Unravelling emotionally driven vaccine behaviour

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This thesis is submitted for the degree of

Doctor of Philosophy

Department of Marketing and Entrepreneurship
Peter Faber Business School

July 2025

STATEMENT OF ORIGINAL AUTHORSHIP

This thesis contains no material that has been extracted, in whole or in part, from a thesis I have submitted for the award of any other degree or diploma at any other tertiary institution. No other person's work has been used without appropriate acknowledgment in the main text of the thesis.

Date: 12th July, 2025

DEDICATION

Dedicated to my beloved Mother, Dr Dilshad Hussain, whose unwavering love, guidance, support, nurturing, upbringing and prayers have shaped me into the person I am today.

ACKNOWLEDGEMENTS

First and foremost, I want to express my gratitude to God for providing me with the strength and resilience to navigate the challenges and achievements of my academic journey.

My experience as a PhD student has been a whirlwind of ups and downs. Despite occasional stress, my journey has been enriched with rewarding experiences, intellectual stimulation, and invaluable learning opportunities. I am profoundly grateful to the individuals whose support has shaped this work.

I want to extend my heartfelt gratefulness to my mum, Dr Dilshad Hussain, whose countless prayers and support have been my guiding light in every aspect of my life. This thesis is dedicated to her.

I also offer a special acknowledgment to my beloved dad, Dr Muhammad Hussain. Though he may have departed this world, I am confident he continues to watch over me with pride and affection.

A special expression of gratitude goes to my wife, Farha Fatima, whom I consider to be a gift from God to me. I am profoundly thankful for her constant support and understanding throughout this journey. Additionally, I am very grateful to my children Zahra, Aleesha, and Muhammad Hussain, who selflessly sacrificed their time with me so that I could focus on completing my work.

I am deeply grateful to Associate Professor Syed Fazal e Hasan for his unwavering support and guidance as my principal supervisor. His dedication to my academic growth and development has been truly exceptional. Beyond academia, I will always cherish the meaningful community work we embarked on, driven by our shared commitment to social

and spiritual causes. Dr Syed's enthusiasm and kindness enriched my academic journey and fostered a sense of purpose and fulfilment in my work.

Next, I am grateful to Associate Professor Hormoz Ahmadi, my co-supervisor. His support, encouragement and kind guidance were a constant source of motivation during challenging times. Dr Hormoz, I am incredibly grateful for your uplifting text messages, which never failed to brighten my spirits whenever I needed a boost.

I sincerely appreciate Dr Samantha Murdy, my co-supervisor, who joined me during my crucial final year when I was about to commence data collection. Her wealth of experience and wisdom proved invaluable, particularly in guiding me through data analysis, systematic literature review, publications and numerous other aspects of my research. Dr Sam, your insight and guidance have been instrumental in shaping this thesis. I wish you more success and fulfilment in all your endeavours.

Additionally, I am profoundly grateful to the ACU for their funding and unwavering support, which made this research endeavour possible. I am also thankful to Professor Joy Parkinson from ACU, Professor Ian Lings from QUT, and the respected panel members of my milestone seminars for their invaluable insights and guidance, which played a crucial role in shaping this work. Their collective expertise and thoughtful feedback have significantly enriched my research journey.

Additionally, I extend my special thanks to my mentor, Sandy Ulrich, for her kind guidance and flexibility, which allowed me to meet my research deadlines. Her support and understanding were invaluable throughout this journey, and I am deeply grateful for everything you have done for me, Sandy.

Further, my heartfelt gratitude goes to my fellow students, Sadiq and Rahmati, for their guidance, motivation, and support throughout this journey. Their encouragement and assistance have been invaluable, and I deeply appreciate everything they have done.

Last, I sincerely thank my workmates, Elvira Haryadi and Leana Barcebal, for their steadfast motivation and support. Their belief in my abilities and constant support and encouragement have been a great source of inspiration.

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ABSTRACT

This research examines the relationship between consumer perceptions of value regarding vaccines and positive emotions, focusing on the role of consumer hope in shaping vaccination intentions and behaviour. While prior studies have emphasised negative emotions such as fear, anxiety, and loneliness (Nicola et al., 2020; World Health Organization, 2020; Yu et al., 2011), this study addresses the underexplored influence of hope in the vaccination context. A conceptual model is presented, in which consumer hope mediates the relationship between perceived value of vaccines and intention to use a vaccine. The study also includes implementation intention as a key variable linking intention to actual vaccine use. Grounded in the Theory of Planned Behaviour (Ajzen, 1985) and extending the Health Belief Model (Becker, 1974), the research incorporates emotional, price, and quality dimensions of perceived value providing a more nuanced understanding of vaccine decision-making. To test the model, statistical analyses are conducted, including t-tests, goodness-of-fit statistics, and path analysis, to examine relationships within the conceptual framework. In addition, fuzzy-set Qualitative Comparative Analysis (fsQCA) is performed and compared with Structural Equation Modelling (SEM) results, offering a comprehensive, multi-method understanding of the findings.

This research offers practical insights for social marketers, policymakers, and academics to support the design of emotionally resonant, value-driven interventions that address vaccine hesitancy and promote vaccine use among health consumers.

Keywords: social marketing, vaccine, perceived value, emotional value, social value, price value, quality value, consumer hope, self-efficacy, vaccination intention, implementation intention, vaccine use

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CHAPTER 1 : INTRODUCTION

The focus of this thesis is an investigation of the role of emotions in the context of vaccination. In this chapter, the fundamental elements of this thesis are outlined, specifically the research background, the importance of vaccination, the role of positive emotions in reducing vaccine hesitancy, interdisciplinary nature of social marketing in behavioural change, the gaps in the literature, the research questions, an overview of the methods, a discussion of the research contributions, and an overview of the thesis structure. Please note that while this thesis contains a considerable amount of information about the Spanish flu and COVID-19 vaccines due to the availability of current literature on epidemics and pandemics, this research underscores the fundamental tenet that any epidemic or pandemic requires the use of vaccines for potential prevention.

1.1 Research Background

Many countries have invested millions of dollars in vaccination rollout programs to control past and recent pandemics and slow the spread of diseases. In 2022, the Australian Government invested $100 million to support vulnerable citizens in acquiring vaccines in response to a flu outbreak in that year (Ministers Department of Health and Aged Care, 2022). In addition, the Australian Government had previously committed over $8 billion to the COVID-19 vaccine rollout and $350 million to vaccine research and development (Australian Government Department of Health and Aged Care, 2022). Australia has also signed multiple agreements to secure over 280 million doses of vaccines for various epidemics and pandemics (Gleeson et al., 2022). Furthermore, in January 2021, the government launched a $23.9 million national marketing campaign across television, radio,

press, and social media to inform the public about when and how to access the COVID-19 vaccine (Jasmine, 2021).

Similar large-scale investments were seen in other western countries such as the United States, which committed billions of dollars to secure over 900 million doses of COVID-19 vaccines (Centers for Disease Control and Prevention [CDC], 2021). These examples from Australia and the USA provide relevant context for understanding vaccine uptake in western societies, where access to vaccines was widespread, yet vaccine hesitancy remained a persistent challenge. In Australia, hesitancy was linked to public safety concerns and varying trust in health messaging (Danchin et al., 2020), while in the USA, cultural and political dynamics significantly shaped public attitudes (Trent et al., 2021).

These social marketing initiatives aim to protect citizens, support economic recovery, and return life to a new normal (Australian Government Department of Health, 2021; CDC, 2021). While extensive research has examined the epidemiological, logistical, and policy dimensions of pandemics (Gavaruzzi et al., 2021; Locke et al., 2025; Mills & Ruttenauer, 2022; Murphy et al., 2021), relatively little attention has been paid to the psychological drivers behind vaccine uptake. Existing studies often emphasise cognitive variables such as risk perception and knowledge, with limited exploration of emotional and motivational constructs like hope and perceived value (Brewer et al., 2017; Carcioppolo et al., 2017; Chou & Budenz, 2020). Addressing this gap is essential for advancing our understanding of how health consumers engage with vaccination decisions and for designing more effective interventions to promote vaccine use.

1.2 Importance of Vaccines in Dealing with Epidemics and Pandemics

Epidemics and pandemics have been a recurring part of human history, impacting communities across the world for centuries. (Donthu & Gustafsson, 2020). Looking chronologically at major outbreaks allows for a better understanding of how vaccination has evolved as a central consumer health strategy in disease prevention and control (Seretis et al., 2025). The 1918 Spanish flu pandemic remains one of the deadliest in history. It spread rapidly across the globe, infecting nearly 500 million people and resulting in an estimated 50 million deaths (CDC, 2020; Taubenberger & Morens, 2020). At the time, no vaccines were available, and control efforts relied on non-pharmaceutical interventions such as social distancing, hand hygiene, face masks, and school and workplace closures (Robinson, 2021). The lack of scientific understanding and delayed identification of the virus contributed to the pandemic's devastating impact. Decades later, the world experienced further influenza pandemics, including the Asian flu of 1957–1958 caused by the H2N2 influenza A virus, which led to approximately two million deaths globally (CDC, 2018), and the Hong Kong flu pandemic of 1968–1969, caused by the H3N2 influenza A virus, which resulted in around one million deaths worldwide (CDC, 2020). These pandemics underscored the importance of scientific readiness and vaccine development.

In 1981, the emergence of the human immunodeficiency virus (HIV) and the subsequent AIDS pandemic introduced a new global health challenge. According to the WHO (2021), over 75 million people have been infected with HIV since the beginning of the epidemic, and more than 32 million have died from AIDS-related illnesses. Despite decades of research, a viable vaccine for HIV remains elusive, highlighting the complexities of vaccine development. The early 21st century saw the emergence of new viral threats. In 2002–2003,

the severe acute respiratory syndrome (SARS) outbreak, caused by the SARS-CoV virus, spread to more than two dozen countries, resulting in over 8,000 cases and nearly 800 deaths (WHO, 2021). This outbreak highlighted the need for international cooperation and a swift response to new infectious diseases. The 2009 H1N1 influenza pandemic, commonly known as swine flu, spread rapidly around the world and caused more than 18,000 deaths (CDC, 2018). This event reinforced the value of pandemic preparedness and the rapid development of vaccines.

The COVID-19 pandemic, caused by the novel coronavirus SARS-CoV-2, began in December 2019 in Wuhan, China, and quickly spread across the globe. With millions of confirmed deaths worldwide (WHO, 2021), the pandemic overwhelmed healthcare systems and disrupted economies, while also generating far-reaching social and psychological consequences. Unlike during the Spanish flu, vaccines were developed and rolled out with unprecedented speed (Holder, 2021), and vaccination programs were initiated globally (Australian Government Department of Health, 2021; Holder, 2021). However, despite scientific advances and the availability of vaccines, vaccine hesitancy has remained a persistent issue. According to a WHO report from March 2024, over 7 million deaths have been recorded, and vaccine hesitancy has contributed to mortality during and after the pandemic (Gavaruzzi et al., 2021).

Vaccines are widely regarded as powerful social marketing interventions, playing a key role in lowering disease prevalence and saving lives (National Centre for Biotechnology Information, 2020). Their success depends heavily on widespread uptake among consumers. High vaccination coverage provides both consumer protection and community-wide immunity, a phenomenon known as herd immunity, which helps protect those who cannot be vaccinated (Fine et al., 2011). Historical comparisons, such as the absence of vaccines during

the Spanish flu compared to their rapid deployment during COVID-19, highlight the transformative role of vaccination. While the COVID-19 experience has shown that the presence of vaccines alone is not sufficient, addressing barriers such as vaccine hesitancy also remains critical.

Vaccine hesitancy is not only influenced by structural barriers such as access and availability, but also by psychological factors that shape individual decision-making (Newman et al., 2025). These include cognitive aspects like misinformation and risk assessment, along with emotional and motivational factors such as fear, anxiety, and hope (Carcioppolo et al., 2017; Chou & Budenz, 2020; Ullah et al., 2021). While negative emotions such as fear and anxiety have been widely explored in vaccine research (Guidry et al., 2021; Karlsson et al., 2021; Lin et al., 2022), positive constructs such as hope remain underexplored. Yet, hope may serve as a crucial motivator, helping consumers overcome uncertainty and commit to protective health behaviours (Snyder, 2002). Understanding how such emotions interact with the perceived value of vaccines and intention is vital for developing more targeted, psychologically informed social marketing strategies.

1.3 Role of Positive Emotions in Reducing Vaccine Hesitancy

Vaccine hesitancy is a term used to describe the delay in acceptance of vaccines and the reluctance or refusal of vaccination despite the availability of vaccination services (WHO, 2019). It is considered by the WHO (2019) to be one of the top 10 threats to community health across the globe. Vaccine hesitancy is often caused by the sudden global emergence of diseases, rapid vaccine development, lack of trust in science and health experts, and conspiracy theories (Funk & Tyson, 2020; Lunsford, 2025). A recent study conducted by Abdallah and Lee (2021) selected a cohort of college students from the northwest United States to determine their vaccine intentions and hesitancy for flu and COVID-19 vaccines.

The study identified important factors that contribute to vaccine hesitancy among students, including lack of trust in vaccine development, fear, and anxiety. According to surveys by The City University of New York School of Public Health (2020) and the University of Chicago National Opinion Research Center (2020), a significant proportion of the US population needed clarification about vaccinating against COVID-19.

As of mid-2021, global COVID-19 vaccination rates exhibited marked variation across regions. According to data reported in The New York Times COVID-19 vaccine tracking resource, "Tracking Coronavirus Vaccinations Around the World" (Holder, 2021), European nations such as France, Germany, Italy, Poland, and Belgium had reached vaccination rates of approximately 20 percent of their respective populations. In contrast, several African countries, including Nigeria, Kenya, the Democratic Republic of Congo, Tanzania, Sudan, Uganda, and Ethiopia, had fully vaccinated only about 1 percent of their populations. In South Asia, countries such as Pakistan, India, Bangladesh, Bhutan, and Afghanistan had achieved slightly higher rates, ranging from 2 to 4 percent. Comparatively, the United States and the United Kingdom led with approximately 38 to 42 percent of their populations being fully vaccinated during this period. However, countries such as Canada, Australia, and New Zealand had significantly lower coverage, with only 2 to 6 percent of their populations having received full immunisation. These global disparities in vaccine uptake underscore the persistent and complex challenge of addressing vaccine hesitancy in both developed and developing contexts (de Figueiredo, 2021).

Epidemics and pandemics are often beyond human control and can have devastating effects on society. However, these effects can be mitigated through various measures such as social distancing, personal protective equipment (PPE), and, crucially, vaccines (Donthu & Gustafsson, 2020). Health authorities worldwide have implemented critical preventive

strategies including the use of masks, gloves, and hand sanitisers, alongside strict lockdowns and social distancing measures to combat the spread of diseases (Bashir et al., 2020; Mills & Dye, 2021). In some cases, mandates for vaccine compliance have been introduced to bolster vaccination rates, particularly among hesitant populations (Mills & Dye, 2021). However, while such measures may lead to increased vaccine uptake, they also raise ethical concerns, including disparities among socio-ethnic groups with lower trust in health authorities and government (Mills & Ruttenauer, 2022). Furthermore, studies indicate that forced compliance may not uniformly increase vaccine uptake across all age groups (Mills & Ruttenauer, 2022). According to Bardosh et al. (2022), implementing forced compliance measures may initially lead to an increase in vaccine uptake; however, there is a notable resurgence of hesitancy once these restrictions are lifted. For instance, in Australia, vaccination mandates for work and travel purposes resulted in a significant uptake of the first and second doses; however, once these mandates were removed, vaccine usage substantially declined, with only 50 percent of the population receiving the third dose (ABC News, 2022). This demonstrates the transient nature of compliance under forced measures and suggests that such strategies may not be sustainable for the long-term management of vaccination programs.

While these measures have proven effective in curbing the spread of the virus in the short term (WHO, 2020), long-term management of the pandemic requires a deeper understanding of the emotional mechanisms that influence health consumer intentions towards vaccination (Anderson et al., 2020; Chou & Budenz, 2020). Social marketing studies also emphasise the importance of investigating and addressing vaccine hesitancy through psychological mechanisms to ensure sustained vaccine uptake (Gavaruzzi et al., 2021; Luz et al., 2019; Murphy et al., 2021). Thus, further research is needed to explore these mechanisms and develop strategies to minimise vaccine hesitancy in the long term.

Supporting the argument against reliance on forced compliance strategies, various studies have highlighted the role of emotional factors in influencing vaccine hesitancy (Chou & Budenz, 2020; Gavaruzzi et al., 2021). Despite the acknowledged significance of emotional mechanisms in shaping intentions and behaviours among consumers, the existing literature in fields such as social marketing and consumer behaviour has not extensively explored these emotional dynamics within the context of vaccine consumers. This research gap underscores the need for a deeper understanding of the emotional factors that drive vaccine use. By addressing this gap, the research can provide information that could help social marketing initiatives to develop more effective strategies that resonate with the emotional needs and concerns of the population and ultimately lead to more sustained and meaningful changes in vaccination behaviour.

1.4 Interdisciplinary Nature of Social Marketing in Behavioural Change

In 1971, social marketing was defined by Kotler and Zaltman as a marketing technique that is aimed at influencing social behaviours for the benefit of society rather than the benefit of the marketer. They emphasise the importance of designing, implementing, and controlling programs that influence the social acceptability of specific products for the benefit of consumers (Kotler & Zaltman, 1971). However, the definition of social marketing has evolved to encompass a more comprehensive understanding of its scope and objectives. From a more contemporary perspective, Kassirer et al. (2019) define social marketing as a compelling behaviour change approach. This definition highlights the fundamental goal of social marketing to create a positive social impact by promoting behaviour change that benefits individuals and society as a whole. It recognises the interdisciplinary nature of social

marketing and draws insights and strategies from fields such as consumer psychology, public health, and healthcare marketing (French & Russell, 2020).

The evolution of the definition reflects a shift in focus from solely influencing social behaviours to achieving broader social outcomes. Social marketing now encompasses a wide range of initiatives to address societal challenges, such as improving public health, promoting environmental sustainability, and fostering community engagement (Kassirer et al., 2019). These initiatives utilise marketing principles and techniques to drive behaviour change, with an emphasis on understanding target audiences, developing effective communication strategies, and creating supportive environments for desired behaviours. The interdisciplinary nature of social marketing is a key strength, as it allows for the integration of diverse perspectives and approaches (French & Russell, 2020). By drawing on insights from the various fields mentioned above, social marketing can develop comprehensive strategies that consider consumer motivations, social norms, environmental factors, and systemic influences. This interdisciplinary approach enables social marketers to design interventions that are tailored to the target population's specific needs and contexts, which increases the likelihood of achieving sustainable behavioural change (ESMA et al., 2017).

Social marketing interventions such as vaccination programs require large-scale behavioural change. These interventions must be informed by a clear understanding of the consumer perceptions that lead to the complex psychological mechanisms (such as emotions) that influence consumer behaviour (Griffith et al., 2021). Having only common-sense understanding about health-related behaviour is insufficient and can often lead to counterproductive and wasteful initiatives (Ibrahim et al., 2018). An infamous example can be seen in the efforts to control tobacco, where there was acceptance of the common-sense idea that "low tar" cigarettes meant low risk. This was based on a failure to recognise that

smoking is primarily a means of ingesting nicotine and that consumers would increase their use of low-tar products to obtain their desired level of nicotine intake (Mercincavage et al., 2020). Misconceptions also emerged in the handling of the COVID-19 pandemic (Fisher et al., 2020). For example, the common-sense idea that locking down too early may lead to behavioural fatigue and widespread non-compliance was later invoked in the UK to justify the catastrophic delay of lockdown and social distancing measures in the UK (Hahn et al., 2020). Dyer (2021) states that there is a common-sense perception among consumers that it is acceptable to delay getting vaccinated, and monitor the vaccine consmption results on other consumers for a certain period, however, this may lead to negative behaviour and vaccine hesitancy. This perception has led to more waves of disease affecting unvaccinated and vulnerable people across the globe, including children.

Social marketing initiatives have demonstrated remarkable success in various consumer health domains, including tobacco control (Almestahiri et al., 2017), alcohol control (Buyucek et al., 2018), HIV testing and prevention (Olawepo et al., 2019), influenza vaccines (Marshall, 2013), and numerous others. These initiatives have been instrumental in saving hundreds of thousands of lives annually worldwide (Hefler et al., 2020; Michie & West, 2020). Furthermore, researchers have advocated for the use of social marketing to promote vaccine awareness among consumers and address negative perceptions surrounding vaccination (Evans & French, 2021; Volpp et al., 2021). The intention to influence specific behaviours for positive outcomes has been extensively explored through social marketing concepts (Issock et al., 2020; Nguyen et al., 2021; Wong et al., 2020). However, while these studies shed light on the relationship between consumer behaviour and intention, they often overlook the significant role of positive emotions. It is increasingly recognised that emotions play a crucial role in decision-making processes that cannot be disregarded (Ibrahim et al., 2018; Mazzocco et al., 2019; Shepard & Levy, 2019). Therefore, understanding consumer

perceptions about vaccines, the emotional mechanisms associated with those perceptions, and how positive emotions can drive behavioural changes within the population are essential areas of research.

1.4.1 Social Marketing Benchmark Criteria

As a branch of marketing, social marketing draws on contemporary commercial marketing theory and practice to facilitate social change campaigns (Dan, 2010). The core elements of social marketing practice have been defined through various benchmark criteria established by scholars such as Andreasen (2002) and French and Blair-Stevens (2005). These criteria aim to categorise the essential components of social marketing interventions to distinguish them from other forms of social interventions. The key aspects highlighted by these benchmark criteria are (1) behaviour, (2) consumer orientation, (3) theory, (4) insight, (5) exchange, (6) competition, (7) segmentation, and (8) methods mix (Ryan et al., 2022). This research employs elements one, three, and four of these social marketing benchmarking criteria. They each play a crucial role in shaping the research and identifying the antecedents to vaccine use.

First, this research delves into the factors that drive actual behaviour, particularly in relation to vaccine use. Instead of solely highlighting the significance of vaccine-related knowledge, attitudes, perceptions, or intentions, the focus is on uncovering the underlying factors that prompt consumers to use vaccines. This research aims to investigate the precursors or triggers that lead to tangible actions, such as getting vaccinated, rather than solely concentrating on consumer beliefs or intentions.

Second this research integrates behavioural theories such as the theory of planned behaviour (TPB) and the health belief model (HBM) to gain deeper insights into the factors that influence vaccine use and to inform the design of effective intervention strategies.

Behavioural theories provide valuable frameworks for understanding the psychological processes that underlie consumer decision-making and behaviour change (Ajzen & Schmidt, 2020). By drawing on theories such as the TPB and the HBM, this research seeks to identify the key determinants of vaccine use. The constructs are perceived emotional value of vaccines, perceived social value of vaccines, perceived price value of vaccines, perceived quality value of vaccines, consumer hope, self-efficacy, the intention to use avaccine, implementation intention to use a vaccine, and actual behaviour (vaccine use). These insights guide the development of tailored messaging and interventions that resonate with the target audience and address their unique concerns, which increases the likelihood of behaviour change.

Last, this research identifies actionable insights that are derived from consumer research to drive social change through the rigorous data collection methods of surveys and experiments to gain a deep understanding of the underlying emotional mechanisms that drive vaccine intentions and behaviours. Specifically, it identifies consumer hope as an actionable insight that drives consumer intention to use a vaccine. These actionable insights provide valuable guidance for crafting persuasive messaging and intervention strategies that resonate with the target audience on an emotional level. This research aims to evoke strong emotional responses that encourage consumers to prioritise vaccination by pinpointing emotional drivers such as hope.

By integrating elements one, three, and four of the social marketing benchmarking criteria, this research adopts a comprehensive approach for identifying the key drivers of vaccine use and focuses on influencing specific behaviours by utilising behavioural theories to inform intervention design and leveraging actionable insights to develop emotionally resonant strategies that drive meaningful behaviour change.

1.5 Research Gap

Despite widespread vaccination campaigns worldwide and significant funding, many vaccination programs have struggled to meet their aims and targets (Davis & Shah, 2019; Grigore et al., 2018; Maffeo et al., 2020). While past research has shed light on behavioural drivers and vaccine usage, to the best of our knowledge, none has delved into the psychological mechanisms that guide consumer intentions and behaviours toward vaccination. For instance, Nowak et al. (2015) used social and commercial marketing principles to explore vaccine hesitancy and emphasised the importance of consumer perceptions in shaping behavioural change and health outcomes; however, they overlooked emotions. Similarly, Evans and French (2021) examined consumer attitudes, beliefs, knowledge, and awareness about COVID-19 vaccines. Sonawane et al. (2021) focused on consumer perceptions and advocated for robust social marketing campaigns but also overlooked emotional factors. Fadda et al. (2020) stressed the need for strong social marketing to combat vaccine misinformation.

Therefore, despite the noteworthy contributions of researchers in the fields of social marketing (Fadda et al., 2020; Michie & West, 2020; Nowak et al., 2015; West et al., 2020), there remains a paucity of studies that have investigated the emotional mechanisms, particularly positive emotions such as hope, when addressing pandemics and vaccines. Also, while there has been some research that has primarily concentrated on direct initiatives like vaccine development and storage, less attention has been given to the effectiveness of emotional mechanisms such as hope (Bok et al., 2021; Bradley et al., 2021; Cohen, 2020; Mills & Salisbury, 2021; Yang et al., 2020).Thus, a notable gap in the literature underscores the need to investigate the emotional drivers of intentions and behaviours concerning

vaccines within the population. Such research would clarify the complex relationship between perceptions, intentions, and specific behaviours like vaccine use. A systematic literature review (SLR) is conducted in Chapter 2 that comprehensively highlights these gaps in the context of vaccines.

