-1.179	2.576	1.400	1.840
No	Low	0.194	0.246	0.789	0.885	0.488	1.814	-0.017	0.481	-0.035	-0.154	0.935	-0.165	-0.609	0.357	-1.706	-0.704	0.702	-1.003
	Medium	-0.462	0.845	-0.547	-1.114	1.741	-0.640	0.753	1.014	0.743	0.343	2.619	0.131	1.601	0.913	1.754	2.867	2.000	1.434
	High	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

* = $p < .05$, *SD* = Standardised score

Regarding the standardised values for skew and kurtosis, not many were found to deviate more than three standard deviations from the mean (±3.29), thus normality of the distributions was satisfied (Field, 2005). For the variables that did exceed ±3.29 standard deviations from the mean, it was decided to assess these variables for univariate outliers. Regarding the distribution of women of current employment, medium weekly income, high education obtained and physical attractiveness scores, no univariate outliers were found. For women of current employment, low weekly income, low education obtained and social level scores, no univariate outliers were found. For women of current employment, low weekly income, high education obtained and social level scores, one univariate outlier was found (-3 standard deviations below the mean). After removal of this outlier, standardised skew and kurtosis were reassessed (Table K7).

Table K.7

Women, Current Employment, Weekly Income and Education Obtained and High Budget Social Level Distribution's Standardised Skew and Kurtosis

		High Budget																	
		Education Obtained																	
		Low						Medium						High					
Job	Income	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD	Skew	SE	*SD*	Kurtosis	SE	SD
Social Level Distributions																			
Yes	Low	-0.808	0.212	-3.811*	1.256	0.420	2.990	-0.182	0.427	-0.426	-0.418	0.833	-0.502	-0.823	0.340	-2.421	2.973	0.668	4.451*

* = $p < .05$, *SD* = Standardised score

Removal of the univariate outlier did improve normality, although the standardised kurtosis was still violated ±3.29 standard deviations. However, for the analyses the univariate outliers were retained, as (1) analyses were run with the inclusion of the outliers and without, and results did not differ, and (2) the *F* test is considered robust to violations of normality.