1.5.1 Value Perceptions, Hope, and Consumer Decision-making

Positive emotions have attracted significant attention from researchers due to their profound influence on various aspects of human behaviour, including consumer decision-making. These studies have examined a range of positive emotions, such as happiness (Barbosa, 2017), joy (Demo et al., 2019), gratitude (Kim & Park, 2020), contentment (Gupta et al., 2020), and hope (Maartensson & Loi, 2022), to understand their impact on consumer decision-making behaviour. Hope emerges as a particularly influential emotion among these positive emotions, as it plays a major role in consumer decision-making during times of adversity (Liu et al., 2021), such as pandemics and epidemics.

Happiness, which is often regarded as a central positive emotion, has been extensively researched in consumer behaviour (Cuesta et al., 2023; Dutta & Mandal, 2021; Wang et al., 2019). It has a positive impact on various consumer outcomes. For instance, research by Barbosa (2017) suggests that happiness is associated with increased product evaluations, higher purchase intentions, and greater consumer satisfaction, which means that when consumers experience positive emotions such as happiness, desire, and joy they are more likely to have favourable attitudes towards products or services and are more willing to make a purchase. However, in the context of adversity, such as an epidemic or pandemic, hope emerges as a distinct emotion that significantly impacts on consumer decision-making processes (Huang et al., 2019). Howell and Sweeney (2020) highlight the unique role of hope in navigating uncertain and challenging situations. They further state that during times of

crisis, consumers often experience heightened uncertainty and anxiety, which makes them more susceptible to negative emotions. In such circumstances, hope acts as a beacon of positivity and provides individuals with a sense of optimism and a belief in the possibility of a better future.

Research also suggests that hope plays a significant role in consumer decision-making during epidemics and pandemics. These studies emphasise that hope can lead individuals to engage in proactive behaviours and make choices that are aligned with their desired positive outcomes (Howell & Sweeney, 2020; Huang et al., 2019; Maartensson & Loi, 2022). For example, during a pandemic, consumers may look for products or services that offer a sense of hope and security, such as healthcare products, wellness items, or safety measures. This optimistic outlook influences their evaluations and choices and drives them towards options that provide protection and well-being. While the importance of hope in consumer decision-making during adversity is acknowledged (Huang et al., 2019; Waters et al., 2021), the specific relationship between positive emotions like hope and consumer behaviour in the context of vaccines remains relatively unexplored. Almokdad et al. (2022) highlight the need for further research to better understand the mechanisms through which positive emotions, particularly hope, influence consumer decision-making during times of pandemic and epidemic.

As the global pandemic stabilises (WHO, 2022), it becomes increasingly important to understand how value perceptions about vaccines influence consumer emotions, particularly hope, and how hope further influences consumer intentions and behaviours to get vaccinated. While previous studies have examined these constructs separately, including value perceptions (Bokemper et al., 2021; Dixon, 2020; Fylkesnes et al., 2021), hope (Chou & Budenz, 2020; Feldman & Kubota, 2015; Pleeging & Burger, 2020), and intentions related to

vaccination (AlShurman et al., 2021; Nguyen et al., 2021), none has focused on exploring the interrelationship between these constructs including actual behaviour. In light of this research gap, hope can serve as an essential explanatory mechanism for understanding how the perceived value of vaccines contributes to developing intentions and actual behaviours related to vaccine use. Figure 1.1 visually illustrates the identified gap.

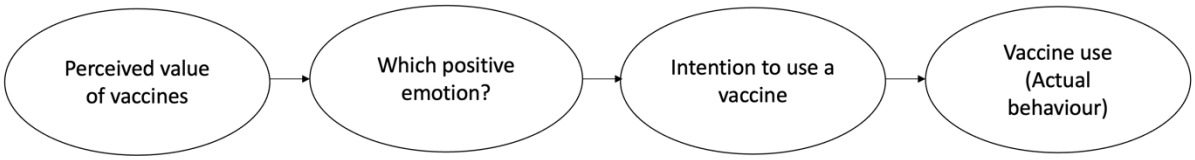


Figure 1.1: Identifying the gap

The gap identified in the figure 1.1 points to a lack of comprehensive understanding regarding how positive emotions influence both the intention to vaccinate and actual vaccine use. This research aims to address the gap by exploring the role of consumer hope and perceived value of vaccines as key constructs driving vaccination outcomes.

1.6 Research Questions

In line with the research gap presented above, this study addresses the following primary research question:

- How do psychological mechanisms develop and influence consumer intentions and behaviours to use vaccines?

The secondary questions are:

- Does consumer hope mediate the relationship between the perceived value of vaccines and the intention to use a vaccine?
- Does self-efficacy moderate the relationship between consumer hope and the intention to use a vaccine?
- Does the intention to use a vaccine mediate the relationship between consumer hope and vaccine use (actual behaviour)?
- Does implementation intention to use a vaccine mediate the relationship between the intention to use a vaccine and vaccine use (actual behaviour)?

1.7 Overview of Research Methods

This research employs a multi-method approach that comprises four experiments (Study 1) and a survey (Study 2) to thoroughly evaluate the conceptual framework depicted in Figure 3.1 in Chapter 3. The outcomes of these experiments are succinctly summarised in Chapter 4 and shed light on the empirical validation of the proposed model. After establishing causality through the experiments, the research adopts a two-phase structural equation modelling (SEM) approach that aligns with the methodology outlined by Gerbing and Anderson (1988) to delve deeper into the model's assessment.

Furthermore, this research integrates the fsQCA (fuzzy-set qualitative comparative analysis) method into its analytical toolkit. The fsQCA complements traditional statistical methods like t-tests and SEM by offering a nuanced understanding of causal relationships within the model. The fsQCA is particularly valuable for unravelling complex, non-linear relationships among variables, as it allows for the identification of various pathways that lead to desired

outcomes (Mendel & Korjani, 2018). By conducting a thorough analysis of diverse combinations of causal conditions, it provides insights into how different factors interact to produce particular outcomes (Pappas & Woodside, 2021). This method enriches the research by offering a comprehensive understanding of the multifaceted relationships among variables, which contributes to a more holistic interpretation of the conceptual framework.

1.8 Research Contributions

1.8.1 Theoretical Contribution

Given the evidence that psychological mechanisms such as perceptions (Bokemper et al., 2021), mood (Sar & Rodriguez, 2019; Karimi & Liu, 2020), and emotions (Chou & Budenz, 2020) impact on consumer preferences, choices, and consumption decisions, it is crucial, particularly from a social marketing perspective, to comprehend the emotional drivers that impact on vaccine consumption (Luz et al., 2019; Capasso et al., 2021; Mayer et al., 2021). Understanding the psychological factors that drive consumers to make decisions about vaccination is vital for designing effective interventions and strategies to promote vaccine use. In this context, this research significantly contributes by presenting a consumer hope model. While previous studies have focused on negative emotions such as fear, anxiety, guilt, and anger (Nicola et al., 2020; WHO, 2020; Yu et al., 2011), the inclusion of consumer hope as a mediating factor provides novel insights into the positive emotions that can motivate consumers to engage in vaccine-related behaviours. By considering hope as a central component, this research extends the understanding of the emotional drivers of vaccine use and their impact on consumer intentions and behaviours.

Furthermore, this research explains the relationships between the study constructs that influence consumer decisions to use vaccine. These include perceived value of vaccines, consumer hope, self-efficacy, intention to use a vaccine, implementation intention to use a

vaccine, and vaccine use (actual behaviour). Perceived value of vaccines encompass emotional, social, price, and quality dimensions, collectively reflecting consumers' evaluation of the value associated with vaccines. By presenting a conceptual framework of consumer hope in the vaccine context, this research provides a comprehensive understanding of the factors that shape consumer intentions and ultimately translate them into vaccine use (actual behaviour).

1.8.2 Practical Contribution

This research offers valuable insights for social marketers and healthcare professionals by highlighting the significant roles of consumer hope, perceived value, and implementation intention in shaping vaccine-related behaviours. The findings emphasise that fostering consumer hope through culturally sensitive and emotionally resonant messaging can enhance vaccination uptake. Social marketers can also integrate these insights into vaccine promotion strategies by addressing the behavioural processes that influence consumers' follow-through.

Strategies focused on implementation intention, can encourage consumers to develop concrete plans for vaccination, such as selecting a specific date, time, and location. In areas where vaccine availability is not the issue but uptake remains low, it is essential to identify and address barriers that prevent consumers from acting on their intentions. These may include logistical challenges, lack of transportation, or limited awareness of local services. Addressing these barriers through targeted initiatives, such as providing transportation to vaccination centres, offering extended clinic hours, and ensuring appointment flexibility, can be particularly effective in socioeconomically disadvantaged and remote regional areas where access to healthcare services is limited (Askew et al., 2023; Bhatt et al., 2023; Leibowitz et al., 2021; Zhong et al., 2021).

Social marketers can also draw on the findings by shaping the perceived value of vaccines across emotional, price, and quality dimensions. This includes disseminating accurate information about vaccine safety and benefits, addressing concerns around cost, and enhancing confidence in vaccine quality. For instance, storytelling campaigns that feature real-life experiences of consumers from diverse backgrounds can help build emotional value and stimulate hope. Providing free vaccination clinics and transportation assistance, and sharing multilingual information through trusted media outlets such as community radio and ethnic newspapers, can address price-related concerns and make the vaccination process more accessible. To strengthen perceptions of vaccine quality, collaboration with multilingual pharmacies and healthcare centres, as well as the organisation of culturally appropriate information sessions led by healthcare professionals from diverse backgrounds, can be effective. Engaging community leaders and organisations can also enhance trust and support vaccine acceptance, particularly among culturally and linguistically diverse communities. These practical strategies, grounded in the research findings, have the potential to increase vaccination rates and support improved vaccine promotion and social marketing outcomes.

1.9 Thesis Structure

The proposed thesis is structured into six chapters.

Table 1.1: Structure of the thesis

Chapters	**Context**
Introduction	Background, research gaps, research questions, overview of methods, overview of theoretical and practical contributions
Systematic literature review	Comprehensive review of relevant literature on vaccine hesitancy, emotional and cognitive drivers, theoretical frameworks, and identification of gaps

Chapters	Context
Theory and hypotheses development	Development of conceptual framework based on literature insights; explanation of constructs; formulation of research hypotheses
Methodology	Research paradigm, methods of research, questionnaire design, sampling, survey soft launch, ethics
Analysis and results	Structural equation modelling (SEM), fsQCA (fuzzy-set Qualitative Comparative Analysis), t-test
Conclusion and implications	Theoretical contributions, managerial and social implications

CHAPTER 2 : SYSTEMATIC LITERATURE REVIEW

This chapter presents a systematic literature review (SLR) focused on exploring the conceptualisation of emotions within the vaccine context. Utilising the theory-context-characteristics-methods (TCCM) approach by Paul and Criado (2020), this structured method systematically examines the characteristics of the studies, including the theories, contextual factors, and methodologies employed in the existing literature. The chapter begins with an introduction that sets the background and importance of SLR in social marketing, leading to a clear statement of the review objective. Then, it delves into the theories utilised by the researchers. Then, it presents an overview of the included studies, highlighting key characteristics, contextual factors, and methodologies utilised in the existing literature. In the results section, the findings are synthesised, compared, and analysed, offering insights into the implications for understanding emotions in the vaccine context and the gaps in the literature, along with a reflection on the limitations of the SLR and suggestions for future research directions.

2.1 Growing Significance of Systematic Literature Review in the Field of Social Marketing

Systematic literature reviews (SLR) are vital tools in social marketing, as they facilitate evidence-based decision-making, promote best practices, and advance the field's academic discourse (Delvaux & Van den Broeck, 2023). SLRs hold a prominent position in the area of social research, and are widely regarded for their rigorous methodology and comprehensive approach to synthesising existing knowledge (Gopalakrishnan & Ganeshkumar, 2013). In the context of the social marketing field, these reviews serve multiple crucial purposes. First, they play a fundamental role in documenting program effectiveness. By systematically aggregating and analysing a vast array of studies, systematic reviews offer valuable insights

into the success and impact of various social marketing initiatives. This information is invaluable for practitioners and policymakers who are designing evidence-based interventions (Rietveld & Schilling, 2021). Second, systematic literature reviews shed light on current strategies and practices. They help identify trends, gaps, and emerging themes in the field, which enables researchers to stay updated with the latest developments and refine their strategies accordingly (Adil et al., 2022). Third, these reviews assess the academic landscape of the discipline by providing a comprehensive overview of existing research. They help to identify key contributors, seminal works, and areas that require further exploration (Paul & Criado, 2020).

Social marketing has experienced rapid growth, as evidenced by Truong et al. (2015). Consequently, there has been a growing recognition among researchers and practitioners of the need for systematic literature reviews. These reviews serve multifaceted purposes that encompass the demonstration of the effectiveness of social marketing interventions, the examination of prevailing strategies and practices, and an evaluation of the academic landscape within this discipline (Truong et al., 2015). Notably, these reviews exhibit a shared methodological approach that draws extensively from academic literature and applies Andreasen's seminal framework (Dietrich et al., 2022). By adhering to this structured approach, systematic literature reviews offer a comprehensive evaluation of social marketing initiatives and ensure methodological rigour in study selection and analysis (Truong & Dang, 2017). Consequently, these reviews contribute substantively to the refinement and progression of social marketing, which enables the discipline to address contemporary societal challenges more effectively through evidence-based insights and strategies (Delvaux & Van den Broeck, 2023).

2.2 Review Objectives

This systematic review has three main objectives. Firstly, it aims to explore how studies have conceptualised emotions in the context of vaccines. Secondly, it seeks to discuss how the identified studies compare to the wider literature on emotions related to vaccine decisions. Lastly, the review investigates how emotions in vaccine research have been studied by exploring the methodologies used. By addressing these objectives, the review aims to enhance our understanding of the connection between emotions and other constructs regarding vaccine consumption and contribute valuable insights into the academic discourse in the field of social marketing. This study employs the TCCM approach to synthesise the existing literature on emotions within the vaccine context. TCCM facilitates a comprehensive examination of theory and context-driven advancements, the development of constructs for hypothesis development, and the evolution of methodologies within the literature over the years. By leveraging the TCCM method recommended by Paul and Criado (2020), this study not only contributes to a deeper understanding of widely employed theories but also proposes future research agendas to enhance theory development within the research domain.

2.2.1 Existing Evidence on Emotions and Vaccines

In line with researcher's recommendations (Adil et al., 2022; Palmatier et al., 2018; Snyder, 2019) an extensive search across the major databases of Google Scholar, PubMed, PsycINFO, SAGE, ScienceDirect, Scopus, Taylor and Francis, Web of Science, and Wiley Online Library was performed to establish the existence of any SLR that focuses on different types of emotions in the vaccine domain. These databases were selected because of their comprehensive coverage of the academic literature across various disciplines relevant to the study's topic. Google Scholar was included due to its vast coverage of scholarly articles from diverse sources, which would ensure a broad search scope. PubMed was chosen for its

specialisation in biomedical and life sciences, making it particularly relevant for vaccine-related research. PsycINFO was included to capture studies that focused on psychological aspects, including emotions, related to vaccination. SAGE, ScienceDirect, Scopus, Taylor and Francis, Web of Science, and Wiley Online Library were selected for their wide-ranging coverage of scholarly journals across multiple disciplines, which would provide access to a diverse array of research on emotions and vaccines. By searching across these databases, the study aimed to identify a comprehensive range of existing systematic literature reviews (SLRs) that specifically focused on different types of emotions within the vaccine domain, which ensured a thorough exploration of the available literature on the topic. The search revealed an absence of a specific SLR on the nominated research objectives; however, eight review-based papers were found that addressed related themes, predominantly on factors that influence vaccine consumption and hesitancy, as outlined in Table 2.1.

Table 2.1: Existing literature reviews on emotions in the context of vaccine consumption

Author	Review type	Review scope	Number of papers included	Publication outlet
Truong et al. (2022)	SLR	Factors promoting vaccine hesitancy	28	Health promotion International
Alamoodi et al. (2021)	SLR	Sentiment analysis on context of vaccine hesitancy	33	Computers in Biology and Medicine
Xiao and Wong (2020)	Meta analysis	Predictors of vaccine intentions	17	Vaccine
Smith et al. (2017)	SLR	Role of negative emotions in vaccine uptake	68	Vaccine
Payberah et al. (2022)	SLR	Factors associated with COVID-19 vaccine hesitancy	15	Journal of the Egyptian Public Health Association
Bish et al. (2011)	SLR	Factors associated with uptake of flu vaccine	37	Vaccine
Olson et al. (2020)	SLR	Key determinants of vaccine hesitancy	75	Vaccines

Author	Review type	Review scope	Number of papers included	Publication outlet
Roy et al. (2022)	SLR	Factors influencing COVID-19 vaccine uptake and hesitancy	47	PLOS ONE

2.3 Study Selection, Inclusion, and Exclusion

As recommended by Tawfik et al. (2019), when initiating the preliminary research it is advised to identify relevant articles, validate the proposed idea, prevent duplication of previously explored questions, and ensure an adequate number of articles for analysis. Additionally, thematic considerations should prioritise significant social marketing issues, align with global needs and values, reflect contemporary knowledge, and adhere to the chosen review methods. Acquiring a profound understanding of the study field through relevant videos and discussions is also crucial for improving result retrieval (Tawfik et al., 2019).

To align with prior SLRs, such as those conducted by Adil et al. (2022) and Roy et al. (2022), this study meticulously curated a selection of research articles from various databases mentioned later in the chapter, adhering to well-defined exclusion and inclusion criteria. The criteria encompassed the necessity for articles to be (a) published in English, (b) scholarly in nature, and (c) published in peer-reviewed journals. Moreover, stringent quality and impact standards were applied that required the selected articles be published in journals classified as 'A' or above in the ABDC journal quality list, have an impact factor of 3 or higher according to the 2022 Journal Citation Report, be at least in Quartile 2 (Q2) or higher, and have an H index of 20 or more. Additionally, the temporal scope was limited to studies published within the last 20 years, specifically from 2002 onwards. The selection of 2002 as the baseline year reflects the increasing academic attention towards pandemic preparedness and vaccine communication following global health crises such as the 2002 SARS outbreak (Abraham,

2011; Sharfstein et al., 2020). This period also marked the early integration of behavioural and emotional theories into health promotion and social marketing literature, which is central to this study's conceptual framework (Donovan, 2011; Cho & Salmon, 2007). This methodical approach ensured that the review encompassed recent, high-calibre, and impactful research findings within the designated field, which ensured that the review would contribute to a comprehensive understanding of the subject matter (Adil et al., 2022).

2.3.1 Search Strategy

To ensure a comprehensive and focused literature review, a systematic search strategy was developed. In line with the SLRs like Adil et al. (2022) and Roy et al. (2022), process began with a preliminary exploration using Google Scholar to identify commonly used terms in existing literature related to emotions and vaccination. This exploratory phase helped uncover frequently used keywords and core conceptual themes, allowing for refinement of the search terms. Drawing on these insights, a set of primary keywords was constructed around central themes such as "emotions and vaccinations," "emotions and immunisation," "emotions and vaccine attitudes," "emotions and vaccine marketing," and "emotions and vaccine decision."

These terms were deliberately selected to reflect both the emotional and behavioural dimensions associated with vaccination, which are central to the focus of this study. To ensure inclusivity and maximise search coverage, Boolean operators and truncation techniques were applied. This included variations such as *vaccin*, *immunis*, *immuniz*, *emotion*, *attitude*, *awareness*, *behavio*, *belie*, *intent*, and *decisio*. Synonyms and alternative spellings (e.g., "immunisation" vs. "immunization") were also considered to capture studies across regional language variations. Following the approach of SLRs such as Adil et al. (2022) and Roy et al. (2022), once the keyword set was finalised, the search was extended to databases including Scopus, PubMed, Web of Science, EBSCOhost, and ProQuest. These databases

were selected for their relevance to the fields of social marketing, consumer health, health promotion, psychology, and public health. Subject headings and controlled vocabularies (e.g., MeSH terms in PubMed) were adapted in each database to refine the search results.

Following the search, titles and abstracts were screened against the inclusion and exclusion criteria. From this process, 27 articles were selected for full-text review. An additional two studies were identified through backward and forward citation tracking, bringing the total number of eligible studies to 29. The overall search process, including identification, screening, eligibility, and inclusion, is illustrated in the PRISMA flow diagram (Figure 2.1), adapted from Moher et al. (2009). For detailed information on each included study, see Table 2.3 later in this chapter.

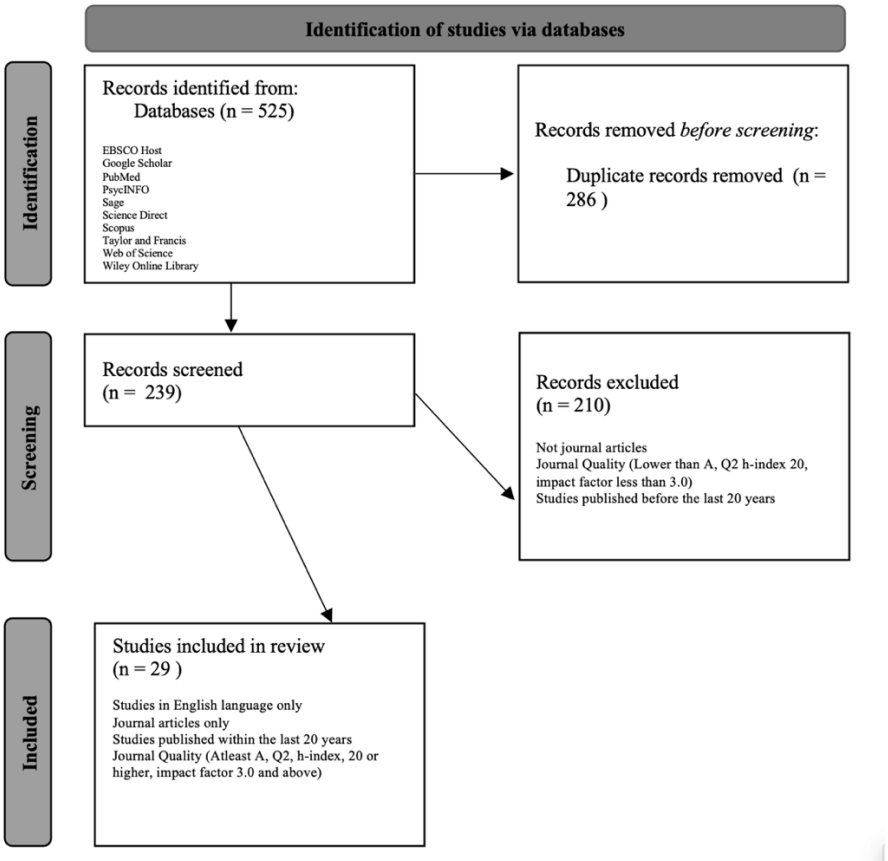


Figure 2.1: PRISMA flowchart showing study identification, screening, and inclusion process. Adapted from Moher et al. (2009).

2.3.2 Publication Journals

This study examined data based on various publication outlets. As depicted in Table 2.2, a comprehensive analysis revealed that 19 distinct journals have contributed research papers relevant to the theme of this SLR. Scholars have published diverse topics encompassing social marketing, health marketing, health communication, health promotion, behaviour management, and psychology journals. The findings indicate that *Health Communication* and *Social Science and Medicine* emerge as having the most publications on the research subject of this SLR, each boasting three articles on emotions in the vaccine context. Following closely are *Frontiers in Psychology*, *Journal of Health Communication*, *Human Vaccines and Immunotherapeutics,* and *Vaccine*, which have two publications on the subject matter. This detailed breakdown sheds light on the distribution of scholarly contributions across various journals, providing valuable insights into the research within the specified domain.

Table 2.2: Journals included in the systematic literature review

No.	Journal	Quality ranking	Number of studies published
1.	*Health Marketing Quarterly*	h-index 30	1
2.	*Frontiers in Psychology*	Q2	2
3.	*Health Psychology*	Q1, Impact factor 9.8	1
4.	*PLOS ONE*	Q1, Impact factor 3.7	1
5.	*Health Communication*	Q1, Impact factor 3.9	3
6.	*Social Psychological and Personality Science*	h-index 82, Impact factor 5.3	1
7.	*Social Science and Medicine*	Impact factor 5.3	3
8.	*Journal of Health Communication*	Q1, Impact factor 4.4	2
9.	*Epidemiology and Infection*	Q1, h-index 119	1
10.	*Vaccine*	Q1, Impact factor 6.2	2
11.	*Vaccines*	Q1, Impact factor 7.8	1
12.	*Human Vaccines and Immunotherapeutics*	Q1, Impact factor 4.8	2
13.	*European Psychiatry*	h-index 106	1
14.	*Journal of Health Psychology*	h-index 98, Impact factor 3.6	1

No.	Journal	Quality ranking	Number of studies published
15.	*Journal of Behavioural Medicine*	Impact factor 3.1	1
16.	*Personality and Individual Differences*	h-index 193	1
17.	*Journal of Personalized Medicine*	h-index 41	1
18.	*Public Health in Practice*	Q2	1
19.	*Patient Education and Counselling*	h-index 155	1
20.	*Communication Research*	h-index 118, Impact factor 6.2	1

2.4 Theories Employed

Understanding health behaviours requires theories to explain how individuals can change their behaviour. Vaccine behaviour is influenced by various factors that depend on the context and behaviour itself (Capasso et al., 2021). Examples of these factors include knowledge, attitudes, norms, and self-efficacy (Hossain et al., 2021, Zartaloudi, 2022). Just educating people about vaccination benefits is not enough to increase vaccine acceptance; emotional factors also play a significant role (Mayer et al., 2021). Researchers have utilised diverse theoretical frameworks to explore the influence of emotions on consumer vaccine decisions over the past two decades. These include the theory of motivated information management, the TPB, the vaccine hesitancy theory, and the cognitive load theory. Studies included in this SLR have also explored the HBM, the terror management health model, the planned risk information-seeking model, and the protection motivation theory. More theories employed by the included articles are the prospect theory, the expected utility theory, the evolutionary theory, and the extended parallel process model. Notably, approximately 17.8 percent of studies used the TPB as their overarching framework. Additional information regarding the specific theories addressed in each paper can be found in Table 2.3. This range

of theoretical perspectives emphasises the complex and interdisciplinary nature of studying emotions in the context of vaccines to promote social marketing initiatives.

The core concept within the TPB revolves around behavioural intentions, which are consumers' willingness to engage in a specific behaviour. As highlighted by Paul and Patel (2016), behavioural intentions demonstrate a strong ability to forecast real-world behaviour. This theory finds extensive application in social marketing and consumer psychology. According to the TPB proposed by Ajzen and Fishbein (Fishbein, 1980), key determinants of consumer intentions encompass attitude, subjective norms, and perceived behavioural control, which ultimately influence subsequent actual behaviours. Along with the help of the TPB variables, researchers (Capasso et al., 2021; Chu & Liu, 2021; Seddig et al., 2022; Wismans et al., 2021; Wolff, 2021; Wong & Yang, 2022) integrate emotions to explain consumer vaccine decisions.

A study conducted by Wolff (2021) explored consumer intentions to receive a COVID-19 vaccine and sought to identify the factors that influence these intentions. In this study, a representative sample of the Norwegian population participated in an online survey to assess the key components of the TPB of attitudes, subjective norms, and perceived behavioural control. Additionally, the survey investigated optimistic bias and anticipated regret. The findings revealed that a significant majority (61.6%) of the participants expressed an intention to receive the COVID-19 vaccine. Importantly, the study demonstrated that anticipated regret played a crucial role in predicting these intentions, alongside positive attitudes toward vaccination, favourable subjective norms, and perceived behavioural control. The incorporation of anticipated regret into the framework of the TPB underscores the importance of emotional factors in understanding and influencing vaccine intentions, which

emphasises the need for a more comprehensive approach that considers both rational and emotional components in social marketing messaging and interventions.

2.5 Study Characteristics and Descriptives

This research explores journal articles that investigated the role of psychological factors, predominantly emotions, in the vaccination domain. The inclusion of selected articles that primarily focused on emotions is justified by the need for a comprehensive understanding of the complex interrelationships outlined in the objectives of this SLR. This approach enhances the depth and richness of the SLR and allows for a more robust analysis of the factors that shape consumer decisions (Adil et al., 2022). A detailed breakdown of the included studies can be found in Table 2.3, including the author's name, article title, publication year, and journal name. By thoroughly examining these journal articles, this research contributes to a nuanced understanding of the emotional dimensions within the vaccine context and paves the way for future research in this crucial area of study.

Table 2.3: Overview of studies included in this SLR

Author	Year	Journal	Study Type	Emotional constructs	Vaccine	Theories discussed	Region	Methods
Chapman and Coups	2006	Health Psychology	Quantitative	Anticipated worry, anticipated regret	Influenza	-	USA	Survey
Renner and Reuter	2012	Vaccine	Quantitative	Worry, fear	Influenza	-	Germany	Survey
Christy et al.	2016	Journal of Behavioural Medicine	Quantitative	Anticipated regret	HPV	Health belief model	USA	Survey
Carcioppolo et al.	2017	Communication Research	Quantitative	Guilt, fear	HPV	Fear-appeal framework	USA	Experiment
Clay	2017	Social Psychological and Personality Science	Quantitative	Disgust	General	Evolutionary theory	USA	Survey
Luz et al.	2019	Epidemiology and Infection	Quantitative	Disgust	Influenza	-	USA	Survey
Sar and Rodriguez	2019	Health Marketing Quarterly	Quantitative	Mood	Influenza	Mood congruency theory	UK	Experiment
Chou and Budenz	2020	Health Communication	Commentary	Altruism, fear, anxiety, shame	COVID-19	NA	NA	NA

Author	Year	Journal	Study Type	Emotional constructs	Vaccine	Theories discussed	Region	Methods
Featherstone and Zhang	2020	Journal of Health Communication	Quantitative	Anger	MMR	Inoculation theory	USA	Experiment
Luong et al.	2021	Journal of Health Communication	Quantitative	Empathy	MMR	-	USA	Experiment
Capasso et al.	2021	Social Science and Medicine	Quantitative	Pride, regret	COVID-19	Theory of planned behaviour	Italy	Experiment
Burke et al.	2021	Vaccine	Quantitative	Altruism, collectivism	COVID-19	Health belief model	Australia, Canada, England, New Zealand, and the United States.	Survey
Mayer et al.	2021	Human Vaccines and Immunotherapeutics	Quantitative	Fear	COVID-19	-	Israel	Survey
Liu et al.	2021	Journal of Health Psychology	Quantitative	Fear, hope	HPV	-	China	Survey
Wismans et al.	2021	PLOS ONE	Quantitative	Optimism, impulsivity, confidence, collective responsibility, altruism	COVID-19	Theory of planned behaviour	Netherlands, Belgium and Portugal	Survey
Wolff	2021	Frontiers in Psychology	Quantitative	Anticipated regret	COVID-19	Theory of planned behaviour	Norway	Survey
Chu and Liu	2021	Patient Education and Counseling	Quantitative	Fear	COVID-19	Theory of planned behaviour. Health belief model. Extended parallel process model	USA	Survey
Cucciniello et al.	2022	Social Science and Medicine	Quantitative	Altruism	General	Vaccine hesitancy theory. Cognitive load theory	Italy	Experiment and survey
Adam et al.	2022	Human Vaccines and Immunotherapeutics	Quantitative	Hope	COVID-19	-	USA	Survey
Zartaloudi	2022	European Psychiatry	Literature review	General self-efficacy, optimism or subjective well-being	General	-	Greece	NA
Wei et al.	2022	Vaccines	Quantitative	Anxiety, depression, stress	COVID-19	Fear appeal theory	Sweden	Survey
Seddig et al.	2022	Social Science and Medicine	Quantitative	Fear, trust	COVID-19	Theory of planned behaviour	Germany	Survey
Scrima and Cardaci	2022	Personality and Individual Differences	Quantitative	Fear, anxiety	COVID-19	Terror management health model	France	Survey
Santirocchi et al.	2022	Journal of Personalized Medicine	Quantitative	Fear	COVID-19	Health belief model. Protection motivation theory	Italy	Survey

Author	Year	Journal	Study Type	Emotional constructs	Vaccine	Theories discussed	Region	Methods
Wong and Yang	2022	Journal of Health Communication	Quantitative	Anticipated regret	COVID-19	Prospect theory. Theory of planned behaviour	USA	Survey
Cato et al.	2022	Public Health in Practice	Quantitative	Altruism, shame	COVID-19	Expected utility theory	Japan	Survey
Volkman et al.	2023	Health Communication	Mixed method	Fear	MMR, influenza and pertussis	Theory of motivated information management. Theory of planned behaviour. Planned risk information seeking model	USA	Survey
Wang	2023	Health Communication	Quantitative	Anticipated guilt, hope	COVID-19	Health belief model	China	Survey
Holman and Popușoi	2023	Frontiers in Psychology	Quantitative	Fear	COVID-19	Protection motivation theory	Romania	Survey

This SLR meticulously examined 29 studies to gain comprehensive insights. The primary focus centred on the United States, which contributed significantly with 10 studies (see Table 2.3). Furthermore, a collective examination of Australia, Canada, England, and New Zealand revealed a single study from each country. Singular studies were also identified from France, China, Germany, Greece, Israel, Italy, Japan, the combined regions of the Netherlands, Belgium, Portugal, Norway, Romania, Sweden, and the United Kingdom (see Table 2.3). Notably, Italy stood out with three studies, while China and Germany each made substantial contributions with two studies (see Table 2.3). This thorough synthesis underscores the systematic approach that was applied in sourcing and analysing studies from diverse global contexts within the systematic review framework (Adil et al., 2022). Approximately 60 percent of the studies centred around COVID-19 vaccinations, with 30 percent focusing on influenza vaccines and 10 percent dedicated to adolescent human papilloma virus (HPV) vaccination. Surprisingly, only 1 percent of the studies specifically investigated the general vaccination context.

2.6 Factors that Impact on Vaccine Decisions

The field of social marketing has undergone a significant transformation, with a pronounced global emphasis on vaccine intentions becoming a key concern for achieving widespread immunisation (Zartaloudi, 2022). In this context, a comprehensive understanding of the diverse factors that influence consumer decisions regarding vaccines has become of paramount importance, particularly within the framework of social marketing strategies. The complex interplay of the cognitive determinants of attitudes, beliefs, and perceived risks, alongside emotional influences such as fear and regret, collectively explain the complex dynamics surrounding vaccine intentions (Cato et al., 2022; Chou & Budenz, 2020; Renner & Reuter, 2012; Wolff, 2021). Furthermore, the impact of sociodemographic variables and the role of trust in healthcare systems contribute substantively to the multifaceted considerations that guide consumer choices (Seddig et al., 2022; Wismans et al., 2021). An understanding of these factors is essential for informing targeted interventions and strategies within the domain of social marketing (Santirocchi et al., 2022).

2.6.1 Emotions in the Vaccine Context

Scholars have classified emotions as either positive (Capasso et al., 2021; Zartaloudi, 2022) or negative (Chu & Liu, 2021; Scrima & Cardaci, 2022). Positive emotions, including pride (Capasso et al., 2021), joy (Johnson, 2020), love, and happiness (Ahmad & Ahmad, 2023) have been a focal point for researchers. Conversely, negative emotions, such as guilt (Wang, 2023), disgust (Clay, 2017; Luz et al., 2019), fear (Chu & Liu, 2021; Santirocchi et al., 2022; Scrima & Cardaci, 2022; Volkman et al. 2023), shame (Cato et al., 2022), and regret (Christy et al. 2016; Wolff, 2021), have also received scholarly attention. A concise overview of these emotions is presented in the next section.

In the context of vaccines, emotions manifest in a spectrum that profoundly influences individual and collective responses. Negative emotions such as fear and shame often stem from concerns about potential side effects driven by misinformation or past negative experiences (Cato et al., 2022; Chu & Liu, 2021). Conversely, the act of vaccination can evoke relief and comfort, as consumers perceive it to be a proactive step towards safeguarding their health and that of their communities (Chou & Budenz, 2020). Trust and confidence play pivotal roles, with emotions tied closely to faith in the scientific process, healthcare professionals, and public health authorities (Wismans et al., 2021). Conversely, frustration and anger may accompany vaccine hesitancy, fuelled by misinformation or mistrust (Featherston & Zhang, 2020). Guilt or shame may be felt by those who miss opportunities to get vaccinated, which emphasises the emotional weight of individual choices (Carcioppolo et al., 2017; Chou & Budenz, 2020). Altruism emerges as individuals motivated by a sense of responsibility for public health contribute to herd immunity, protect vulnerable populations, and demonstrate global solidarity through their commitment to vaccination (Burke et al., 2021). Acknowledging and navigating this complex mechanism is vital for effective social marketing communication and the success of vaccination initiatives (Dasch et al., 2023).

While approximately 75 percent of the studies that are incorporated in this SLR have focused on examining the impact of negative emotions, it is noteworthy that only 25 percent have investigated the impact of positive emotions (see Table 2.3). This imbalance underscores the pressing need for more extensive research that explores the influence of positive emotions within the vaccine context. Understanding the role of positive emotions is crucial as it contributes to a comprehensive understanding of consumer vaccine decisions and provides valuable insights into fostering a more optimistic and proactive consumer response to vaccination efforts (Chou & Budenz, 2020).

2.6.2 Emotional Influences on Vaccine Intentions

Negative emotions, such as anger and anxiety, have been identified as significant factors that influence vaccine intentions (Chou & Budenz, 2020; Featherstone & Zhang, 2020). This phenomenon is particularly notable in the context of the COVID-19 pandemic, where individuals experiencing negative emotions are more inclined to accept the vaccine (Wei et al., 2022). Notably, disseminating vaccine misinformation can also evoke negative emotions, such as anger, which further impact on vaccination attitudes (Featherstone & Zhang, 2020). Moreover, disgust, another negative emotion, has been found to affect vaccine attitudes and uptake directly and indirectly (Luz et al., 2019). These findings underscore the intricate interplay between negative emotions and vaccine intentions, which emphasise the need for targeted strategies to address these emotions in vaccination.

Volkman et al. (2023) explored the impact of emotions, specifically fear and hope, on consumers' intentions to seek vaccine-related information. The study utilised separate models for fear and hope. The results revealed that fear did not significantly influence the inclination to seek vaccine information, while hope demonstrated a positive and noteworthy correlation. The researchers concluded that future investigations should delve deeper into the role of positive emotions in the vaccine context to enhance our understanding of this relationship. This finding underscores the significance of positive emotions such as hope, particularly within consumer vaccine behaviour.

In another study by Liu et al. (2021), which was conducted with a cohort of women from China, the researchers observed that using a story to convey information about HPV and the HPV vaccine heightened fear and increased concerns about the severity of HPV more than a non-story focused on facts. However, when the story lacked strong, personal effectiveness information, it also diminished feelings of hope, which led to a decreased intention to get the

HPV vaccine. A notable limitation of this study was its exclusive focus on female participants, which limited the generalisability of the findings. Furthermore, the study highlights a gap in our current understanding and emphasises the need for more research to ascertain how positive emotions like hope might motivate consumers to get vaccinated. While this study offers insights into how fear and hope influence the intention to get vaccinated, its scope was confined to intentions and did not encompass actual behaviours. Thus, future studies should aim to explore the connection between positive emotions and actual vaccination actions, which will provide a more comprehensive understanding of how consumers decide to use vaccination.

2.6.3 Emotions and Vaccine Advocacy

Vaccine advocacy is a multifaceted and proactive approach that is aimed at promoting the importance, safety, and benefits of vaccination within communities and broader society (Luong & Moyer, 2021). At its core, vaccine advocacy involves concerted efforts to influence consumer opinion, policies, and behaviours to support widespread immunisation against preventable diseases (Feemster, 2020). This advocacy extends to various levels, including the consumer and the community. At the consumer level, vaccine advocacy is established through informed individuals actively engaging in discussions, sharing accurate information, and dispelling myths or misinformation about vaccines. For example, consumers play a crucial role in influencing the perspectives of their peers, family members, or social circles and contributing to a culture that values and prioritises immunisation (Williams et al, 2020). At the community level, vaccine advocacy involves organised efforts to raise awareness and educate the public about the importance of vaccinations. Community-based campaigns, workshops, and events aim to reach diverse populations to address specific concerns, and they tailor messages to resonate with different demographics. Local organisations, healthcare providers, and community leaders often collaborate to establish vaccination clinics,

disseminate information, and provide resources that empower individuals to make informed decisions about their health (Luang & Moyer, 2021).

Moreover, research that has examined emotions in the vaccine context has significantly advanced our comprehension of their impact on vaccine advocacy. Luong et al.'s (2021) research demonstrates the efficacy of evoking empathy and elevation in vaccine messages, and it offers valuable insights into predicting positive vaccine advocacy responses. Chou and Budenz (2020) emphasise the importance of negative and positive emotions in addressing vaccine hesitancy and fostering confidence, and they stress the need to address fear and anxiety while activating emotions like altruism. Despite the contributions of these studies to understanding emotional responses in the vaccine context, it is crucial to acknowledge a research gap in knowledge about the direct impact that these emotions can have on actual consumer behaviour. Further research is imperative to bridge this gap and provide a more holistic understanding of how emotions influence consumer decisions and actions related to vaccination.

2.6.4 Emotional Dynamics in Vaccine Acceptance, Willingness, Attitude, and Behaviour

Vaccine intention and vaccine acceptance are distinct yet interconnected concepts. Vaccine intention is about consumers' commitment to receive a vaccine in the future and reflects a personal decision that may or may not translate into actual behaviour (Opoku et al., 2021). On the other hand, vaccine acceptance is a more encompassing term that extends beyond individual intention to embrace a broader perspective that considers the collective inclination of communities or populations to adopt vaccination (Wei et al., 2022). While high levels of vaccine intention among consumers contribute positively to overall vaccine acceptance, the latter considers not only consumer decisions but also societal attitudes, beliefs, and the

willingness of a community as a whole to embrace vaccination. It is important to note that while closely related, the terms intention and acceptance capture different facets of the complex landscape surrounding vaccines. Additionally, willingness can be seen as a factor that is shared between the two concepts, as it represents the readiness of consumers or communities to engage in vaccination. However, it is crucial to recognise that willingness may be nuanced and might not be identical between the two terms given their specific contexts within the vaccination discourse (Mayer et al., 2021).

Vaccine behaviour and attitude are distinct consumer responses to vaccines in the context of vaccination. Vaccine behaviour pertains to the observable actions individuals undertake about vaccination and encompass concrete behaviours such as receiving vaccines, adhering to vaccination schedules, or engaging in practices that impact on vaccine uptake (Chu & Liu, 2021). Conversely, vaccine attitude encapsulates consumers' subjective evaluations, beliefs, and emotional responses towards vaccines. It involves cognitive, affective, and behavioural components that reflect a comprehensive vaccine perspective (Clay, 2017). While attitude may significantly influence vaccine behaviour, the two concepts differ in their scopes, with vaccine behaviour specifically focusing on observable actions and vaccine attitude encompassing a broader range of perceptions and evaluations (Luz & Struchiner, 2019). A nuanced understanding of vaccine behaviour and attitude is essential for developing targeted social marketing strategies that effectively address individual beliefs, emotions, and actions regarding vaccination.

Among the 29 studies reviewed in this SLR, 18 centred on intention, with only 3 placing their focus on behaviour. The remaining studies explored various aspects, including willingness, attitude, advocacy, and acceptance.

2.7 Methods Employed

This SLR points out potential directions for future researchers in social marketing, particularly concerning how they study emotions within the vaccine context. The review highlights a strong preference for using numbers and statistics (quantitative approaches) to understand vaccine-related emotions. Surprisingly, 89 percent of all studies examined chose this method, while only 3 percent used a mix of different techniques, and the remaining 8 percent employed various other approaches (see Table 2.3). While it is crucial to explore different methods, such as quantitative or mixed methods (Liamputtong, 2020), it is noteworthy that the widely accepted quantitative approach has been the primary choice in these studies.

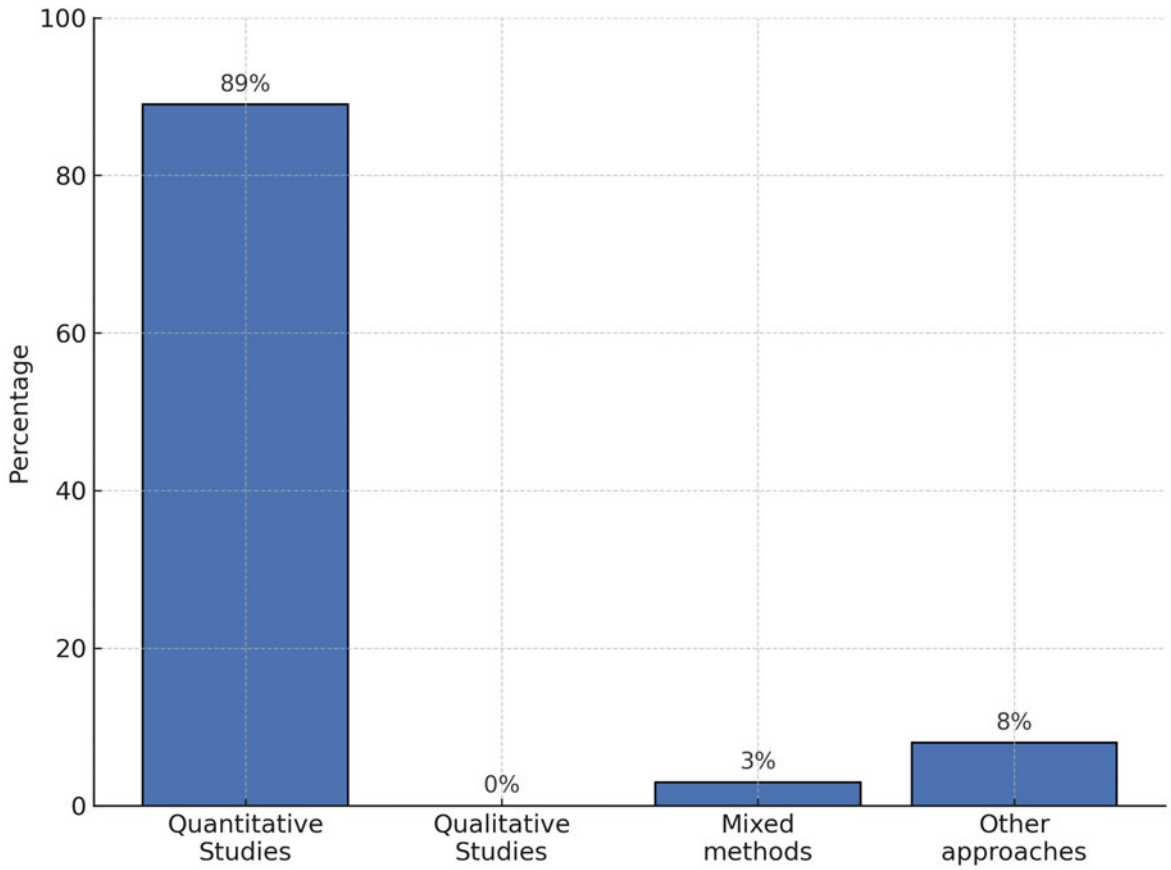


Figure 2.2: Overview of methods employed

Moreover, the SLR noted a prevailing trend amongst researchers to predominantly focus on investigating various specific vaccination contexts such as COVID-19, influenza, and MMR, as only three studies investigated emotions in general vaccination contexts (see Table 2.3). This gap underscores the need for future researchers to shift their focus to encompass a broader spectrum of vaccines. By directing attention to general vaccination contexts, researchers can contribute significantly to understanding consumer attitudes, emotions, and behaviours in general beyond specific vaccines. This SLR also noted a predominant trend among scholars to adopt a survey-based approach to investigate the influence of emotions in the vaccine context (see Table 2.3). Surprisingly, experiments have been largely overlooked in this domain, with only 6 out of the 26 quantitative studies incorporating experimental methods (see Table 2.3). This inconsistency underscores the need for a more balanced utilisation of research methods. Experiments offer a controlled environment where researchers can manipulate variables and observe the direct impact on emotions in a way that surveys alone cannot achieve (Zampetakis & Melas, 2021). As experimental designs provide a deeper understanding of causal relationships and contribute valuable insights into the dynamics of emotions within the vaccine context (Kerr et al., 2021), future research should consider incorporating experimental methods or a combination of survey and experiment to obtain a more comprehensive understanding of the role of emotions in consumer vaccine intention and behaviour.

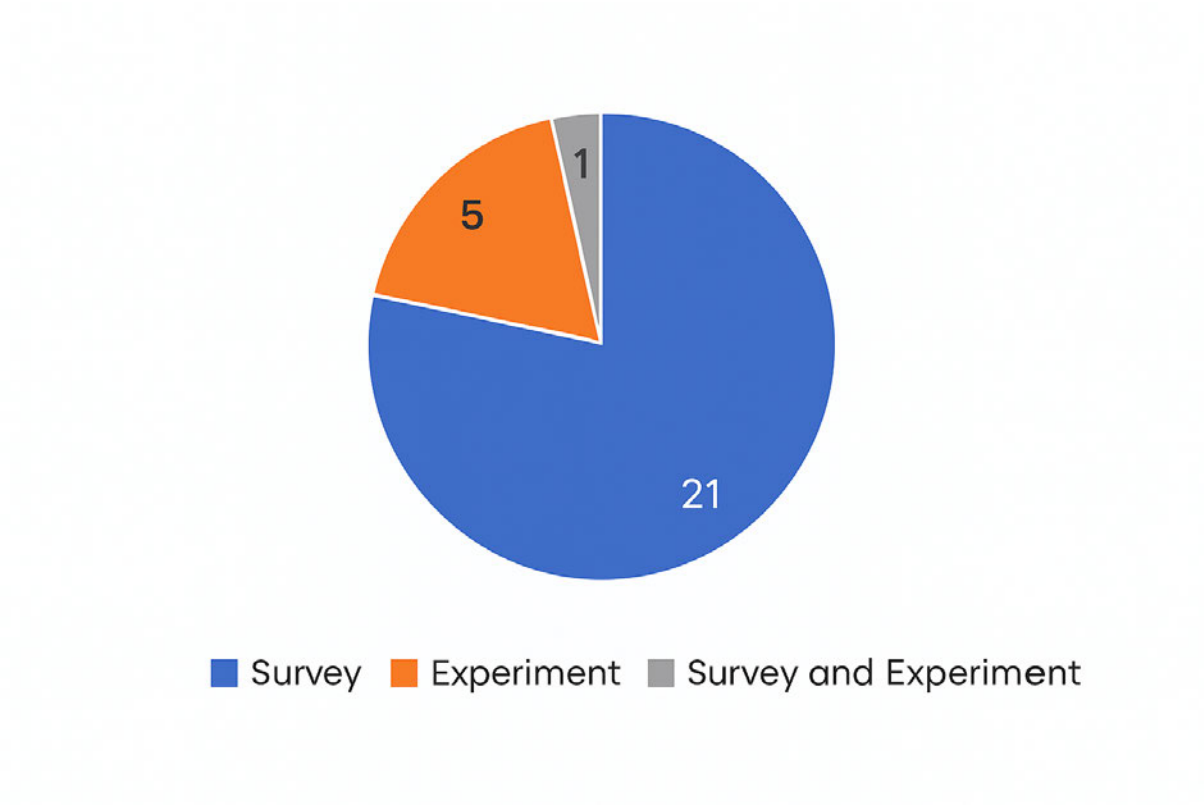


Figure 2.3: Overview of quantitative methods

2.8 Results

This systematic review includes 29 empirical studies published over the past two decades, each examining emotions in the context of vaccines. The review addresses three core objectives: to understand how emotions are conceptualised in vaccine-related research, how these findings align with broader literature, and how researchers have approached the study of emotions methodologically. The results are organised using the TCCM framework.

2.8.1 Theory

The analysis identifies 27 different theories used across the reviewed studies. The TPB emerges as the most dominant framework due to its strong empirical grounding and relevance in vaccine decision-making research. Other theories appear less frequently and with limited

cross-study consistency, suggesting a need for theory integration and development in this space.

2.8.2 Context

Most studies are conducted in the United States (see Table 2.3), revealing a clear geographic concentration. There is limited representation from developing countries and underrepresented regions such as Australia and New Zealand, which restricts the generalisability of findings across cultural and socioeconomic contexts. In terms of emotional focus, 75% of the studies primarily examine negative emotions such as fear, anger, or anxiety and their impact on vaccine intention and use. Very few studies explore positive emotions, indicating a critical gap in understanding how these emotional responses may drive vaccine uptake. Addressing this imbalance can lead to more inclusive and effective social marketing strategies.

2.8.3 Characteristics

The majority of studies (n=18) focus on consumer intentions rather than actual vaccination behaviours. Only three studies explicitly examine the translation of intention into action. This highlights a significant gap, as intention does not always lead to behaviour. There is also a tendency to study emotions in isolation rather than in interaction with other key psychological constructs, such as trust or risk perception, which limits the depth of analysis.

2.8.4 Methods

The reviewed studies mainly use quantitative survey-based methodologies (see Table 2.3), often relying on cross-sectional designs. While useful for capturing broad patterns, these methods fall short in explaining causal mechanisms or changes over time. The review

highlights a need for more methodological diversity, particularly experimental and longitudinal designs, to deepen understanding of how emotional responses develop, persist, or change across different stages of vaccine decision-making.

2.9 Limitations

Despite its contributions, this SLR is not without limitations. One notable constraint is the potential for publication bias, as the review only included published empirical research papers. The exclusion of unpublished studies or those published in languages other than English could lead to an incomplete representation of the existing literature on emotions in the vaccine context. Additionally, while efforts were made to ensure a comprehensive search strategy, some relevant studies may have been overlooked, which would have affected the overall scope and depth of the review. Furthermore, the main focus on quantitative studies may have limited the exploration of nuanced qualitative insights into emotional experiences related to vaccination. Future research could address these limitations by incorporating unpublished studies, considering a broader range of languages, and employing mixed-method approaches to provide a more holistic understanding of emotions in the vaccine context.

2.10 Conclusion

The comprehensive analysis of the available literature on emotions in the vaccine context highlights a significant gap. The review also underscores the need for broader geographical representation, methodological diversity, and exploration of positive emotions. Understanding the positive emotions that drive vaccine use is crucial for promoting vaccine use and effective disease control strategies, ultimately leading to improved social marketing outcomes.

CHAPTER 3 : THEORY AND HYPOTHESES DEVELOPMENT

This chapter consists of several sections. First, it discusses the theories relevant to this research. Second, it delves into the concept of hope as a positive emotion and provides insights into recent studies on hope. Third, it examines perceived value of vaccines (emotional, social, price and quality) as antecedents to hope. Fourth, it integrates social marketing and behavioural theories to develop hypotheses. Finally, it introduces a conceptual model that explains the role of consumer hope in shaping the intentions and behaviours regarding vaccine use (i.e. actual behaviour).

3.1 Relevant Theories

Research in social marketing and consumer behaviour has shown a keen interest in understanding positive behavioural change and intentions during uncertain times (Hesham et al., 2021; Long & Khoi, 2020). Notable contributions from scholars such as Loewenstein et al. (2001), Becker (1974), Wong et al. (2020), and Fishbein et al. (1980) underscore the significance of this area of study. The model of goal-directed behavior (MGB) underscores the importance of goals and perceived utility in influencing consumer actions (Lee et al., 2020); however, while the MGB offers insights into various contexts, its applicability to health behaviours, particularly vaccine-related decisions, may be limited compared to the TPB. The SLR conducted in Chapter 2 highlighted the preference for the TPB over other theories in the vaccine research. This consensus suggests that the TPB is highly applicable to understanding vaccine-related behaviours given the complex decision-making processes involved.

The TPB, which was developed by Icek Ajzen (1991), is a well-established theory for predicting and explaining consumer intentions towards specific behaviours. It incorporates

attitudes, subjective norms, and perceived behavioural control, and has proved effective in understanding various health behaviours, including smoking, breastfeeding, substance use, and drinking (Jalilian et al., 2020; Lareyre et al., 2021). Recent research further validates that the TPB is applicable to predicting emotions and their impact on behaviour (Ajzen & Schmidt, 2020; Seddig et al., 2022). Emphasising the TPB allows for a nuanced understanding of vaccine use given the cognitive and social factors and emotional influences on vaccine intentions (Capasso et al., 2021; Chu & Liu, 2021; Wismans et al., 2021; Wolff, 2021; Wong & Yang., 2022). Thus, this research employs the TPB as its central theory to investigate the role of emotional mechanisms in vaccine-related behaviours.

The HBM serves as a foundational psychological framework for understanding and predicting consumer health-related behaviours (Burke et al., 2021). Developed by social psychologists in the 1950s (Becker, 1974), the model posits that consumer health behaviours are influenced by consumers' perceptions of the severity of a health threat, their susceptibility to the threat, the benefits of taking a specific health action, and the barriers to taking that action (Abraham & Sheeran, 2015). Research suggests that consumers are more likely to adopt health-promoting behaviours if they believe they are at risk of a particular health problem, understand the potential severity of its consequences, recognise the benefits of taking recommended actions, and perceive minimal barriers to taking those actions (Maiman & Becker, 1974). The HBM is widely utilised across disciplines such as social marketing, health marketing, public health, health promotion, and health management, and it has been instrumental in explaining and guiding interventions in consumer health behaviour. Researchers, including Christy et al. (2016), Burke et al. (2021), Chu and Liu (2021), Santirocchi et al. (2022), and Wang (2023), have employed the HBM alongside emotional factors to explain consumer vaccine decisions.

While cognitive aspects have traditionally played a role in predicting vaccine decision-making, recent research on healthcare decision-making emphasise the potential significance of emotions. For instance, Christy et al. (2016) investigated the association between anticipated regret and young adults' intention to receive the human papillomavirus (HPV) vaccine, which expanded beyond the commonly studied cognitions within the HBM. Their study highlighted the importance of incorporating emotions such as regret in the interventions aimed at enhancing vaccination rates. Similarly, Santirocchi et al. (2022) conducted a study that explored the psychological factors that influence vaccination intentions in Italy. Their findings were based on an online questionnaire distributed to 971 participants and revealed correlations between vaccine acceptance rates and demographic factors such as age and marital status. Notably, the intention to use a vaccine exhibited positive associations with the key HBM-related factors of perceived risk, pro-sociality, fear of COVID-19, engagement in preventive behaviours, and trust in government, science, and medical professionals.

These studies underscore the interconnectedness of psychological variables, emotional considerations, and the HBM in shaping vaccination decisions. Therefore, this research also utilises the HBM with the TPB as its overarching framework due to its efficacy in explaining consumer behaviour within the vaccination context.

3.2 Hope as an Emotion

Hope is defined as a positive emotion that develops a capability to derive pathways to desired goals and motivate the consumer via agency thinking to use those pathways (Snyder, 2002). Hope enables a person to demonstrate willpower to achieve their goals (i.e., using a vaccine), enjoy a healthy and stress-free lifestyle (Makarem, 2016; Smith & Leiserowitz, 2014; Snyder, 2005; Snyder et al., 1991), and develop intentions to engage in positive behaviour (Ajzen, 1985). The research focuses on hope for several reasons. First, hope enables agency and

pathway thinking (Snyder,1991). Second, hope helps consumers to overcome negative emotions during uncertain times (Huang et al., 2019). Third, hope encourages an individual to reach their desired goal for the first time, sustain their present achievement, and continue achieving better outcomes in the future (Snyder, 2002). Fredrickson (2009) argues that hope builds on its own in the event of crisis or difficulties and opens consumers up to new creative ideas and possibilities. For Waters et al. (2021), hope is a positive emotion that is generated within consumers in cases of uncertainty (epidemic or pandemic). While researchers in the present and past have mentioned hope in other contexts (Cherfas, 1991; Esmail, 2021; Malik et al., 2020; Robinson, 2002), limited literature is available on hope as an emotional mechanism in the vaccine context.

The broaden-and-build theory strongly supports the idea that while negative emotions such as stress narrow thought-action repertoires, positive emotions such as hope broaden them, thus allowing consumers to draw on a wide array of possible behaviours in response to emotional stimuli (Fredrickson, 2001). In hope theory, Snyder (2002) explains hope as a learned thinking pattern, a set of beliefs and thoughts, that involves two relatively distinct ways of thinking about a goal: agency thinking and pathways thinking. Snyder (2002) further suggests that negative perceptions may give rise to negative emotions and stop a consumer from achieving the desired outcome; however, the consumers who experience hope can achieve their desired goal. According to Chou and Budenz (2020), overcoming negative emotions and activating positive emotions such as hope is essential for enabling a consumer to use the vaccine (Chou & Budenz, 2020).

Hope is also categorised as being preventive or promotive. Hope with a promotion focus means that a favourable outcome can be accomplished, and hope with a preventive focus means that an unfavourable outcome can be avoided (de Mello & MacInnis, 2005; Pham &

Higgins, 2005). Hope is experienced when the probability of a positive outcome is evident; however, hope can also be experienced when the likelihood of a positive outcome is too little. For example, a person may have high hopes of winning a lottery despite knowing the chances of winning are slim. Hence, the relationship between uncertainty and hope is complex (Averill et al., 1990). Hope tends to be expressed in situations of uncertainty and despair tends to be expressed where perceived outcomes are limited. Such situations often lack knowledge supported by experiments; hence, an optimistic future cannot be constructed (Stevenson and Peterson, 2015). According to Snyder (2002), positive emotions such as hope arise from positive perceptions of achieving a specific outcome, and those positive emotions may drive a person towards a positive outcome.

Positive emotions such as hope, according to Frederickson (2004), can lead to reciprocal positive attitudes and intentions for the benefit of others. Morris's (1987) reciprocal action theory highlights that consumers act to benefit themselves and others, and expect others to do the same. For instance, during a pandemic, if consumers opt not to get vaccinated, they may experience feelings of selfishness and fear of causing harm to their elderly family members. They may believe that their inaction could burden their loved one's health or even lead to their demise. Such emotions may, in turn, trigger a response of hope that will enable them to prioritise their family's well-being and motivate themselves to get vaccinated as soon as possible. According to Snyder et al. (2002), hope is a positive emotional response of willingness and planning. Hope requires an individual to have two components, agency and pathways (i.e., willpower and action plan) for success (Rego et al., 2014). Snyder et al. (1991) argue that the agency component supports individual willpower, whereas the pathways component encourages one to look for alternative paths to task accomplishment. For example, a person with a positive perception of a vaccine may look forward to getting vaccinated; however, without willpower and an action plan (pathways), this may not be

possible, and these components are driven by hope (Snyder et al., 2002). When consumers lack the positive emotion of hope, they tend to withdraw their efforts prematurely or fail to attain the desired outcome despite their capabilities (Snyder et al., 1991).

There has been recent recognition that hope plays an essential role in consumers' physical and emotional well-being. According to researchers, hope positively impacts on a person's mental health, overall satisfaction, and life satisfaction (Pleeging & Burger, 2020), and promotes optimism and individual performance (Feldman & Kubota, 2015). In addition, hope improves workplace behaviours, dispositional mindfulness, and overall well-being (Malinowski & Lim, 2015). Chou and Budenz (2020) acknowledge that social marketing strategies activates hope within consumers; however, they did not discuss hope's role as an emotion. In the vaccine context, willpower, pathways, and objective (getting vaccinated) are interconnected (Bojmel et al., 2021). For instance, a consumer may choose an objective (i.e., intention to use vaccine) with willpower (agency thinking – to live a healthy, disease-free lifestyle) to drive more pathways, such as educating others to vaccinate. In this case, a consumer with low hope perceives adversity (such as pandemics) as barriers to using the vaccine; however, a person with high hopes is likely to see impediments as challenges rather than barriers (Snyder et al., 2002). Individuals with low or no hope are less likely to experience flexible thinking. They may not find alternative pathways for achieving their purpose, which results in disappointment and negativity (Snyder et al., 2002).

Several studies support the choice of hope as an essential predictor of intentions and behaviours in the health context. For instance, Huen et al. (2015) examined the role of hope in buffering the impact of hopelessness on suicidal thoughts across a community sample of 2,106 participants through a population-based household survey in Austria. The results revealed that hope could change the negative impact of hopelessness on suicidal ideation, and

may positively influence consumer intentions and behaviours (Huen et al., 2015). Also, Bojmel et al. (2021) studied the influence of perceived social support and loneliness on hope in the United States, United Kingdom, and Israel using a sample of 1,200 participants. The results showed that perceived social support predicts high hope (Bareket-Bojmel et al., 2021). Additionally, while hope has been acknowledged in various contexts in past research, including coping with crises or uncertainty, there is a notable gap in the literature regarding its specific role in influencing vaccine intentions and behaviours. Therefore, focusing on hope as an emotional mechanism in the context of vaccination is a novel and promising avenue for research that offers the potential to uncover new insights and inform effective interventions.

The decision to prioritise hope over other emotions as an emotional construct in this research is justified by its comprehensive nature, motivational power, adaptive capacity, and potential to fill a significant gap in the existing literature on vaccine use. By focusing on hope, this research aims to shed light on the role of positive emotions in shaping vaccine intentions and behaviours and ultimately contribute to the development of more effective strategies for promoting vaccination. While positive emotions of happiness, desire, and joy, represent a fundamental aspect of human motivation (Ke et al., 2022), they may not capture the multifaceted nature of responses and cognitive processes involved in vaccine use. Also, unlike hope, which encompasses agency, resilience, and adaptive thinking, desire may primarily reflect a surface-level longing without addressing the underlying challenges and complexities of vaccine decision-making (Bojmel et al., 2021; Rego et al., 2016).

In light of the above discussion, it is proposed that consumers with low hope regarding vaccine efficacy may not think creatively and stick with their fixed paradigm of not using the vaccine. In contrast, consumers with high hope and willpower intend to vaccinate because

they can develop agency thinking, action plans, and pathways to achieve their purpose of using the vaccine.

3.3 Perceived Value

Studies consistently emphasise the pivotal role of value perceptions in the context of consumer behaviour (Dixon, 2020; Fylkesnes et al., 2021). These perceptions, which encompass beliefs and concepts governing desirable states, wield significant influence over consumer behaviour, as they shape consumers' beliefs, attitudes, and choices (Hall, 2020). Notably, value perceptions are intrinsically linked to cultivating positive emotions, particularly hope, among consumers (Fredrickson, 2004; Komter, 2004; Lawler, 2001), which underscores their profound impact on consumer decision-making processes. Traditionally, perceived value was construed as a unidimensional construct (Zeithaml, 1988); however, later researchers introduced it as a multidimensional construct (see Table 3.1).

Table 3.1: Perceived value conceptualised by various researchers

Researcher(s)	Dimensions
Mattsson (1991)	Quality/Function: Physical aspects and quality of the product.
	Emotion: How consumer feels about the overall product or service experience.
	Logical: Rationale of product experience.
Sheth et al. (1991)	Quality/Function: Perception of product from the capacity of its function, utilitarian or physical performance.
	Emotion: Feelings produced by a product during its consumption.
	Conditional: Value perception when the consumer is facing a particular situation.
	Social: Perceived value if the product is associated with a social circle.
	Epistemic: Ability of a product to influence consumer curiosity, leading them to seek more information about it.
de Ruyter et al. (1997)	Quality/Function: Functional and physical components of service.
	Emotion: Emotional component using statements provided by consumers' post service experience.
	Logic: Logical component by characteristics of service.
	Satisfaction: Consumers' experience post service delivery.
Sweeney and Soutar (2001)	Quality/Function: Perceptions of product quality value from a consumer point of view.

Researcher(s)	Dimensions
	Emotion: The utility derived from the feelings or affective states that a product generates.
	Social: The utility derived from the product's ability to enhance social self-concept.
	Price: Perceptions of product price value from a consumer point of view.
Sanchez et al. (2006)	Quality/Function: Rational and economic valuations made by consumers.
	Emotion: Consumer's feelings developed by the products or services.
	Social: Social influence of the product purchase decision.
Chahal & Kumari (2012)	Social: Value of impartial treatment. Image: Aesthetic value of service provider. Self-gratification: Sense of well-being after service use. Transaction: Satisfaction arising from the transaction of a service. Acquisition: Overall value arising from the acquisition of a service. Efficiency: Value arising from service efficiency.
Gheorghe et al. (2019)	Social: Impartial treatment arising from service value such as nurse, doctor interaction. Aesthetic: Visual appeal of the organisation and service staff. Self-gratification: Consumer sense of well-being. Transaction: Psychological satisfaction arising from the transaction of a service. Acquisition: Overall net value arising from the acquisition of a service. Efficiency: Value arising from how effectively services are delivered by a provider.

The exploration of perceived value is deeply rooted in axiology and value theory, with Holbrook (1999) highlighting its intrinsic connections to marketing and consumer behaviour research. From an economic perspective, Monroe (2003) and Kotler (2000) integrate economic exchange theory into conceptualising perceived value, viewing it as a trade-off between benefits and sacrifices. Kotler's (2000) value equation, in particular, elucidates this trade-off, as it emphasises the crucial components of benefits and costs in shaping consumer perceptions of value. In the psychological literature, perceived value is construed to be a cognitive-based construct that captures the discrepancy between benefits and sacrifices (Patterson & Spreng, 1997). This construct influences price perceptions and encompasses brand value perceptions, which ultimately shape consumer intentions and experiences. Within the marketing domain, perceived value encapsulates consumers' impressions and interpretations of products or services that are formed through exposure to various stimuli such as advertisements, promotions, and social media feedback (Xia et al., 2020).

This research employs the perceived value (PERVAL) scale of Sweeney and Soutar (2001) to unpack consumer perceptions of the emotional, social, price, and quality dimensions in the vaccine context. The selection of the PERVAL scale is underpinned by its comprehensive framework, which encapsulates multiple dimensions of perceived value. Unlike some other perceived value scales, Sweeney and Soutar's scale offers a robust and established framework that has been widely utilised and validated by researchers across various domains (Aichner et al., 2023; Nergui et al., 2023; Perius, 2021; Slack et al., 2020). By leveraging this scale, the research aims to delve deeper into consumer perceptions of the value of vaccines and transcend beyond their mere functional benefits. The inclusion of the emotional, social, price, and quality dimensions enables a more holistic examination of vaccine acceptance and utilisation, which will provide invaluable insights into the multifaceted nature of consumer perceptions. By adapting this scale to the unique characteristics and considerations of vaccines, this research endeavours to capture the nuanced aspects of consumer perceptions associated with vaccination, ultimately enriching our understanding of vaccine behaviour dynamics.

3.4 Hypotheses Development

This section presents hypotheses (H1 to H9) that are fundamental to this research endeavour. These hypotheses form the cornerstone of the theoretical framework and offer precise forecasts concerning the relationships and interconnections among the constructs examined. By delving into these hypotheses, this research aims to uncover the underlying mechanisms and clarify the complexities involved in the interplay between consumer value perceptions, hope, and behavioural outcomes in the vaccine domain.

3.4.1 Perceived Emotional Value of Vaccines as an Antecedent to Consumer Hope

According to Sweeney and Soutar (2001), emotional value is the utility derived from the product's feelings or affective states (such as happiness or sadness). Perceptions of emotional value towards a particular product drive consumer intention to use that product (Asshidin et al., 2016). Ching and Chong (2020) define emotional value as internal affective experiences that are linked with person–environment relationships. According to Lii and Sy (2009), emotions are accompanied by physiological processes and physical expressions such as posture, gestures, and facial features, and they may result in specific behaviours, depending on their nature and meaning for the person experiencing them. Emotional value measure the consumer's feelings about a particular product (such as a vaccine). In recent years, there has been increasing work on complex emotions that has focused on person–environment relationships such as jealousy (Bringle & Buunk, 2021), embarrassment (eSilva et al., 2021), and hope (Chou and Budenz, 2020; Pleeging & Burger, 2020;). Hope is an essential aspect of life and has been a debate of interest for many scholars; however, in the literature, the concept of hope and perceptions needs to be better understood (Kube et al., 2019). In the field of marketing, perceived emotional value is becoming increasingly recognised as an essential factor in consumer decision making (Poels & Dewitte, 2019).

The HBM (Becker, 1974) explains that consumers perceive their situation along several dimensions (i.e., benefits, threats, barriers, seriousness, and susceptibility) that collectively produce a particular intention and response. In line with the HBM, previous studies on the risk-as-feelings hypothesis (Loewenstein et al., 2001) and the affect heuristic (Slovic et al., 2007) suggest that risky prospects stimulate affective reactions, which subsequently shape individuals' judgments and choices. Similarly, researchers suggest that consumers'

interpretation of an environment and situation produces an emotional response such as hope (Chou & Budenz, 2020; Roseman, 1991).

From a theoretical point of view, the concept of perceived emotional value of vaccines influencing hope also employs the basic principle of the appraisal theory of emotions. It highlights that those emotions are caused by the appraisal of a stimulus (e.g., perceptions about the product) that leads to a specific outcome (Roseman et al., 1990). The stimulus in this context is perceived emotional value, which motivates a consumer to attain a specific outcome and develop pathways (e.g., strategies to get vaccinated). The motivation and pathways both represent the hope of a consumer. Therefore, positive perceived emotional value about the vaccine may develop hope amongst consumers, which will further drive their intention to use it.

According to Xu et al.'s (2021) study, measuring perceived emotional value towards vaccines is essential for determining consumers' emotions, as many consumers only value vaccines produced by Western countries. Another study highlights that measuring consumer perceptions of a vaccine is vital for determining their intention to use the vaccine; however, the hope factor was not considered in the study (Borondo et al., 2021). In light of the above discussion, we hypothesise that:

H1: Perceived emotional value of vaccines has a direct positive impact on consumer hope.

3.4.2 Perceived Social Value of Vaccines as an Antecedent to Consumer Hope

Social value is defined as the approval of the consumer's social circle that is generated by the use of a product (Sweeney & Soutar, 2001). In the marketing literature, perceived social value has been a focus of research for a long time, and it has been widely recognised as being critical in the study of consumer intentions (El-Adly, 2019; Sweeney & Soutar, 2001). However, purchase or consumption-related value perceptions have been mainly studied in

conventional behavioural settings in the areas of marketing, management, and consumer behaviour (Zauner et al., 2015). In the context of vaccines, social value influences consumer decisions by reflecting the collective attitudes and behaviours of their social groups, such as family, friends, or colleagues (Gordon et al., 2015). Social groups exert a strong influence over individuals, especially in times of crisis such as pandemics (Bir & Widmar, 2021). Consumers may be more likely to adopt vaccination behaviours if they perceive that these actions are valued and supported by their community. This dynamic is particularly relevant during epidemics or pandemics when social and cultural pressures to act in the collective interest are heightened (Bareket-Bojmel et al., 2021).

By employing the support of the HBM (Becker, 1974), we consider that if consumers refuse to use a product such as the flu or COVID-19 vaccine, they may be perceived as having the potential to cause harm to others in the community. Therefore, there is a high chance that the expected protection or immunity within the community may not be reached (Bokemper et al., 2021). Along with the application of the HBM, we also employ value theory (Gordon et al., 2015) to support this argument further. Value theory refers to specific social values held by a community (Gordon et al., 2015), and these values may change under challenging conditions such as an epidemic or a pandemic (Lee, 2021). Also, consumers from different cultural and social groups may hold or adopt different values as they are influenced by the social pressure of those in their social circle (Gordon et al., 2015). As the motivation and pathways to adapt to new values are only possible with hope (Snyder, 2002), consumers will likely develop hope if they witness their social circles vaccinating. Therefore, as highlighted by Bokemper et al. (2021), perceived social value could help consumers understand the value and importance of vaccine use. In other words, because socialised individuals influence consumers (Theriault et al., 2021), if those socialised individuals (with whom the consumer

socialises) are already vaccinated, the pressure of reciprocity may compel a consumer to reciprocate the same behaviour.

The social identity theory (Hogg, 2020) also offers insights into how cultural and social dynamics shape consumer behaviour. Consumers tend to categorise others into in-groups and out-groups based on shared values, and these social identities influence their decisions. During health crises, the desire to conform to the social norms of one's group can encourage individuals to get vaccinated, especially if these norms are framed as being in the best interest of the community (Jordan et al., 2020). In contrast, when an individual's behaviour, such as refusal to vaccinate, deviates from the group's norms, they may experience an identity crisis, leading them to either abandon the group or adapt by adopting the group's values (Ullah et al., 2021). This adaptation often involves the development of positive emotions, such as hope, which further drives behaviour change (Szostak & Sulkowski, 2021).

The WHO (2020) suggests activating positive emotions such as hope by promoting social messages regarding the importance of family and community connections and the collective desire to return to closer interactions after prolonged social distancing and isolation. Similarly, a formative study notes that messaging that promotes prosocial motivations (i.e., protecting one's community from a disease after getting vaccinated) has a stronger influence on promoting social value and positive emotions than messages that promote personal motivations (i.e., protecting oneself from disease after getting vaccinated) (Jordan et al., 2020). Recent research notably shows that prosocial appeals effectively increase positive emotions and willingness to practise preventive behaviours such as washing hands, social distancing, and intending to get vaccinated (Heffner et al., 2020). In light of the above discussion, we hypothesise that:

H2: Perceived social value of vaccines has a direct positive impact on consumer hope.

3.4.3 Perceived Price Value of Vaccines as an Antecedent to Consumer Hope

The perceived price value is not always the actual price of the product, as the price is codified by the consumer. Consumers tend to interpret prices through subjective perceptions and transfer them as concepts of "expensive" or "cheap" in their memory (Miles et al., 2021; Septiani & Chaerudin, 2020;). In other words, perceived price value is the value consumers are willing to pay for a particular product or service based on their perceptions. The perceived price is not based on the product's cost but on the value consumers derive as a trade-off between benefit and sacrifice (Septiani & Chaerudin, 2020).

Marketing and management researchers have been working on the perceived price value construct for decades. Pevec and Pisnik (2016) explain that price value is the sacrifices of time and physical and mental effort/stress made by the consumer in acquiring a particular product or service. As time is considered an important commodity (Brusseau & Burns, 2020), it is imperative to consider this feature when measuring consumer perceptions about a product. Non-monetary costs are considered to be more critical than the monetary cost of a product or service; hence, a consumer always considers these costs when choosing a product (Bos et al., 2018). The theoretical underpinning lies in the affect theory of social exchange (Lawler, 2001), which explains how perceptions of the price (i.e., cost, time, and effort) are received in the form of knowledge from peers, online advertisements, or social media that may activate hope within consumers. When consumers perceive that the benefits of getting vaccinated exceed the cost, time, and effort, they may wish to consume the vaccination.

According to the HBM (Becker 1974), the perceptions of benefits as additional gains motivate consumers to choose a particular pathway and use the preferred product (i.e., vaccine) (Bos et al., 2018). Of course, if the perceived cost is high and the risk associated with consuming vaccines is high, the consumer may not intend to get vaccinated. According to the Australian Government Department of Health (2021), vaccines are readily available to

consumers living in Australia without any hassle or cost, physical effort, or time; hence, health consumers are likely to perceive the vaccine to be a product of value, which may drive the components of hope (willpower and pathways) amongst them. Also, when consumers perceive the adverse effects of a disease such as the flu or COVID-19, they are likely to undertake a cost-benefit analysis (Miles et al., 2021). When consumers anticipate the crisis that the disease may bring to them and their families, they will likely plan their actions and pathways so that they lead to hope. In particular, those who have experienced diseases (flu or COVID-19) may send signals about their health condition through word of mouth, social media messages, blogs, and other internet media (Wong et al., 2021), and consumers who identify themselves as potential affectees may then take proactive actions that lead them to hope (Snyder, 2002). In the light of the above discussion, we hypothesise that:

H3: Perceived price value of vaccines has a direct positive impact on consumer hope.

3.4.4 Perceived Quality Value of Vaccines as an Antecedent to Consumer Hope

The perceived quality of a product is defined as the expectation of a consumer regarding product quality in comparison to other products available in the market (Severt et al., 2022). Product manufacturers must know these perceptions and try to meet those expectations (Bakri et al., 2021). In marketing, perceived quality value has been widely acknowledged as the driver of consumer behaviour (Hashemi et al., 2020; Susilowati & Sari, 2020). Perceived quality value allows consumers to understand the product value by giving them a reason to acquire a specific brand compared to other brands in the market (Mrad et al., 2020).

The HBM, which was developed by Becker (1974), provides valuable insights into how consumers perceive and make decisions regarding health-related behaviours, including vaccine brand preferences. According to the HBM, consumer health-related decisions are influenced by their perceptions of the severity of a health issue, their susceptibility to the

problem, the benefits of taking preventive action, and the barriers to engaging in the desired behaviour (Becker, 1974). With regard to vaccine brand preferences, consumers will likely consider the quality value associated with a particular brand (Wise, 2021). They may perceive that a particular vaccine brand has undergone scientific research, thorough testing, and regulatory approval (Dudley et al., 2020), which will lead them to believe it will positively impact on their well-being. This perception is based on the belief that a brand that has undergone rigorous testing and regulatory approval is more likely to be effective and safe in preventing diseases.

Moreover, consumers aim to maximise their gains and minimise the chances of falling sick when choosing a vaccine brand (Rego et al., 2014). By selecting a brand they perceive as being of high quality, consumers believe they are increasing their chances of gaining the desired health benefits of vaccination, which could include preventing illness, reducing the severity of symptoms if they do fall ill, and avoiding potential complications or long-term health issues. By choosing a reputable vaccine brand, consumers feel they are taking proactive measures to protect their health and well-being (Wise, 2021). Additionally, consumers may view the barriers to adopting this behaviour, such as potential side effects or inconvenience (Nguyen et al., 2021), as being outweighed by the perceived benefits, which will reinforce their preference for a specific vaccine brand and ultimately drive hope levels. Hence, understanding consumer preferences for vaccine brands can be valuable when promoting vaccination and addressing vaccine hesitancy.

There is substantial evidence that consumers in the United States have quality perceptions regarding COVID-19 vaccines and choose one brand over the other to ensure they receive the best quality vaccine (Quito, 2021). According to a European study, consumers perceived Pfizer and Moderna vaccines to be of high quality, while the perceived quality of the

AstraZeneca vaccine was lower than its counterparts mentioned above (Rzymski et al., 2021). Wise (2021) also found that the Pfizer vaccine is popular globally, and consumers have a high-quality perception of the Pfizer vaccine (Wise, 2021). However, other vaccines, mainly those made in non-Western countries, are not as popular (Rzymski et al., 2021). Thus, brand name can play a significant role in determining the perceived quality of a product. Also, consumers' perceptions of the quality of vaccines may provide satisfaction to consumers, and the confirmation theory suggests that perceptions of quality are directly linked to approval (Gupta et al., 2020). In light of the above discussion, we hypothesise that:

H4: Perceived quality value of vaccines has a direct positive impact on consumer hope.

3.4.5 Intention to Use a Vaccine

Intention to use is defined as the willingness of a consumer to use a specific product or service (Morwitz & Munz, 2021). It is widely studied as a criterion variable that depends on numerous external and internal factors. Intention to use is also considered a measure of a consumer's attitude towards acquiring a product or utilising a service (Huang et al., 2019).

Studying role of consumer hope is crucial for developing the intention to vaccinate for several reasons. Emotions play a vital role in shaping consumer decisions regarding product and service use, as per Ruiz-Mafe et al. (2018). For instance, positive emotions such as hope can motivate consumers and drive their intention to get vaccinated, as suggested by Chou and Budenz (2020). Second, when consumers experience negative emotions, they tend to lose hope and withdraw from their struggle because of fear, anxiety, and lack of motivation, which makes them unable to achieve the desired objective (Snyder et al., 1991). For example, the Spanish flu, the COVID-19 pandemic, and other epidemics such as swine flu, have resulted in negative emotions globally (WHO, 2020; Yu et al., 2011). Some examples of negative emotions are fear of exposure, fears over vaccine safety, depression, anxiety due to

losing loved ones, loneliness in isolation, and financial stress (Nicola et al., 2020; WHO, 2020; Yu et al., 2011). Emotions such as hope have significantly influenced consumer decision-making and behavioural change during continuing adversities such as epidemics and pandemics (Chou & Budenz, 2020; Perugini & Bagozzi, 2001).

According to the TPB, when the intention is stronger to perform a specific behaviour, the chances are likely that the particular behaviour will be performed by a consumer (Alhamad & Donyai, 2021). Intentions are widely used and measured in academic research related to marketing, consumer psychology, and public health. In the marketing literature, purchase intentions have been widely used to measure consumer intentions concerning a product acquisition (Costa et al., 2021) to predict future sales due to the correlation between the variables (Lee, 2021), and social marketing researchers measure consumer intentions to identify intended consumer behaviour with public safety (Prasetoyo et al., 2020). Also, social marketers have measured consumer intentions to identify consumer contributions towards good causes that are beneficial to society, such as parental intentions to give more fruits and vegetables to their children to improve their health (Giminez et al., 2020), intentions to recycle to promote sustainability (Wang et al., 2021), organ donation intentions in Australian university students (Chan, 2019), and insecticide-treated net usage intentions among pregnant women in Ghana (Tweneboah et al., 2022).

Bigné-Alcañiz (2010) investigated the role of behavioural intentions in social marketing. He found a positive correlation between consumer behaviour intention and cause-related marketing, which means if a social cause is involved with product acquisition, the consumer feels obliged and shows positive intentions to use that product or service. Several studies have emerged in the context of vaccine use, such as the study by Ophir and Jamieson (2018) on intention to use a novel Zika vaccine, the study by Askelson et al. (2011) on intention to

use HPV vaccination, and the study by Salmon et al. (2021) on COVID-19 attitude and intentions. While intentions can be interpreted and measured differently, as discussed above, this research focuses on the intention to use vaccines of any type that is driven by positive emotions such as hope.

Protection motivation theory (Rogers, 1975) was developed to describe how consumers get motivated to react in a self-protective way towards a perceived health threat (Rogers, 1975). Also, the broaden and build theory of positive emotions in psychology explains how positive emotions broaden consumers' perspectives and promote awareness to encourage fresh thoughts, intentions, and behaviour (Fredrickson, 2004). According to Chen et al. (2021), positive emotions (such as hope) influence consumer intentions. Several studies also suggest positive emotions result in positive intentions and behaviours (Fisher et al., 2020; Ruiz-Mafe et al., 2018). Based on the above discussion on consumer hope and intentions, we present the following hypothesis:

H5: Consumer hope has a direct positive impact on consumer intention to use a vaccine.

3.4.6 Self-efficacy as a Moderator Between Consumer Hope and Intention to Use a Vaccine

The social cognitive theory, initially known as the social learning theory by Albert Bandura in 1977, has evolved into a comprehensive framework for understanding consumer health behaviours. Later in 1986, Bandura introduced the social cognitive theory, which emphasises the influence of personal experiences, social interactions, and environmental factors on consumer health-related behaviours (Bandura, 2005). One of the critical elements of the social cognitive theory is the concept of self-efficacy. Self-efficacy refers to an individual's belief in their ability to perform a specific behaviour or accomplish a particular goal. In consumer health behaviours, self-efficacy plays a crucial role in determining whether

individuals engage in health-promoting actions such as getting vaccinated (Bandura, 2005). The unique feature of the social cognitive theory lies in its ability to explain the specific behavioural actions that occur in response to environmental stimuli. By considering factors such as self-efficacy, the theory highlights the importance of consumers' ability to engage in health-related behaviours. Social cognitive theory is well-known among researchers (Beauchamp et al., 2019; Schunk & DiBenedetto, 2020); however, it has some limitations. For example, the theory assumes that a change in the environment will automatically lead to a change in consumer behaviour. This may not be true in all cases, particularly in a disaster such as an epidemic or a pandemic. The theory also relies heavily on observation and self-efficacy processes with no attention on emotional factors such as the hope that may influence consumer behaviour regardless of past experiences and expectations.

Bandura (1977) explains self-efficacy as a consumer's belief in their ability to do certain things needed to achieve a particular outcome. Self-efficacy reflects confidence in controlling one's motivation, behaviour, and social environment (Bandura, 1977). These cognitive self-evaluations influence all human experience, including the goals for which people strive, the amount of energy expended on goal achievement, and the likelihood of attaining particular levels of behavioural performance (Oyuga et al., 2019). Bandura first introduced the concept of self-efficacy in 1977 (Bandura, 1977), and a decade later, he explained self-efficacy within the social cognitive theory, which embedded the socio-cognitive elements (Bandura, 1986). A decade later, in 1997, he published a paper that further explained the construct within a personal and collective agency theory that operates with other socio-cognitive factors in regulating human well-being and achievement. He also attended to the key aspects of agency, the nature and structure of self-efficacy beliefs, their origins and effects, the mechanisms via which such attitudes function, and the methods by which they can be produced and intensified. In addition, he reviewed a vast body of research on each aspect of agency in

diverse applications of the theory (Bandura et al., 1999). The self-efficacy construct has also attracted increasing interest from various researchers, particularly in the field of education and psychology (Bourne et al., 2021; Matteucci & Soncini, 2021).

Self-efficacy beliefs are not static but context-dependent, as they vary across different domains and situations. Denisia and Juliet (2015) highlight this variability and suggest that consumers may have different levels of self-efficacy in diverse aspects of their lives. In the context of vaccination, they may possess varying levels of confidence in their ability to navigate the process, from scheduling an appointment to coping with the potential side effects. Ede (2017) emphasises that self-efficacy influences one's capacity to confront challenges effectively and make decisions accordingly. With regard to vaccination, consumers with high self-efficacy are more likely to perceive themselves as being capable of handling any obstacles or concerns associated with the vaccine. This perception of competence can significantly impact on their intention to use a vaccine, as they feel more empowered to take proactive steps towards vaccination.

Zhou et al. (2021) found in their study that a consumer with high self-efficacy views challenges as things that should be mastered rather than threats to avoid. As a result, they can recover from failure faster and are more likely to attribute failure to a lack of effort. Also, they are likely to experience positive emotions (e.g., hope) and approach threatening situations with the belief that they can control them. In contrast, consumers with low self-efficacy perceive complex tasks as personal threats and move away from difficult situations and tasks. Hence, they tend to blame themselves and blame the skills they lack rather than the skills they possess (Riyanto & Mariani, 2019). As a result, they quickly give up and underestimate their abilities after a failure (Dos, 2020). Furthermore, low self-efficacy among consumers can be linked to higher levels of stress and depression (Bandura, 1993). The

discussion above indicates that high levels of self-efficacy make the consumer hope–intention relationship more substantial, and low levels of self-efficacy may lead to a weaker consumer hope–intention relationship.

The choice of self-efficacy as a moderator rather than a mediator in the relationship between consumer hope and intention to use a vaccine is justified by several key considerations. First, self-efficacy is conceptualised as a belief in one's ability to accomplish specific tasks or achieve particular goals within a given context (Gerbino, 2020). As such, it operates as a moderator by influencing the strength or direction of the relationship between two variables rather than mediating the relationship by explaining the mechanism through which the independent variable affects the dependent variable (Schmitt et al., 2018). In this case, self-efficacy will likely influence how strongly consumer hope translates into intention to use a vaccine, rather than serve as an intermediate step in the process. Second, the temporal sequence of the variables supports the choice of self-efficacy as a moderator. Consumer hope, which represents the positive outcome related to vaccination, is likely to precede self-efficacy beliefs in influencing intention to use a vaccine. Therefore, self-efficacy is more appropriately positioned as a moderator that conditions the strength of the relationship between hope and intention rather than a mediator that explains how hope influences intention through self-efficacy. Third, given the complex and multifaceted nature of vaccine decision-making (Diks et al., 2021), self-efficacy is better suited to capture the nuanced interplay between the variables of the research model. As a moderator, self-efficacy makes it possible to recognise individual differences in the coping strategies, problem-solving skills, and barriers to vaccination (Jian et al., 2023) that may shape the strength of the relationship between consumer hope and vaccine intention. In contrast, if self-efficacy were treated as a mediator, it would imply that self-efficacy fully explains the relationship between consumer

hope and intention to use a vaccine, which would overlook any potential interactions that may exist between hope, self-efficacy, and intentions.

Given these points, it is reasonable to hypothesise that self-efficacy moderates the relationship between consumer hope and intention to use a vaccine. Consumers with higher levels of self-efficacy are likely to exhibit stronger intentions to use a vaccine, as their confidence in their ability to manage vaccination-related challenges enhances their hope and proactiveness towards vaccination. Conversely, consumers with lower self-efficacy may be more hesitant or less motivated to use a vaccine, as their perceived inability to cope with potential barriers diminishes their hope and intentions regarding vaccination. We therefore hypothesise that:

H6: Self-efficacy moderates the relationship between consumer hope and intention to use a vaccine.

3.4.7 Implementation Intention to Use a Vaccine and Vaccine Use (Actual Behaviour)

The TPB (Ajzen, 1991) provides a relevant framework for understanding the relationship between attitudes, intentions, and behaviours. This cognitive model suggests that beliefs drive attitudes, which, in turn, influence intentions, and intentions inform behaviours. Additionally, social norms and behavioural control play a moderating role in shaping intentions and subsequent behaviours (Carrington et al., 2010). However, this hierarchical progression reveals two potential gaps that require attention: attitude-intention and intention-behaviour. Much of the existing research on behaviour has focused on the attitude-intention gap and assumed that intentions alone will effectively determine behaviour (Glasman & Albarracin, 2006; Grimmer & Bingham, 2013; Grimmer & Woolley, 2014; Pickett-Baker & Ozaki, 2008; Polonsky et al., 2011; Urien & Kilbourne, 2011). However, this assumption has been

criticised as being an oversimplification of the complexities of translating intentions into behaviours (Davies et al., 2002). To address this issue, Carrington et al. (2010) developed a model that explicitly focuses on the intention-behaviour gap and incorporates the concept of implementation intentions. They highlighted that intention alone may not always translate into actual behaviour, and implementation intentions can bridge intentions and behaviours by providing individuals with a specific plan or strategy to guide their actions (Carrington et al., 2010). By forming implementation intentions in the vaccine context, individuals have a clear roadmap that increases the likelihood of their intentions being translated into actual behaviours.

Despite consumers expressing positive intentions to get vaccinated, various external or internal barriers such as availability, convenience, social influence, and perceived risk can hinder actual behaviour (Chou & Budenz, 2020; Gavaruzzi et al., 2021). Implementation intentions enables consumers to proactively plan for such obstacles, thereby increasing follow-through. For example, Milkman et al. (2011) conducted a field experiment to examine the impact of implementation intentions on the actual behaviour of receiving an influenza vaccination provided by a large firm to its employees at free on-site clinics. All eligible employees received reminder mailings about the vaccination clinics' times and locations. The mailings sent to employees were randomly assigned to the treatment conditions and included a prompt to write down either (i) the date they planned to get vaccinated or (ii) the date and time they planned to get vaccinated. This inclusion of implementation intention prompts in the mailing led to an increase in vaccination rates. Among employees in the control condition (no prompt), the vaccination rate was 33.1%, while the rate for employees who received the prompt to write down just a date was 1.5 percentage points higher compared to the control group. However, this difference was not statistically significant, and it indicated that it could have occurred by chance. On the other hand, employees who received the more specific

prompt to write down a date and a time had a vaccination rate that was 4.2 percentage points higher than the control group. This difference was statistically significant, which suggests that the prompt to provide a specific date and time for vaccination significantly impacted on vaccination behaviour.

Another study randomly assigned 228,000 individuals aged 66 years and older into five groups, with each receiving different versions of letters designed to encourage vaccination. These versions included prompts for implementation intentions. The results revealed that letters sent by mail significantly increased the rates of influenza vaccination compared to those who did not receive any letter (Yokum et al., 2018). These studies have primarily focused on specific populations, such as employees of large firms or older individuals, and have predominantly examined the effects of implementation intentions on influenza vaccination rates. However, the impact of implementation intentions on promoting general vaccination across diverse populations and vaccine types remains largely unexplored.

Implementation intentions also enhance consumer motivation and commitment to act on their intentions by strategising the plan (Ekawarna, 2022). For example, when consumers specify the when, where, and how of their vaccine behaviour through implementation intentions, they increase their personal investment and sense of responsibility towards the process. This heightened motivation and commitment positively influences the likelihood of actual vaccine use. Implementation intentions also help consumers to overcome any potential barriers and obstacles that may hinder their goals by identifying potential challenges in advance and devising specific plans to address them (Moyers & Hagger, 2021). In the vaccine context, implementation intentions facilitate actions by providing strategies to overcome these barriers, thereby increasing the likelihood of actual behaviour. According to Moyer and Hagger (2021), implementation intentions also create mental signals that trigger automaticity

in behaviour. They further state that when individuals form implementation intentions, the specified cues or triggers associated with the intended behaviour become linked in their minds, and this link helps to activate the desired behaviour automatically when the cues are encountered. For example, setting a specific date and time for vaccination serves as a mental cue that prompts individuals to follow through with their intention when that date and time arrive, thus increasing the likelihood of actual vaccine use.

In line with the arguments above, implementation intentions create a stronger connection between intention and behaviour by providing a cognitive link that primes consumers to act when the appropriate cues or situations arise. Setting up strategies to get vaccinated creates mental cues that trigger the desired behaviour. This automaticity facilitates activation of the intended behaviour when the individuals encounter the designated cues, which ensures a more robust and direct link between their intention to use a vaccine and the actual behaviour. In light of the above discussion, we hypothesise that:

H7: Intention to use a vaccine has a direct positive impact on the implementation intention to use the vaccine.

H8: Implementation intention to use the vaccine has a direct positive impact on vaccine use (actual behaviour).

3.4.8 Intention to Use a Vaccine and Vaccine Use (Actual Behaviour)

TPB is a well-known psychological model that has been widely used to study and understand human intentions and behaviours. TPB posits that people's behavioural intentions are the most direct and immediate predictors of their actual behaviours. Intention is a psychological determinant that reflects a consumer's readiness and commitment to perform a specific behaviour (Ajzen & Schmidt, 2020). When consumers experience a solid intention to use the vaccine, it signifies their conscious decision and motivation to engage in the behaviour. This

intention serves as a significant predictor of subsequent actions and creates a psychological drive that increases the likelihood of actual behaviour (Hesham et al., 2021; Long & Khoi, 2020).

Therefore, intentions play a crucial role in the process of achieving an outcome. They drive our actions, shape our behaviours, and direct our efforts towards that specific outcome (Ajzen 1991; Ophir & Jamieson, 2018). Intentions are the initial commitment or plan individuals set to pursue their goals. They provide a sense of purpose and motivation that guide individuals to make choices and take actions that align with their aspirations (Ajzen & Schmidt, 2020). When consumers have a solid intention to use a vaccine, it establishes an objective-oriented mindset that directs their focus and energy towards taking the necessary steps to fulfil that intention. This behaviour significantly increases the probability of actual vaccine uptake. One of the critical aspects of intentions is that they provide consumers with a clear direction and purpose, serving as mental targets that individuals strive to achieve (Moyers & Hagger, 2021). In the context of using a vaccine, having solid intentions reflects consumers' commitment to protecting their health and the health of others and their recognition of the importance of vaccination in preventing the spread of diseases. This clear direction and purpose act as a guiding force that influences consumer decision-making processes and shapes their behaviour around vaccine uptake.

According to the TPB (Ajzen, 1985), intentions serve as a crucial link between consumer attitudes, subjective norms, perceived behavioural control, and their actual behaviours. The theory suggests that the stronger the intentions, the more likely individuals are to follow through and perform the behaviours. However, it is essential to note that intentions do not always translate directly into behaviours, as other factors may influence the actual behaviours

(Carrington et al., 2010; Ekawarna, 2022). However, the TPB generally proposes that intentions are the immediate antecedents of behaviours (Ajzen, 1991).

In light of the above discussion, we hypothesise that:

H9: Intention to use a vaccine has a direct positive impact on vaccine use (actual behaviour).

3.5 Conceptual Framework

Building upon the aforementioned arguments, this research presents a model (Figure 3.1) that draws on established behavioural theories, including the TPB and the HBM. The model shows that consumer hope mediates the relationship between perceived value of vaccines (emotional, social, price and quality) and the intention to use a vaccine. Additionally, the model posits that the intention to use a vaccine and implementation intention to use a vaccine serve as mediators. Furthermore, the model suggests that self-efficacy moderates the relationship between consumer hope and intention to use a vaccine. All relationships are hypothesised as positive.

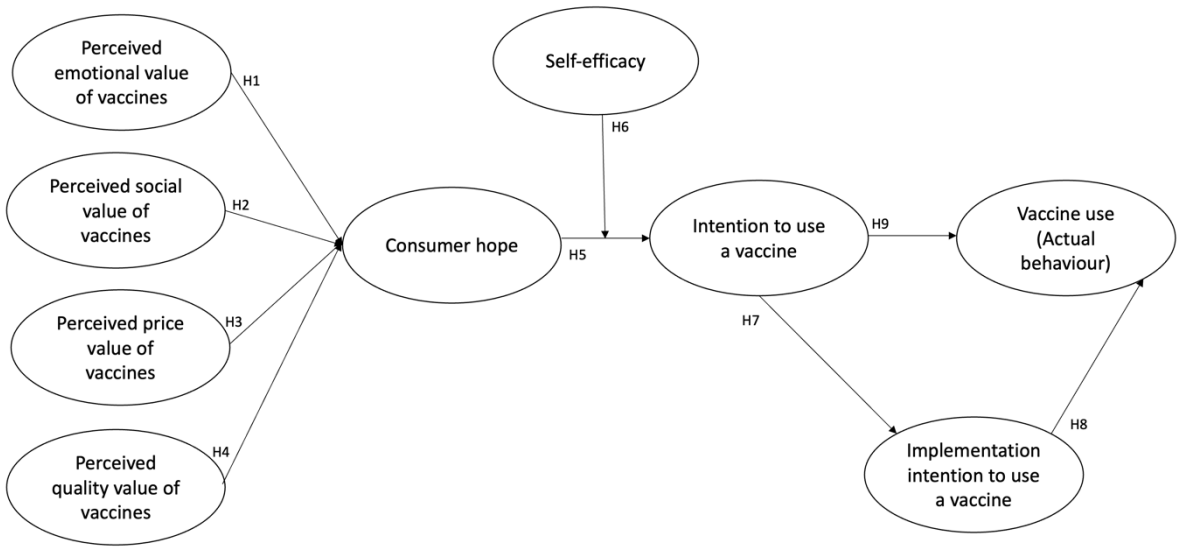


Figure 3.1: Conceptual framework of consumer hope in the vaccine context

3.6 Conclusion

This chapter discussed key theories essential for the research and outlined all relevant constructs, leading to the development of a conceptual framework of consumer hope in the vaccine context. Furthermore, within the model, hypotheses were meticulously formulated, ranging from H1 to H9, each representing a distinct proposition derived from the synthesis of theoretical insights and empirical evidence. These hypotheses serve as testable propositions, offering a roadmap for research.

CHAPTER 4 : METHODOLOGY

The methodology chapter highlights the methods used to explore the research questions of this thesis. The fundamental purpose of the methodology chapter is to discuss the research paradigm, the criteria for choosing a particular method, the research scales used to measure the variables in the proposed framework, the pretesting procedures, the processes used in data collection, and the ethical considerations.

4.1 Research Paradigm

The choice of research design is crucial for the success and validity of a research study. It is essential to consider both practical and philosophical components when designing a research project, as highlighted by Lincoln and Guba (2000). The practical component involves practical considerations such as data collection methods, sample size, and research timeline. In contrast, the philosophical component pertains to the underlying theoretical perspective that guides the research methodology (Creswell et al., 2003). Philosophy plays a fundamental role in research studies as it helps to identify the appropriate research design type for a specific study (Saunders et al., 2009). The different philosophical perspectives of positivism, interpretivism, and post-positivism offer distinct frameworks for approaching research. Each philosophy provides unique insights and considerations about the nature of the knowledge, the role of the researcher, and the methods used for data collection and analysis (Crotty, 1998).

In this particular research, the post-positivism approach has been chosen, as stated by Maksimovic and Evtimov (2023). Post-positivism recognises the importance of empirical evidence and scientific methods in research while acknowledging the influence of subjective interpretations and values. It aims to minimise biases and assumptions by adhering to a

rigorous methodology and a systematic testing of hypotheses. By adopting a post-positivist approach, this research seeks to benefit from the strengths of this philosophical perspective. It strives to balance objectivity and subjectivity by emphasising empirical evidence while recognising the role of interpretation and theory in shaping knowledge. This approach will contribute to the validity and reliability of the research findings by providing a solid foundation for drawing meaningful conclusions and contributing to the existing body of knowledge.

In this research, consumer hope, its antecedents, and the outcome variables are anticipated to emerge. If these relationships are tested, they remain clear to the researcher. The context of post-positivism philosophy indicates that causes determine outcomes (Creswell et al., 2003). In this study, perceived values (emotional, social, price, and quality) are proposed to be one of the causes that drive consumer hope. Furthermore, intention to use a vaccine and vaccine use (actual behaviour) are proposed to be outcomes of consumer hope.

Authors emphasise that the acknowledged method for using post-positivism is to commence a study with established theories, collect information that either approves or disproves the existing theories, and then propose the required modifications according to the knowledge before experiments or tests are performed (Creswell, 2008; Creswell et al., 2003; Currall & Towler, 2003; Fraenkel & Wallen, 1996). This research reviews the work that is significant to perceived value of vaccines (emotional, social, price and quality), consumer hope, self-efficacy, intention to use a vaccine, implementation intention to use a vaccine, and vaccine use (actual behaviour). It then proposes a model based on the relevant theories discussed in Chapter 3. As the abovementioned constructs are established constructs and taken from the previous work of well-known researchers, this research will undertake four experiments and one survey to undertake a comprehensive investigation of the proposed model.

4.2 Research Methods

A quantitative method was chosen to thoroughly examine the hypotheses by assessing the relationships between the constructs in this research. Quantitative methods offer the advantage of gathering data that can be analysed using statistics-based techniques, as noted by Bougie and Sekaran (2019). Cozby et al. (2012) outline three recommended quantitative methods: surveys, experimental designs, and observational studies. This study employed a combination of survey and scenario-based experimental methods. This decision was driven by the necessity to rigorously examine the objective hypotheses by empirically testing the relationships between the constructs under investigation, as emphasised by Creswell and Creswell (2017).

The four experimental studies (Study 1) conducted in this research were scenario-based, experiments. Experimental studies in quantitative research offer several benefits that contribute to their significance and usefulness. First, experimental studies provide a strong foundation for establishing causal relationships between variables. Researchers can establish causality by manipulating the independent variable and observing its impact on the dependent variable (Trochim & Donnelly, 2001). Second, experimental studies allow researchers to control and manipulate variables to minimise confounding factors. By randomly assigning participants to different scenarios, researchers can isolate the effects of the independent variable and reduce the influence of irrelevant variables (Polit & Beck, 2008). Third, experimental studies generate quantitative data that can be analysed statistically, which enables researchers to conduct rigorous analyses to examine the significance and strength of the relationships between variables (Polit & Beck, 2008). The constructs tested in Study 1 were perceived emotional value of vaccines, perceived social value of vaccines, perceived price value of vaccines, perceived quality value of vaccines, and consumer hope.

For Study 2, a survey-based method was used to identify the performance outcome of the variables in the conceptual framework. The benefit of choosing a survey-based method is flexibility, cost-effectiveness, ability to collect large datasets, efficient analyses for extensive data, and fast processing in the phase of data collection (Babbie, 1990; Jann & Wolter, 2019; Jessen, 1978). The constructs used in Study 2 (survey-based) were perceived emotional value of vaccines, perceived social value of vaccines, perceived price value of vaccines, perceived quality value of vaccines, consumer hope, self-efficacy, intention to use a vaccine, implementation intention to use a vaccine, and vaccine use (actual behaviour).

4.2.1 Rationale for Quantitative Research Design

Researchers across various disciplines, including social marketing and behavioural research, have widely employed quantitative research to investigate phenomena and address research questions (Burke et al., 2021; Capasso et al., 2021; Dzwigol, 2020; Featherstone & Zhang, 2020; Luang et al., 2021; Sar & Rodriguez, 2019). This research specifically utilised the quantitative method to gather and analyse data. In quantitative research, numerical data are collected and subjected to mathematical analysis to seek answers to primary and secondary research questions (Aliaga & Gunderson, 2000). Quantitative research offers several advantages because of its systematic and objective approach. By employing statistical methods, researchers are able to make precise and reliable measurements, quantify relationships between variables, and assess the significance of findings (Bell et al., 2022). Using numerical data also enables researchers to conduct rigorous statistical analyses, including descriptive statistics, correlations, regressions, and hypothesis testing, which provide robust evidence and support generalisability (Creswell & Creswell, 2017).

Furthermore, quantitative research allows for accumulating large amounts of data from diverse sources, which facilitates the identification of patterns and trends that may not be

evident (Bell et al., 2022). Using standardised procedures and measures, quantitative research ensures consistency and comparability across different studies, which contributes to the cumulative knowledge base (Creswell & Creswell, 2017). Hence, quantitative methods were employed for this research because they are valuable for investigating and explaining phenomena through collecting and analysing numerical data. The mathematical foundations and systematic methods contribute to reliable and generalisable findings, which enable researchers to address the research questions effectively (Bell et al., 2022).

4.2.2 Sampling Procedure

Convenience sampling is a non-probability sampling technique where participants are selected based on their accessibility and convenience to the researcher (Dornyei, 2007). This sampling method is often used when researchers seek to gather data quickly and easily without the need for a comprehensive sampling frame or rigorous selection process (Stratton, 2021).

In this research, convenience sampling was employed for several reasons. First, convenience sampling is helpful because of its practicality and efficiency, as it allows researchers to access a readily available pool of participants, which can save time and resources (Creswell & Creswell, 2017). Given the time and budget constraints in many research studies, convenience sampling provides a practical solution to recruiting participants efficiently (Etikan et al., 2016). In this particular research, convenience sampling helped to gather data easily and move forward with the analysis and interpretation. Second, convenience sampling can be suitable when the research focuses on a specific population that is easily accessible. Sometimes, the research may be limited to a specific geographic area, community, or institution, and convenience sampling allows researchers to conveniently target individuals within that specific population to ensure that the sample represents the intended group

(Creswell & Creswell, 2017). Third, convenience sampling is inexpensive and easy to collect, and it is easy to find participants (Stratton, 2021). Hence, this research employed convenience sampling because of its practicality, efficiency, and accessibility to the target population. It allowed for quick data collection, particularly in cases where time and resources were limited. Additionally, convenience sampling facilitated the study of a specific population (Australians in this case). While convenience sampling has limitations in its representativeness, its use in this research was justified because of the specific research objectives and constraints (Etikan et al., 2016).

4.3 Measures

The measures utilised in this research were confirmed through an assessment of existing literature within the field. These measures encompass various constructs, including perceived emotional value of vaccines, perceived social value of vaccines, perceived price value of vaccines, perceived quality value of vaccines, consumer hope, self-efficacy, intention to use a vaccine, implementation intention to use a vaccine, and vaccine use (actual behaviour). Each measure's selection process is thoroughly discussed in the subsequent subsections

4.3.1 Selecting a Scale to Measure Perceived Value of Vaccines

Perceived value has been measured in a variety of ways. For example, de Ruyter et al. (1997) performed a study to identify perceived value in a service context. The survey participants were Dutch and Swedish museum customers. A questionnaire was designed for the research that consisted of a booklet with different parts, and each part of the booklet measured perceived value in each stage of the service delivery process. Each part was printed on a separate slip of paper in a different colour to distinguish them from each other. Each part contained four items. Museum visitors were requested to participate in the questionnaire and fill in each part immediately after they experienced each stage of the service delivery process.

The research results stipulated that the museum service delivery process could be broken down into individual stages. The factor analysis results showed a close link between the three value dimensions of the service stages (emotion, practice, and logic) (de Ruyter et al., 1997). Similarly, Pihlstrom and Brush (2008) studied the direct effects of four value dimensions (social, emotion, condition, and epistemic) that were initially conceptualised by Sheth et al. (1991). Table 4.1 presents a summary in chronological order of studies that have focused on perceived value as a multidimensional measure.

Table 4.1: Summary of past studies highlighting perceived value as a multidimensional construct

Researchers	Concept introduced by	Dimensions	Total number of items
de Ruyter et al. (1997)	Hartman (1967) and Mattsson (1991)	emotion, practice, logic	**15**
Lapierre (2000)	inter alia Zeithaml (1988) and Slater (1997)	quality, response, reliability, flexibility, technical, price, solidarity, competence, time	**51**
Sweeney and Soutar (2001)	Sheth et al. (1991)	emotion, social, price, quality	**19**
Mathwick et al. (2001)	Holbrook (1994)	visual, escapism, efficiency, economic, entertainment, enjoyment	**17**
Petrick (2002)	Zeithaml (1988)	quality, emotion, price, repute, behaviour, response	**25**
Wang et al. (2004)	Sweeney and Soutar (2001)	function, emotion, social, sacrifice	**18**
Pura (2005)	Sheth et al. (1991)	social, emotion, condition, epistemic	**10**
Sánchez-Fernández and IniestaBonillo (2006)	Sweeney and Soutar (2001)	function, personnel, product, emotion, price	**24**
Whittaker, Ledden, and Kalafatis (2007) a	Sheth et al. (1991)	function, epistemic, emotion, price, quality, social	**22**
Philström and Brush (2008)	Sheth et al. (1991) and Sweeney and Soutar (2001)	monetary, convenience, emotion, social	**16**
Sánchez-Fernández et al. (2009)	Holbrook (1994)	social, altruistic, efficiency, quality, aesthetics	**24**

As per Table 4.1, most researchers identify perceived value as a multidimensional construct. According to Sweeney and Soutar (2001), perceived value has been widely argued on a broader level. They further note that perceived value might need to be clarified with consumer satisfaction. However, these two constructs are different from one another. Perceived value happens at different stages of the transaction process, including prepurchase, during purchase, and post-purchase, while satisfaction occurs only post-purchase. Therefore, perceived value can occur without product use, whereas satisfaction only occurs after using a product or service. Thus, perceived value is categorised as multidimensional as it occurs in various purchase stages, whereas satisfaction is categorised as unidimensional because it changes along a hedonic continuum from unfavourable to favourable. Also, satisfaction is conceptualised as a consequence, outcome, or summary variable, and perceived value is antecedent to it (Sweeney & Soutar, 2001).

To measure perceived value, this research utilises Sweeney and Soutar's (2001) scale, which was originally conceptualised by Sheth et al. (1991). Sweeney and Soutar (2001) refined the perceived value into a four-dimensional PERVAL scale after a series of thorough research and testing. Unlike unidimensional measures, these measures include both utilitarian and hedonic components. Sweeney and Soutar (2001) further established that multiple value dimensions explain consumer value better than one-dimensional value items and should produce superior results upon investigation.

The PERVAL scale of Sweeney and Soutar (2001) was developed in the following stages. (1) Development of an initial set of items – stage one, (2) Data collection – stage one, (3) Item reduction and exploratory investigation of dimensionality – stage one, (4) Reliability and validity of scale – stage one, (5) Data collection – stage two, (6) Scale purification – stage two, (7) Reliability and validity of final scale – stage two, and (8) Data collection – stage

three. This represents an improvement in the reliability of scales for quality, price, and social value, although the emotional value scale was slightly less in stage three than in either of the two earlier stages. The total scale reliability (Cronbach's alpha) was 0.95 in both cases (Sweeney & Soutar, 2001). It also shows the example of the items. The PERVAL scale comprises a total of 19 items for all four dimensions. These items have been adapted in the context of this research.

4.3.2 Choosing a Scale to Measure Consumer Hope

Stotland (1969) proposed a model of hope that influenced the design of some of the initial measures of hope (Farran et al., 1995). He explained hope as an expectation greater than zero of achieving a goal. He also proposed that for hope to function, there must be some minimum level of goal importance and a sense of making it possible. Other theorists have proposed models of hope that are essentially variations on this theme of optimistic expectations of goal attainment in the future. In 1991, Snyder and his fellow researchers developed a model of hope that utilised Stotland's model as a basis and expanded on it. Snyder et al. (1991) proposed a theory that hope fundamentally comprises goal attainment. Snyder's Hope Scale was designed to measure hope's agency and pathways components. The reliability of Snyder's Hope Scale has been tested across various samples, from college-going students (total of 3,920) to healthcare consumers (total 206). The subscale score shows internal consistency across the student sample, as evidenced by Cronbach's alphas ranging from .63 to .68 for pathways scores and from .71 to .78 for the agency (Snyder et al., 1991). Similar findings appeared in the health consumer sample, with Cronbach's alphas ranging from .64 to .80 for pathways scores and .76 to .77 for an agency. Collectively across all samples, the Cronbach's alpha for the total Snyder Hope Scale ranged from .74 to .84 (Snyder et al., 1991).

The first measurement of hope tool that Snyder et al. (1991) designed was the Trait Hope Scale. This scale taps into trait hope in adults. It consists of a self-report questionnaire containing 12 questions that measure agency and pathways thoughts. The items are measured on a seven-point Likert scale. The scale generates three scores: a hope score produced by totalling the agency and pathways items and two individual scores that measure agency and pathways individually by summing their corresponding items. If the total scores on the scale are higher, hope is higher, and if the total scores on the scale are on the lower side, hope is lower (Snyder et al., 1991).

Snyder and his fellow researchers tested the Trait Hope Scale on a variety of consumers, including undergraduate students, consumers looking for emotional treatment, and war veterans with post-traumatic stress disorder. The Trait Hope Scale has been tested and validated as being highly reliable. Snyder et al. (1991) reported Cronbach's alphas of .74 to .84 for overall hope, .71 to .76 for agency thoughts, and .63 to .80 for pathways thoughts when sampling consumers from the different target populations mentioned above. Snyder et al. (1991) further tested and retested to validate the scale reliability reporting of .80 and above for 10 weeks in the case of sampling American undergraduate students. Snyder et al. (1991) therefore found that although agency and pathways are different components of hope, they are connected. Significant positive correlations of .001 were found between the agency and pathways. However, according to Snyder et al. (1991), hope levels among consumers may vary depending on their circumstances; for example, a person with high hope may sometimes experience low levels of hope when dealing with stressful situations. In these circumstances, the authors considered this situation to be a drawback of the Trait Hope Scale, as it only measures a consumer's general level of hope (Snyder et al., 1991).

As a result of the drawback mentioned above in the Trait Hope Scale, Snyder et al. (1996) produced a scale to measure state hope, which measures goal-oriented thinking in a specific time (Lopez et al., 2000). The State Hope Scale is a six-item self-report questionnaire. It has three agency items and three pathways items. All the items are recorded using a 7-point Likert scale. Even-numbered items are totalled to get an agency score and the odd-numbered items are totalled to get a pathways score. Total state hope scores range from 6 to 48, and subscale scores range from 3 to 24, with high scores indicating high hope (Snyder et al., 1996). No descriptive statistics are reported for the State Hope Scale as the score results depend on individual circumstances. The reliability of the State Hope Scale was tested in four studies by Snyder et al. (1996). They reported Cronbach's alphas of .79 to .95 for the overall State Hope Scale, .79 to .95 for the agency subscale, and .59 to .93 for the pathways subscale, which is strong evidence for the internal reliability of the State Hope Scale (Lopez et al., 2000).

One of the earliest measures of hope was designed by Gottschalk in 1974 and was named the Gottschalk Hope Scale. Its conceptualisation was based on Stotland's theory of hope. It is a set of seven categories that measure tape-recorded verbal samples from subjects. While this scale covers all of the domains of hope identified by Farran et al. (1995), it is limited in its efficacy as at least three verbal five-minute samples are required, and extensive training is needed to achieve inter-rater reliability. This measure was developed to tap into five dimensions: ego strength, religion, family support, education, and economic assets. While education and economic assets are related to the level of hope, it is unclear whether these should be considered central elements of hope. Also, there was only one published study based on this measure, which noted Cronbach's alphas of .61, which is below the satisfactory level.

Farran et al. (1995) also rated the Miller Hope Scale by Miller and Power (1988) and the Herth Hope Scale by Herth (1991). Both scales showed strong internal consistency and test-retest reliability. The Herth Hope Scale was originally developed from a consolidation of Dufault and Martocchio's (1985) model that explains three distinct components of hope. Items on the Herth Hope Scale tap into a general optimistic viewpoint, spiritual encouragement, sense of importance, and optimism in life. While the Miller Hope Scale taps into dimensions related to hope, the Herth Hope Scale focuses on the core components of hope. Table 4.2 provides a summary of the hope scales developed by various researchers. It also shows previous and past studies that have tested the particular construct in their research.

Table 4.2: Comparison of hope scales across research studies

Scale	Developed by	Population/Sample	Author and year
Gottschalk Hope Scale	Gottschalk (1974)	Normative sample of children, adults, and psychiatric outpatients	Gottschalk (1974)
Miller Hope Scale	Miller (1986)	(1) Healthy young university students (2) Rural southern adolescents	(1) Miller (1986) (2) Hendricks et al. (2005)
Herth Hope Scale	Herth (1991)	(1) Cancer patients (2) Patients with heart disease	(1) Rustøen et al. (2018) (2) Chan et al. (2012), Soleimani et al. (2019)
Trait Hope Scale	Snyder et al. (1991)	(1) Undergraduate college students (2) Graduate students (3) Older women (4) Veterans with post-traumatic stress disorder (5) Patients participating in drug withdrawal programs (6) Women having treatment for breast cancer	(1) Snyder et al. (1991), Snyder (1999) (2) Onwuegbuzie and Snyder (2000) (3) Westburg (2001) (4) Crowson et al. (2001) (5) Seaton and Snyder (2001) (6) Stanton et al. (2000)
State Hope Scale	Snyder et al. (1996)	(1) Undergraduate American students (2) Secondary education students (3) Italian adults (4) Filipino citizens	(1) Snyder et al. (1996) (2) Martin-Krumm et al. (2015) (3) Magnano et al. (2019) (4) Bernardo and Mendoza (2021)

While Snyder's Hope Scale can be utilised for qualitative and quantitative studies (Snyder, 1996), the Herth Hope Scale was designed to capture the theoretical multidimensionality of hope identified by qualitative studies (Herth, 1991). Snyder's Hope Scale was chosen for this research to tap into hope for the following reasons: (1) A clinical psychologist designed the measure, (2) Many researchers have tested the measure due to its strong internal consistency and reliability, and (3) Snyder's Hope Scale can be used both for quantitative and qualitative studies, whereas the Herth scale can only be used in qualitative research.

4.3.3 Self-efficacy Scale

The General Self-Efficacy Scale (GSE) is the most popular self-efficacy scale, and it has been cited by many international researchers in the past two decades. It is fit for a wide range of applications. The GSE scale is related to emotion, optimism, and work satisfaction. Negative coefficients were found for depression, stress, health complaints, burnout, and anxiety. It was developed by Schwarzer and Jerusalem (1995), who are two prominent researchers in self-efficacy. The scale is designed for the general adult population only and not for children under 12 years of age. It can be taken to forecast adaptation after unfavourable life changes, but it is also an appropriate indicator of the quality of life at any time. It is usually self-administered as part of a more comprehensive questionnaire. Preferably, the 10 items are randomly diversified into a bigger group of items with the same response format. Cronbach's alphas from .76 to .90 were reported in samples across 23 nations, with the majority in the .80s. The GSE scale contains 10 items, and responses are rated on a scale of 1 (not true at all) to 4 (exactly true). All items are listed in Table 4.3.

Table 4.3: General Self-Efficacy (GSE) scale items by Schwarzer and Jerusalem (1995)

No.	Item
1	I can always manage to solve complex problems if I try hard enough
2	If someone opposes me, I can find the means and ways to get what I want
3	It is easy for me to stick to my aims and accomplish my goal
4	I am confident that I could deal efficiently with unexpected events
5	Thanks to my resourcefulness, I know how to handle unforeseen situations
6	I can solve most problems if I invest the necessary effort
7	I can remain calm when facing difficulties because I can rely on my coping abilities
8	When I am confronted with a problem, I can usually find several solutions
9	If I am in trouble, I can usually think of a solution
10	I can usually handle whatever comes my way

Another scale by Chen et al. (2001) was developed to improve the original self-efficacy scale by Sherer et al. (1982), known as the New General Self-Efficacy (NGSE) scale. Current researchers have successfully tested this measure on low waged African-Americans (Roman et al., 2009), homeless people belonging to other ethnicities such as Latinos, Europeans (Businelle et al., 2013), and college students in the US and across the globe (Garza et al. 2014). The scale comprises eight items. Responses are rated from 1 (strongly disagree) to 5 (strongly agree). All the items are listed in Table 4.4.

Table 4.4: New General Self-Efficacy (NGSE) scale items by Chen et al. (2001)

No.	Item
1	I will be able to achieve most of the goals that I have set for myself
2	When facing complex tasks, I am certain that I will accomplish them
3	In general, I think that I can obtain outcomes that are important to me
4	I believe I can succeed at most any endeavour to which I set my mind
5	I will be able to successfully overcome many challenges
6	I am confident that I can perform effectively on many different tasks
7	Compared to other people, I can do most tasks very well
8	Even when things are tough, I can perform quite well.

4.3.4 Behavioural Intention Scale

The Behavioural Intention (BI) scale is widely used in quantitative research to measure consumer intentions towards a particular behaviour (Ellis et al., 2009; Gabriel et al., 2019; Graham & Rosen, 2020). It provides valuable insights into understanding and predicting human actions, which allows researchers to examine the factors that influence decision-making processes. Developed in the field of psychology, the scale assesses the likelihood of engaging in a specific behaviour based on consumers' intention to do so (Ajzen, 1985).

The BI scale was first introduced by Icek Ajzen, a renowned social psychologist, in the 1980s (Ajzen, 1985). Ajzen developed this scale as part of his TPB, which suggests that consumer intentions are strong predictors of their actual behaviour (Ajzen & Schmidt, 2020). The BI scale typically consists of a series of items or statements that participants rate on a Likert-type scale, ranging from strongly disagree to strongly agree. The scale measures the strength of a consumer's intention to engage in a specific behaviour by assessing their agreement or disagreement with statements related to the behaviour in question (Ajzen, 1985). For example, in the context of vaccine uptake, some items on the scale include statements such as

"I plan to use vaccine recommended by health authorities" and "I am likely to get vaccinated in case of a pandemic/epidemic". When applied to the vaccine context, the BI can help researchers understand the factors that influence consumer intentions to receive a vaccine. This research gained insights into the determinants of vaccine acceptance by examining the relationship between intentions and various predictors, such as consumer hope and value perceptions (emotional, social, price, quality). The scale allowed for the quantification of consumer intentions by providing a numerical measure of their likelihood to engage in vaccine-related behaviours. This quantitative data were then statistically analysed to identify patterns, trends, and correlations between intention scores and other research variables.

4.3.5 Implementation Intention Scale

Implementation intention is a powerful tool in quantitative research that helps bridge the gap between intention and actual behaviour. It mediates between the two and provides valuable insights into why consumers may or may not translate their intentions into actions (Grimmer & Miles, 2017). In the context of vaccination, understanding the role of implementation intention is particularly crucial, as it can shed light on the factors that influence vaccine uptake and help identify effective strategies to promote vaccination (Yokum et al., 2018). The implementation intention scale was initially proposed by Peter M. Gollwitzer, a renowned psychologist, in 1999. Gollwitzer (1999) suggests that individuals who form specific plans or implementation intentions are more likely to successfully engage in objective driven behaviours. Implementation intentions involve creating a mental link between a situational cue and a behavioural response (Gollwitzer, 1999). For example, a person may decide, "If I receive a vaccine appointment reminder on my phone (cue), I will immediately book the appointment (behaviour)". This apparent link between the cue and the behaviour facilitates the automatic and effortless execution of the intended action.

In the context of vaccines, a limited amount of literature is available on implementation intention. Researchers have utilised the implementation intention scale (Gauchet et al., 2015; Payaprom et al., 2011; Yokum et al., 2018) to understand its impact on actual vaccination behaviour. Researchers have explored the link between the intention to use vaccines and subsequent vaccine adoption. One study conducted by Payaprom et al. (2011) examined the relationship between vaccine hesitancy and the intention to receive the flu vaccine. They adopted the implementation intention scale to assess consumer commitment to getting vaccinated in specific situations. The results revealed that individuals with strong implementation intentions were more likely to follow through with their intention to receive the flu vaccine, which resulted in higher vaccination rates among this group. Similarly, Gauchet et al. (2015) conducted a randomised controlled trial to assess the effectiveness of intention-based interventions to increase human papillomavirus (HPV) vaccine uptake among adolescents. The intervention group received a tailored implementation intention prompt, while the control group received standard vaccine information. The results indicated that participants in the intervention group who had formed specific plans for vaccination were more likely to receive the HPV vaccine compared to the control group, which highlighted the significance of implementation intentions in driving actual behaviour change.

The implementation intention scale has emerged as a valuable tool in quantitative research (Grimmer & Miles, 2017). It has been adapted and tested in various social marketing studies (Milkman et al., 2011; Moyers & Hagger, 2021; Yokum et al., 2018), which indicates its effectiveness in mediating intention and actual behaviour. Understanding the role of implementation intention in the general vaccination context can aid social marketers in designing targeted interventions to promote any vaccination and improve overall vaccine acceptance rates.

4.3.6 Summary of Measures Under Study

Well-established existing scales by well-known researchers have been adapted to study the constructs of this research. A summary of the adapted scales is presented in Table 4.5.

Table 4.5: Summary of measures used in the study

Constructs	Scale	Scale adapted from	Study respondents	Operationalised variables
Perceived emotional value of vaccines	PERVAL scale	Sweeney and Soutar (2001)	Adults 18 years and over living in Australia	Consumers feel positive, secure, and motivated thinking about getting vaccinated.
Perceived social value of vaccines	PERVAL scale	Sweeney and Soutar (2001)	Adults 18 years and over living in Australia	Consumer perceptions when their community and peers are vaccinated.
Perceived price value of vaccines	PERVAL scale	Sweeney and Soutar (2001)	Adults 18 years and over living in Australia	Consumer perceptions regarding the efforts, hassle, price, and time in getting vaccinated and also the cost/harm associated with not getting vaccinated.
Perceived quality value of vaccines	PERVAL scale	Sweeney and Soutar (2001)	Adults 18 years and over living in Australia	Consumer perceptions regarding the quality of different vaccine brands used in Australia, such as Pfizer, Moderna, and AstraZeneca.
Consumer hope	State Hope Scale	Snyder et al., (1996)	Adult Americans	The consumer feels positive, confident, and hopeful, thinking about beating the disease by getting vaccinated.
Self-efficacy	New General Self-Efficacy (NGSE) scale	Chen et al. (2001)	University undergraduates	Consumer feels confident that they can get back on track and improve their own and loved ones' health by following health departments' recommendation to get vaccinated.
Intention to use a vaccine	Behavioural intention (BI) scale	Sheriffdeen (2017)	Adults 18 years and over living in Australia	Consumer intentions to use the vaccine in case a pandemic/epidemic hits again.
Implementation intention to use a vaccine	Implementation intention scale	Nydegger et al. (2013)	Participants from drug diversion sites in California	Consumer implementation strategies to use vaccine in case a pandemic/epidemic hits again.

Constructs	Scale	Scale adapted from	Study respondents	Operationalised variables
Vaccine use (actual behaviour)	Behaviour scale	Wu and Chen (2014)	Participants who prefer green consumption in Northern Taiwan	Consumer actual behaviour in getting vaccinated.

4.4 Survey Pretesting

Content validity is an essential step in experiment and survey pretesting, particularly in developing and evaluating measurement instruments such as questionnaires or scales. It refers to the extent to which the items included in a measurement instrument adequately represent the intended construct or concept being measured (Polit & Beck, 2008). Polit and Beck (2008) state that a measurement instrument needs more content validity to fully represent the construct of interest. Hence, to ensure the content validity of this research, the development of the experiment and survey questionnaires involved various stakeholders, including supervisors, ACU students with a marketing research background, and a professor from an external university. The process began with carefully crafting questionnaires that were specifically tailored for the experiment and survey participants. The expertise and knowledge of stakeholders in the field provided valuable insights into the design and formulation of the questions. To further strengthen and validate the survey questions, a pilot study was conducted, which involved 40 respondents from across Australia who participated in both the survey and experiment questionnaires. A Qualtrics soft launch process was used for the pilot study, which acted as a preliminary test of the survey's effectiveness. The pilot study allowed for any necessary modifications and refinements to be made before the final version of the survey was launched.

Moreover, to enhance the credibility and reliability of the research, the survey questions also underwent peer validation. A lecturer from a well-known Australian university who is

renowned for their expertise in consumer behaviour was consulted for their valuable insights and feedback. This external expert provided an unbiased assessment of the survey questions, which added a layer of validation to the process. Throughout the development and validation process, expert and participant perspectives were considered. This inclusive approach aimed to ensure that the questions were theoretically sound, relevant, and meaningful to the target population. The experts' and participants' feedback and recommendations were carefully analysed and integrated into the final version of the questionnaires.

4.5 Research Context and Participant Recruitment

The primary objective of this study is to collect data from a representative sample of the adult population residing throughout Australia. The research aims to provide a comprehensive understanding of consumer behaviour in the context of vaccine use, focusing on factors such as perceived value and consumer hope. Australia provides a diverse context for this study due to its varying levels of vaccine use, social marketing initiatives, and demographic diversity. By targeting participants across various regions of Australia, the study intends to capture a broad spectrum of opinions and behaviours, thereby enhancing the generalisability of the results to the wider Australian population.

Survey and experiment questionnaires were administered to the participants through the Qualtrics platform to facilitate data collection. Participants were recruited through a mix of emails, text messages and social media advertisements, ensuring a diverse and representative sample. To ensure the statistical robustness of the research model, Hair et al. (2020) recommend a minimum of 20 observations per construct. Given the conceptual framework of this research comprised nine constructs, the study required a minimum sample size of approximately 180 responses. The target sample size for the research was set at 414 participants, which exceeded the minimum requirement to provide a solid foundation for the

research findings. This sample size ensures statistical reliability and adequate power for the analysis.

Several other factors also contributed to the decision to select a sample size of 414 participants. First, practical considerations such as the scope and complexity of the research model played a role. Given the inclusion of multiple constructs and the need for sub-group analyses across diverse demographic groups, a larger sample size was necessary to obtain adequate representation and sufficient data granularity (Lakens, 2022). Second, participant dropout or incomplete responses were anticipated in online surveys, so the larger sample size helps mitigate any potential loss of valuable data. Third, the variability in vaccine-related behaviours across different Australian regions required an expanded sample to ensure regional differences were properly accounted for. Finally, the study aimed to achieve a high degree of precision in estimating the relationships between constructs, necessitating a sufficiently large sample size to achieve statistical significance and ensure reliable conclusions.

4.6 Ethical Consent

An application (Ethics register number: 2022-2812E) for ethics approval was submitted to the Australian Catholic University Human Research Ethics Committee (ACU HREC) in November 2022, and official approval was received in February 2023. The ethical guidelines highlighted by the committee have been closely adhered to throughout the study. The respondents were thoroughly informed about the nature of the data collection processes involved in this research, and they were also informed about their right to withdraw from the study at any time. The study did not record any of the respondents' personal information that was unnecessary for this research, such as their full name, date of birth, or any sensitive information.

4.7 Conclusion

In this chapter, various key aspects of the research methodology have been discussed. First, the research paradigm guiding the study was explained. Then, the scales used to measure the constructs were outlined. The process of survey validation was also described to ensure the reliability and validity of the data collection instruments. Furthermore, the soft launch phase was detailed, which allowed for preliminary testing and refinement of the survey instruments before full-scale deployment. Ethical considerations were carefully addressed throughout the research process to ensure the data protection and well-being of participants. A sample (N=414) of adult Australian participants, was engaged to gather data for both the survey and scenario-based experiments. Data collection was facilitated through the Qualtrics platform, which provides a streamlined and user-friendly interface for respondents.

CHAPTER 5 : ANALYSIS AND RESULTS

This chapter begins with an overview of the demographics of the study participants. It then delves into the analysis and results of both Study 1 and Study 2, providing a detailed exploration of the findings. Various statistical analyses, including t-tests, goodness-of-fit statistics and path analysis, are presented to aid in understanding the relationships within the conceptual framework. Furthermore, slope analysis is conducted to establish how self-efficacy influences consumer hope and intention to use a vaccine as a moderator. Finally, fuzzy-set Qualitative Comparative Analysis (fsQCA) is performed. Its results are compared with those obtained through Structural Equation Modelling (SEM), providing a comprehensive understanding of the findings from different analytical perspectives.

5.1 Sample Demographics

The eligibility criteria stipulated that participants had to be at least 18 years old, be residing in Australia, and have received a vaccination within the previous five-year period. These screening questions were asked at the commencement of the experiment questionnaire. The participant pool was comprised predominantly of females (78 percent), with males comprising 20 percent and the remaining 2 percent preferring either not to disclose their gender or identifying as “others”. The participants’ average age fell within the 35–44 year range. In terms of educational qualifications, 57.7 percent of participants held a high school diploma or an equivalent, while 30.2 percent had a bachelor’s degree, and only 6.3 percent held a master’s degree. In terms of employment status, 37.7 percent were employed full-time, 21.5 percent were employed part-time or in casual positions, 17.4 percent were retired, 4.8 percent were students, and 10.4 percent were homemakers. In terms of annual income, 77.5 percent of participants earned over $50,000, with 38.6 percent falling within the $50,000–$90,500 range, 8.2 percent falling within the $91,000-–$100,500 range, and 12.1 percent

falling within the $101,000–$200,000 range. Only 0.7 percent reported earning $200,000 or above. The diverse demographic characteristics of the sample confirmed that a comprehensive representation was achieved in this study. The recruitment of participants (N=414) was conducted using the Qualtrics survey platform. For the experiment, the participants were randomly assigned to Group A (N=204) and Group B (N=210), and both groups were presented with four scenarios, each followed by a series of questions on a 7-point Likert scale. Table 5.1 presents the sample demographics of Study 1 and Study 2 participants.

Table 5.1: Sample demographics

Characteristic	N	%
Gender		
Male	83	20.0
Female	326	78.7
Prefer not to say	2	0.5
Other	3	0.7
Education		
Less than a high school diploma	34	8.2
High school degree or equivalent (e.g. GED)	114	27.5
Some college, no degree	79	19.1
Associate degree (e.g. A.A., AS)	34	8.2
Bachelor's degree (e.g. B.A., BS)	125	30.2
Master's degree (e.g. M.A., MS, MEd)	26	6.3
Doctorate or professional degree (e.g. MBBS, BDS, PhD)	2	0.5
Employment status		
Employed full time	156	37.7
Employed part time or casual	89	21.5
Unemployed and currently looking for work	11	2.7
Unemployed not currently looking for work	4	1.0
Student	20	4.8
Retired	72	17.4
Homemaker	43	10.4
Self-employed	13	3.1
Unable to work	5	1.2
Other	1	0.2
Annual Income		
Less than $50,000	161	38.9

$50,000–$90,500	160	38.6
$91,000–$100,500	34	8.2
$101,000–$200,000	50	12.1
$200,000 and above	3	0.7
Other	6	1.4

5.2 Experimental Design – Study 1

Four experiments were conducted to test the causality of constructs. Each of the relevant hypotheses (H1–H4) was examined using a t-test on IBM SPSS version 29. The first experiment aimed to examine the hypothesis that the perceived quality value of vaccines has the potential to either enhance or diminish the level of consumer hope (H4). The second experiment focused on exploring the impact of perceived social value on consumer hope (H2). The third experiment sought to investigate the causal relationship between perceived emotional value and consumer hope (H1). The fourth experiment aimed to determine whether or not perceived price value plays a role in driving consumer hope (H3). These four constructs were selected for Study 1 because they represent key dimensions of perceived value that are central to the conceptual model. As core variables theorised to influence consumer hope, testing them individually allowed for a focused analysis of their causal effect in a controlled, scenario-based experimental setting before proceeding to the full model.

In order to ensure that the sample adequately represented diverse demographics, the assistance of an external market research firm, Qualtrics, was sought. Qualtrics was responsible for gathering data from the panel of potential respondents. To initiate the data collection process, Qualtrics sent out email invitations to potential participants, which provided a comprehensive overview of the study's objectives and information on the ethical considerations and purpose. Additionally, the email included a URL link that allowed access to online experiment scenarios. The data was collected from May 19th to May 26th, 2023. The experiment scenarios comprised questions about participants' perceptions of value

(emotional, social, price, quality) regarding vaccines and consumer hope, with the aim of capturing essential contextual information for the study.

5.2.1 Perceived Quality Value of Vaccines and Consumer Hope – Experiment 1

In order to prime the participants, a brief scenario was provided to each group, accompanied by a picture of unbranded vaccines for Group 1A (low perceived quality value scenario) and branded vaccines for Group 1B (high perceived quality value scenario). Subsequently, participants were prompted to express their opinions about the quality of the respective vaccines. In the high perceived quality of vaccine scenario, participants were presented with a picture of branded vaccines and instructed to imagine a severe COVID outbreak where the government has recommended getting vaccinated again, specifically with a branded vaccine. They were then asked to provide their thoughts on the quality of the branded vaccines. Conversely, in the low perceived quality of vaccine scenario, participants were asked to imagine a similar severe COVID outbreak but with the likelihood of receiving an unbranded vaccine this time. They were also requested to provide a suggestion per their position. After completing the scenario task, the participants undertook a manipulation check using a 7-point Likert scale (ranging from 1 = strongly disagree to 7 = strongly agree). Higher average values close to 7 indicated a stronger inclination towards vaccine quality, while lower values close to 1 indicated a lower perception of vaccine quality. In the end, participants were asked to indicate their level of agreement with the consumer hope scale using a 7-point Likert scale ranging from 1 = strongly disagree to 7 = strongly agree.

The t-test results indicated that our manipulation of the perceived quality value of vaccines worked. The analysis revealed a significant overall effect of the perceived quality value of vaccines on consumer hope ($t = 3.411$, $p = 0.001$). Participants exposed to the high perceived quality scenario reported significantly higher levels of hope ($M = 5.067$, $SD = 1.514$) in

comparison to those in the low perceived quality scenario (M = 4.525, SD = 1.576). These findings supported our initial hypothesis (H4) that perceived quality value of vaccines positively influences consumer hope.

5.2.2 Perceived Social Value of Vaccines and Consumer Hope – Experiment 2

This experiment aimed to investigate the potential influence of the perceived social value of vaccines on individuals' levels of consumer hope. Participants assigned to Group 2A were presented with a scenario in which they were asked to imagine a severe COVID outbreak, during which the government recommended vaccination for work and travel purposes. However, these participants were primed to express reluctance towards getting vaccinated, believing that receiving the vaccine would not enhance their social acceptance. The second group (Group 2B) was presented with the same scenario; however, they were instructed to perceive vaccination as a means of increasing their social acceptance (referred to as the high perceived social value scenario). Following a similar procedure as employed in Group 1, a manipulation check was conducted to ensure consistency across the groups. Subsequently, participants were asked to indicate their level of agreement on a 7-point Likert scale to measure their level of hope.

The t-tests revealed that the results were insignificant, thus indicating no statistically significant overall effect of the perceived social value of vaccines on consumer hope ($t = 1.360$, $p = 0.175$). Participants exposed to the high perception scenario exhibited slightly higher levels of hope (M = 5.031, SD = 1.491) than those in the low perception scenario (M = 4.818, SD = 1.545), but this difference was not statistically significant. These findings do not provide empirical support for the hypothesis (H2), which suggests that the perceived social value of vaccines does not positively impact on consumer hope.

5.2.3 Perceived Emotional Value of Vaccines and Consumer Hope – Experiment 3

The third experiment aimed to explore the impact of the perceived emotional value of vaccines on individuals' levels of consumer hope. Participants assigned to Group 3A were presented with a scenario in which they were asked to imagine a severe COVID outbreak, during which the government recommended vaccination for work and travel purposes. However, these participants expressed reluctance towards getting vaccinated, believing that receiving the vaccine would not enhance their emotional well-being. In contrast, the second group (Group 3B) was presented with the same scenario but was instructed to perceive vaccination as a means of increasing their emotional well-being. Following a procedure similar to that employed in Group 1, a manipulation check was conducted to ensure consistency across the groups. The participants were then asked to indicate their level of agreement on a 7-point Likert scale to assess their level of hope.

The t-tests indicated a significant overall impact of the perceived emotional value of vaccines on consumer hope ($t = 4.831$, $p = 0.000$). Participants exposed to the high perceived emotional value scenario displayed higher levels of hope ($M = 5.175$, $SD = 1.463$) compared to those in the low perceived emotional value scenario ($M = 4.393$, $SD = 1.680$). These results provided empirical evidence that supports our hypothesis (H1) and suggests that the perceived emotional value of vaccines positively influences consumer hope.

5.2.4 Perceived Price Value of Vaccines and Consumer Hope – Experiment 4

The fourth and final experiment aimed to investigate the influence of perceived price value on the level of consumer hope. Two groups were primed using a brief scenario: Group 4A (low perceived price value scenario) and Group 4B (high perceived price value scenario). In the low perceived price value scenario (Group 4A), participants were asked to imagine a

severe COVID outbreak where the government recommended getting vaccinated for work and travel purposes. However, in this scenario, participants were informed that the vaccine would cost $15. The cost of a flu shot in Australia varies depending on factors such as the healthcare provider, location, and the type of flu vaccine being administered (Australian Government Department of Health, 2021). The National Immunisation Program (NIP) and state/territory immunisation programs in Australia cover flu vaccine costs, and eligible individuals can receive the vaccine free of charge through these programs (Australian Government Department of Health, 2021). However, vaccine providers may charge an administration fee for the service associated with delivering the vaccine; for example, Chemist Warehouse charges $14.99 for vaccine administration (Chemist Warehouse, 2023). Hence, a $15 vaccine price was set for the experiment to provide realism. Keeping to this cost ensured that the price was within the typical range observed in Australia, which helped to maintain the experiment's external validity, as it was aligned with the real-world scenario where Australians would generally encounter a similar range of costs for a vaccine shot. Participants were then prompted to provide their thoughts on this scenario and their perception of the vaccine's price.

Conversely, in the high perceived price value scenario (Group 4B), participants were asked to imagine a similar severe COVID outbreak. However, in this scenario, they were informed that the vaccine is provided free of charge. Participants in this group were also requested to provide their thoughts on this scenario and their perception of the vaccine's price. After completing the scenario task, participants underwent a manipulation check to ensure the effectiveness of the scenarios. They were asked to rate their agreement on a 7-point Likert scale, where 1 indicated strong disagreement and 7 indicated strong agreement with the perception of the vaccine's price. Finally, participants were asked to indicate their level of

agreement with the consumer hope scale using a 7-point Likert scale ranging from 1 = strongly disagree to 7 =strongly agree.

The findings from the fourth experiment demonstrated the success of manipulating the perceived price value of vaccines. The t-tests revealed a significant overall impact of the perceived price value of vaccines on consumer hope ($t = 5.939$, $p = 0.000$). Participants exposed to the high perceived price value scenario reported significantly higher levels of hope ($M = 5.236$, $SD = 1.451$) than those in the low perceived price value scenario ($M = 4.268$, $SD = 1.712$). These results provide empirical evidence that supports our hypothesis (H3) that the perceived price value of vaccines positively influences consumer hope.

5.2.5 Discussion

The experiments yielded significant results, supporting three of the four hypotheses tested. H1, which proposed that the perceived emotional value of vaccines leads to consumer hope, was supported. The mean scores for perceived emotional value were significantly higher among consumers who reported higher levels of hope than those who reported lower levels. Similarly, H3, which stated that perceived price value of vaccines drives consumer hope, was also supported. Consumers who perceived greater value for the price paid demonstrated significantly higher levels of hope compared to those perceiving lower price value. Additionally, H4, which hypothesised that perceived quality value of vaccines influences consumer hope, was supported. The mean scores for perceived quality value were significantly higher among consumers with higher levels of hope than those with lower levels of hope.

However, H2, which posited that perceived social value of vaccines drives consumer hope, was not supported. There was no significant difference in the mean scores for perceived

social value between consumers with higher and lower levels of hope. One possible explanation for this result may lie in the broader social and cultural context of Australia, which leans toward individualistic rather than collectivist cultural orientations. In individualistic societies, personal values and self-interest often take precedence over collective social approval, potentially reducing the salience of social value in shaping hope-related vaccine attitudes. As such, while social value may be influential in more collectivist contexts where community and peer norms carry greater weight, it appears to play a less decisive role in the Australian context. These findings provide empirical evidence that emotional value, price value, and quality value are important factors that contribute to consumer hope in the context of vaccines, whereas the influence of social value may be culturally contingent. Table 5.2 presents a summary of the experiment results.

Table 5.2: Summary of results – Group A vs Group B

	Group A		Group B			
Experiment number	**Mean**	**Standard error**	**Mean**	**Standard error**	**t statistic**	**p value**
Experiment 1	4.5254	0.11619	5.0677	0.10933	3.411	0.001
Experiment 2	4.8188	0.11396	5.0312	0.10764	1.360	0.175
Experiment 3	4.3931	0.12391	5.1753	0.10562	4.831	0.000
Experiment 4	4.2681	0.12623	5.2361	0.10472	5.939	0.000

Group A – Low perception scenarios (N=204)
Group B – High perception scenarios (N=210)

5.3 Survey – Study 2

Study 2 employed an online survey to investigate the proposed conceptual framework outlined in this research. The participants (N=414) consisted of consumers residing in Australia who had received any vaccine within the past five years. The screening questions were the same as mentioned in the experimental study. To ensure the sample's representativeness regarding demographics, the external market research firm Qualtrics was engaged to collect the data from their panel. Qualtrics sent out email invitations to potential

respondents that provided a detailed explanation of the study's nature, purpose, and ethical considerations, and a URL link to access the online survey. The data was collected from May 19th to May 26th, 2023. The survey included questions about participants' perceptions, emotions, and intentions, with the aim of capturing the relevant context for the study.

In line with Hamby (2016), we employed the same sample (N=414) for Study 1, an experiment and Study 2, a survey. The decision to utilise the same sample for both studies was carefully considered, considering several key factors. These included methodological consistency, cost-effectiveness, and the distinct objectives of each study. Study 1 consisted of four experiments aimed at exploring causality (Zampetakis & Melas, 2021) by manipulating perceived value of vaccines (emotional, social, price, and quality) variables to assess their impact on consumer hope. In contrast, Study 2, conducted through an online survey, sought to explore correlations between variables (Taherdoost, 2016) outlined in the conceptual framework of consumer hope in the vaccine context (see Figure 3.1). Surveys, unlike experiments, are primarily used to identify associations rather than establish causality (Zhan et al., 2020). Hence, utilising the same sample for both studies had numerous advantages. First, it facilitated the comparison of results between the experimental and survey phases, enhancing the coherence and interpretability of the findings. Second, it enabled cost optimisation by eliminating the need to recruit and compensate additional participants.

5.3.1 Reliability and Validity

The reliability of a scale refers to how consistently it measures a concept without random errors across different items and over time. The most common method used to assess reliability is the internal consistency score method, also known as Cronbach's alpha (Amirrudin & Supahar, 2021). The scale is considered reliable if the Cronbach's alpha score is above 0.70 (Barbera & Pentecost, 2020). The preliminary reliability analyses showed that

all scales had internal consistency scores higher than the minimum threshold, indicating acceptable consistency and reliability.

Another approach to assess reliability is to calculate the average variance extracted for each measure. According to Amirrudin and Supahar (2021), this process entails calculating the sum of the squared standardised factor loadings and subsequently dividing it by the total number of items. If the average variance extracted exceeds 0.50, it confirms the reliability of the measure (Hair et al., 2020). Table 5.3 presents the average variance extracted values for each measure. They all surpassed the threshold, thus demonstrating their reliability.

Table 5.3: Reliability analysis using IBM SPSS (version 29)

Constructs	Mean	Standard deviation	Cronbach's alpha	AVE	Items
Perceived emotional value of vaccines	4.9517	1.55666	.959	0.853	4
Perceived social value of vaccines	4.9722	1.31201	.904	0.705	4
Perceived price value of vaccines	5.3345	1.10199	.809	0.589	4
Perceived quality value of vaccines	5.1516	1.46172	.942	0.802	4
Consumer hope	4.9565	1.55389	.961	0.855	5
Self-efficacy	5.3684	1.01824	.914	0.733	4
Intention to use a vaccine	5.4595	1.49485	.958	0.853	4
Implementation intention to use a vaccine	4.8301	1.55116	.866	0.701	4
Vaccine use (actual behaviour)	5.2882	1.45772	.925	0.768	5

Validity, on the other hand, examines the accuracy of the measurement in capturing the intended construct (Tabachnick & Fidell, 2013). It assesses whether the items effectively measure what they are supposed to measure. Four validity checks were conducted: face validity, content validity, convergent validity, and discriminant validity. Face validity involves an informal evaluation of a questionnaire by individuals who are not experts in the field (Taherdoost, 2016). These non-experts assess the questionnaire's clarity, comprehensibility, and appropriateness for the target group it is intended to be used with. Face validity serves as a crucial initial step in questionnaire development and validation

(Swedlow et al., 2020). Face validity was achieved by presenting the questionnaire to a small group of individuals who represented the target population. These individuals reviewed the questionnaire and provided feedback based on their perceptions and understanding of the items and instructions. They evaluated whether the questions were clear, easily comprehensible, and relevant to the context of the study. This feedback was helpful in identifying ambiguities, confusing wordings, and inappropriate or inaccurate items, which that were then modified as needed.

Content validity assesses how well the items capture the domain of the construct. The more comprehensive the items are in measuring the content, the higher the validity (Swedlow et al., 2020). Content validity requires a panel of experts to confirm the adequacy of the indicators (Taherdoost, 2016). Initially, the phrasing of the measures was adjusted to contextualise the research theme. Then, a pilot questionnaire was distributed to the participants, including lecturers and students from the business and marketing disciplines. Additionally, a panel of experts, including the supervisors, reviewed the survey items and deemed them suitable for capturing the intended construct.

Two additional tests were performed to assess discriminant validity (DV), which examined the distinctiveness of different constructs. The initial assessment, which was introduced by Fornell and Larcker (1981) and Carver and Glass (1976), involved a comparison between the average variance explained and the inter-factor correlations among pairs of constructs. To achieve DV, it was necessary for the average variance of each construct to be greater than its shared variance with any other construct. DV is a vital test that is recommended for evaluating model validity. It serves as an analysis to measure the extent to which a specific construct differs from other constructs within the model, as suggested by Fornell and Larcker (1981). When the DV indicators exhibit robustness, they signify that each construct possesses

unique characteristics that capture certain aspects that cannot be grasped by other measurements (Fornell & Larcker, 1981). DV shows that the variables forming each model construct demonstrate a stronger correlation with variables of the same construct than with those of different constructs (Hair et al., 2020; Tabachnick & Fidell, 2013). By utilising the criterion established by Fornell and Larcker, this research sought to evaluate the DV between the involved constructs. Table 5.4 demonstrates that the squared multiple correlations were lower than the average variance extracted for all constructs, which confirmed DV.

Table 5.4: Fornell-Larcker criterion to test discriminant validity

Variables	PEV	PSV	PPV	PQV	HP	SE	ITU	IINT	AB
PEV	**0.923**	0.65	0.681	0.816	0.915	0.414	0.833	0.727	0.64
PSV	0.65	**0.839**	0.687	0.61	0.652	0.406	0.621	0.563	0.511
PPV	0.681	0.687	**0.767**	0.671	0.701	0.416	0.681	0.574	0.557
PQV	0.816	0.61	0.671	**0.895**	0.848	0.438	0.822	0.7	0.644
HP	0.915	0.652	0.701	0.848	**0.924**	0.444	0.867	0.738	0.661
SE	0.414	0.406	0.416	0.438	0.444	**0.856**	0.375	0.324	0.364
ITU	0.833	0.621	0.681	0.822	0.867	0.375	**0.923**	0.752	0.714
IINT	0.727	0.563	0.574	0.7	0.738	0.324	0.752	**0.837**	0.752
AB	0.64	0.511	0.557	0.644	0.661	0.364	0.714	0.752	**0.876**

PEV=Perceived emotional value of vaccines, PSV=Perceived social value of vaccines, PPV=Perceived price value of vaccines, PQV=Perceived quality value of vaccines, HP=Consumer hope, SE=Self-efficacy, ITU=Intention to use a vaccine, IINT=Implementation intention to use a vaccine, AB=Vaccine use (actual behaviour), Bold numeric fonts=Square root of average variance extracted (AVE)

A second test for DV was performed using the heterotrait-monotrait (HTMT) ratio. The HTMT ratio of correlations test is typically conducted during the process of validating a measurement model or assessing the DV of constructs in a structural equation modelling (SEM) analysis (Henseler et al., 2015). It is a technique used to evaluate DV, which is the extent to which different constructs in a model are distinct from each other and not measuring the same underlying concept. HTMT is an improvement over the traditional Fornell-Larcker

criterion for assessing DV (Henseler et al., 2015). The Fornell-Larcker criterion involves comparing the square root of average variance extracted (AVE) with the correlations between constructs (Fornell & Larcker, 1981), while the HTMT test directly compares the correlations between different constructs with the correlations within each construct. All the HTMT ratios were less than the required limit of .85 (Henseler et al., 2015). Combining the outcomes of both tests, we can conclude that the constructs in our study achieved DV.

5.3.2 Measurement Model

The measurement model outlines the proposed relationship between the variables and their observable indicators. Confirmatory factor analysis was employed to examine each of the constructs in the investigation and to detect any interaction between the measurement and structural models that may influence the parameters related to the suggested links between the latent variables in the model (Harrington, 2009). The reliability of the individual scale items for each construct was identified through confirmatory factor analysis. To perform confirmatory factor analysis, the Analysis of Moment Structures (AMOS) software package (Version 29) was utilised. All constructs, including their items, were examined using confirmatory factor analysis.

Evaluating the model's fit by employing fit indices after conducting confirmatory factor analysis is crucial (Hair et al., 2020). Various goodness-of-fit indices were examined to determine the reliability of the measurement model for hypothesis testing. One commonly used goodness-of-fit index is the chi-square statistic (CMIN), which assesses the reliability of the hypothesised measurement model (Harrington, 2009). However, the chi-square significance test may only sometimes yield definitive results, as its sensitivity to sample size can lead to a significant value even for a well-fitting model (Hu & Bentler, 1998; Hair et al., 2020). Another index, CMIN/DF (relative chi-square), measures the degree of fit lost when

specific paths are omitted. According to general guidelines, values exceeding 2 or 3 indicate that too many paths have been dropped (Schermelleh-Engel et al., 2003). This study's measurement model yielded a significant CMIN value of 952.112 at $p<0.05$, with a relative CMIN/DF value of 2.392. Hu and Bentler (1998) recommended that the standard root mean square residual (SRMR), which quantifies the discrepancy between observed and model-implied correlation matrices, should ideally be below .06 to indicate an acceptable model fit. In the present study, the SRMR value for the measurement model was calculated to be .0412, which suggests a good fit.

The adjusted goodness of fit index (AGFI) is a criteria for assessing model fit, which adjusts the goodness of fit index (GFI) by considering the degrees of freedom ratio. It evaluates the extent to which a model explains the variance in the sample variance-covariance matrix (Harrington, 2009). AGFI value above .80 indicates a well-fitting model, particularly for large samples (Wang et al., 2020). AGFI, which is another measure of goodness of fit, adjusts the GFI index based on the number of parameters in the model. As the number of parameters decreases relative to the number of data points in the sample variance-covariance matrix, the AGFI value approaches the GFI value (Hu & Bentler, 1998). In this study, the GFI/AGFI values for the measurement model were .874/.843, respectively.

The root mean square error of approximation (RMSEA) quantifies the lack of fit of a model compared to the saturated model (Harrington, 2009). An RMSEA value of .05 or lower indicates a good fit, while a value of .08 or lower suggests an adequate fit (Browne & Cudeck, 1993). For the current model, the RMSEA value was calculated to be .058, indicating a good fit. The model fit summary generated by AMOS 29 is presented in Table 5.5, and provides a helpful assessment of the appropriateness of the measurement model.

Table 5.5: Goodness-of-fit statistics for the measurement model

	Values achieved	Acceptable range
CMIN/DF	2.392	<3 good; <5 acceptable
CFI	.952	>.95 great; >.90 moderate; >.80 acceptable
AGFI	.843	>.80
RMSEA	.058	<.05 good; .05 - .10 moderate; >.10 bad
SRMR	.0412	<.09

CMIN/DF=Minimum discrepancy function by degrees of freedom divided, CFI=Comparative fit index, AGFI=Adjusted goodness of fit index, RMSEA= Root mean square error of approximation, SRMR=Standardised root mean residual

Based on the findings presented in Table 5.5, the ratio of chi-squared minimum to degrees of freedom (CMIN/DF) is 2.392, which is within the recommended threshold of 2 or 3. The AGFI value also provides additional evidence in favour of the model's adequacy. The RMSEA value of .058 falls within the acceptable range of .05 or lower. Furthermore, the standardised root mean residual (SRMR) value for the sample data is .0412. These indices indicate strong support for the measurement model based on the analysis conducted, suggesting a reasonable fit to the data.

5.3.3 Path Analysis

Once the confirmatory factor analysis was completed and items were determined to be suitable based on their inter-item correlations, a path analysis was performed on IBM SPSS AMOS version 29 to examine the hypothesised relationships. Firstly, the mediator effect of consumer hope between perceived values and intention to use a vaccine was tested. Secondly, the moderating role of self-efficacy in the relationship between consumer hope and intention to use a vaccine was tested and subsequently confirmed through slope analysis (see Figure 5.2 in Section 5.3.6). Thirdly, the mediating effect of intention to use a vaccine was tested. Finally, the mediating role of implementation intention was assessed to indicate the antecedent effect of the intention to use a vaccine. The model parameters were estimated

using the maximum likelihood (ML) method, which aims to maximise the likelihood of accurately predicting values for the criterion variable (Mardia & Marshall, 1984).

5.3.4 Mediating Effect of Consumer Hope

The findings of the mediation analysis in this study provided valuable insights into the factors that influence consumer intention to use a vaccine. The study examined the indirect impact of consumer-perceived emotional, price, quality, and social value on consumer intention to use a vaccine, mediated through consumer hope. The results revealed significant indirect effects for perceived emotional value, price value, and quality value of vaccines on consumer intention to use a vaccine through consumer hope. The results of this analysis revealed that the perception of emotional benefits has a significant indirect effect on consumer intention to use a vaccine, as mediated by consumer hope, which suggests that consumers who perceive a higher emotional value in the vaccine are more likely to have a stronger intention to use it, driven by their high hope level.

Similarly, the results found that consumer-perceived price value and quality value also have significant indirect effects on consumer intention to use a vaccine through consumer hope. Price value refers to the perceived value of time and money (Brusseau & Burns, 2020; Miles et al., 2021) that consumers associate with the vaccine, while quality value refers to the perceived effectiveness and safety of the vaccine (Dudley et al., 2020). The results indicated that consumers who perceive higher price value and quality value are more likely to have a stronger intention to use a vaccine, and their higher levels of hope mediate this intention.

However, the study did not find any significant indirect effects of perceived social value on consumer intention to use a vaccine through consumer hope. Perceived social value refers to the perceived societal benefits or implications (Gordon et al., 2015; Sweeney & Soutar, 2001) of using the vaccine. The lack of a significant indirect effect suggests that consumers'

perception of social value does not strongly influence their intention to use a vaccine through consumer hope. The findings of the path analysis support several hypotheses. Hypotheses 1, 3, 4, and 5 are supported, which indicates that perceived emotional value of vaccines, perceived price value of vaccines, perceived quality value of vaccines, and consumer hope indirectly and directly affect consumer intention to use a vaccine. These results are consistent with the outcomes of the experiments conducted in Study 1, further validating the findings. On the other hand, Hypothesis 2 was not supported, which stated that perceived social value of vaccines drives consumer hope. This suggests that perceived social value of vaccines may not significantly drive consumer intention to use a vaccine through hope, as observed in the study's data. Table 5.6 presents mediating effect of consumer hope on intention to use a vaccine.

Table 5.6: Findings of mediating effect of consumer hope

		Confidence interval		
	Indirect effect	**Lower bound**	**Upper bound**	**p value**
PEV -> HP -> ITU	.514	.404	.624	.001
PSV -> HP -> ITU	-.030	-.098	.026	.286
PPV -> HP -> ITU	.205	.077	.351	.002
PQV -> HP -> ITU	.257	.160	.362	.001

PEV=Perceived emotional value of vaccines, PSV=Perceived social value of vaccines, PPV=Perceived price value of vaccines, PQV=Perceived quality value of vaccines, HP=Consumer hope, ITU=Intention to use a vaccine

It is important to note the negative beta value between PSV and HP. This suggests that, contrary to what might be expected, an increase in perceived social value of vaccines does not enhance consumer hope. One possible explanation for this negative relationship is that consumers may perceive societal benefits or implications as a source of pressure or external expectations, which could diminish feelings of hope rather than evoke them. This highlights the complexity of social value and its potential to affect consumer emotions in ways that are not always positive or straightforward.

5.3.5 Moderating Effect of Self-efficacy

In addition to examining the effects of perceived value of vaccines (emotional, social, price and quality) and consumer hope on intention to use a vaccine, the study also explored the potential moderating effect of self-efficacy on the hope–intention relationship using IBM SPSS AMOS version 29. Self-efficacy refers to consumers' belief in their ability to successfully perform a specific behaviour (Bandura, 2005), in this case, using the vaccine. The moderation analysis aimed to investigate whether self-efficacy moderates the relationship between consumer hope and intention to use a vaccine. The analysis results revealed that the moderating effect of self-efficacy was insignificant. In other words, self-efficacy did not substantially influence the relationship between consumer hope and intention to use a vaccine.

This finding suggests that regardless of a consumer's level of self-efficacy, consumer hope consistently impacted on their intention to use a vaccine. Specifically, the study found that self-efficacy dampens the positive relationship between consumer hope and intention to use a vaccine. The beta coefficient (β) was calculated to be -.074, which indicated a negative relationship. The t-value associated with this coefficient was -3.889, which suggested the relationship was not statistically significant. The p-value associated with this result was also insignificant, which indicated that self-efficacy did not significantly moderate the relationship between consumer hope and intention to use a vaccine.

Based on this result, Hypothesis 6, which proposed that self-efficacy strengthens the relationship between consumer hope and intention to use a vaccine, was not supported. These findings suggest that self-efficacy does not play a significant role in altering the impact of consumer hope on individuals' intention to use a vaccine. Figure 5.1 presents moderating effect of self-efficacy on consumer hope and intention to use a vaccine.

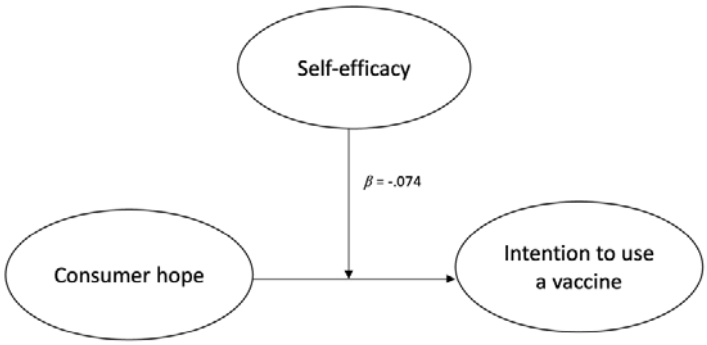


Figure 5.1: Moderating effect of self-efficacy

5.3.6 Slope Analysis

As recommended by Hair et al. (2021), a simple slope analysis was conducted to confirm the moderating effect of self-efficacy on consumer hope and intention to use a vaccine. The results are presented in Figure 5.2 and provide a better understanding of the nature of moderation. As seen in Figure 5.2, the line is much steeper for low self-efficacy, which indicates that at low levels of self-efficacy, the impact of consumer hope on intention to use a vaccine is more substantial than at high levels of self-efficacy.

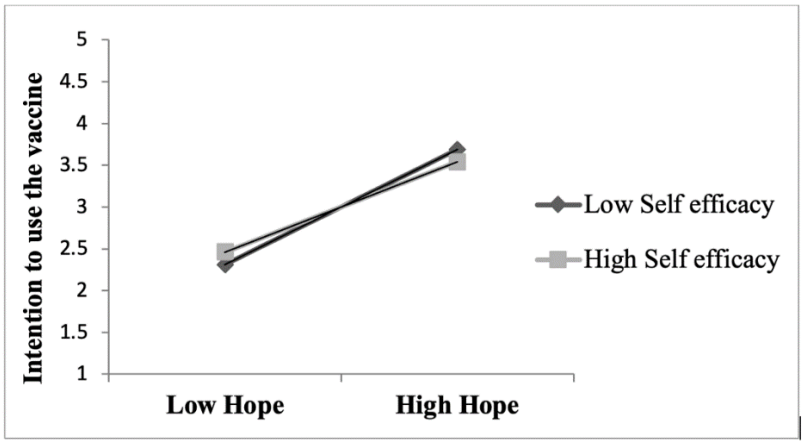


Figure 5.2: Two-way interaction of consumer hope and self-efficacy on intention to use a vaccine

5.3.7 Mediating Effect of Intention to Use a Vaccine

Path analysis findings provide empirical support for hypotheses 5 and 9. Specifically, the results suggest that the influence of consumer hope on actual behaviour is mediated through the intention to use a vaccine. This analysis sheds light on the complex relationship between these constructs and offers insights into the underlying mechanisms that drive vaccine adoption. Hypotheses 5 and 9 posit that consumer hope, as a psychological mechanism, indirectly affects actual behaviour through the intention to use a vaccine. Hence, these hypotheses (H5 and H9) confirm that the impact of consumer hope on vaccine use (actual behaviour) is channelled through consumer intention to engage in vaccination. Table 5.7 illustrates the mediation effect of intention to use a vaccine on vaccine use (actual behaviour).

Table 5.7: Findings of the mediating effect of intention to use a vaccine

		Confidence interval		
	Indirect effect	**Lower bound**	**Upper bound**	**p value**
HP -> ITU -> AB	.567	.372	.800	.001

HP=Consumer hope, ITU=Intention to use a vaccine, AB=Vaccine use (actual behaviour)

5.3.8 Mediating Effect of Implementation Intention to Use a Vaccine

Following the test of the mediating effect of intention to use a vaccine on actual behaviour, the next step in the analysis involved investigating whether the intention to use a vaccine operates through implementation intention to influence actual behaviour regarding vaccine adoption, as proposed in hypotheses 7 and 8. To evaluate these relationships, the dataset was modelled to incorporate a mediated effect of implementation intention. The analysis findings support hypotheses 7 and 8, as summarised in Table 5.8. Hypotheses 7 and 8 propose that the impact of the intention to use a vaccine on actual behaviour is mediated through implementation intention, which emphasises the role of planning and concrete action steps in translating intentions into behaviour. The current analysis confirms these hypotheses, thus

highlighting that implementation intention to use a vaccine is a significant driver of actual behaviour.

Table 5.8: Findings of mediating effect of implementation intention to use a vaccine

		Confidence interval		
	Indirect effect	**Lower bound**	**Upper bound**	**p value**
ITU -> IINT -> AB	.378	.273	.510	.001

ITU=Intention to use a vaccine, IINT= Implementation intention to use a vaccine, AB=Vaccine use (actual behaviour)

Table 5.9 presents a comprehensive summary of the SEM outcomes. It delineates the acceptance and rejection of the hypotheses in the study. The analysis affirms the validity of hypotheses 1, 3, 4, 5, 7, 8, and 9, which have significant support within the research framework. Conversely, hypotheses 2 and 6 are refuted based on the observed data, which suggests a lack of empirical support.

Table 5.9: Summary of SEM results

Hypotheses	**Supported/Not Supported**
H1: Perceived emotional value of vaccines has a direct positive impact on consumer hope	Supported
H2: Perceived social value of vaccines has a direct positive impact on consumer hope	Not Supported
H3: Perceived price value of vaccines has a direct positive impact on consumer hope	Supported
H4: Perceived quality value of vaccines has a direct positive impact on consumer hope	Supported
H5: Consumer hope has a direct positive impact on consumer intention to use a vaccine	Supported
H6: Self-efficacy moderates the relationship between consumer hope and intention to use a vaccine	Not Supported
H7: Intention to use a vaccine has a direct positive impact on implementation intention to use a vaccine	Supported
H8: Implementation intention to use a vaccine has a direct positive impact on vaccine use (actual behaviour)	Supported
H9: Intention to use a vaccine has a direct positive impact on vaccine use (actual behaviour)	Supported

Figure 5.3 presents the conclusive results of the SEM analysis, indicating whether the hypotheses were supported or not supported.

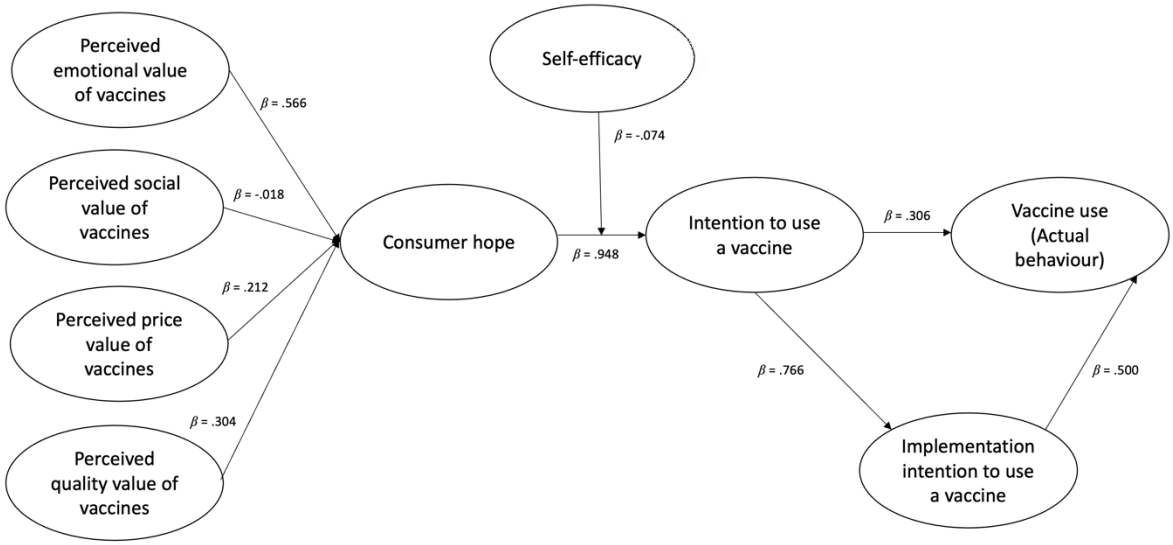


Figure 5.3: Conceptual framework of consumer hope in the vaccine context highlighting SEM findings

5.4 Fuzzy Set Qualitative Comparative Analysis (fsQCA)

For fsQCA analysis, data were gathered from the online survey conducted in Study 2 to delve into the proposed conceptual framework outlined in this research. The participants (N=414) comprised consumers residing in Australia who had received any vaccine within the past five years. The inclusion of the fsQCA alongside traditional statistical methods like SEM in this research is paramount. The fsQCA offers a unique advantage in exploring complex causal relationships within the dataset. Given the potential for non-linear relationships and the need to analyse configurations of conditions that influence vaccine behaviour (Liu et al., 2017), the fsQCA is particularly suited for this research. Furthermore, employing both SEM and fsQCA allows for a comprehensive and nuanced understanding of the proposed conceptual framework and provides a deeper understanding of the interplay between variables, thus enhancing the robustness of the research findings. Moreover, the integration of SEM and

fsQCA ensures a comprehensive examination of the research model, thereby enhancing the validity and reliability of the conclusion (Dusa & Thiem, 2014).

5.4.1 Software

Several software options are available for fsQCA. The fsQCA software (version 3.0) developed by Ragin and Davey (2014) was utilised. This software is widely employed in business, management, and marketing research (Berger, 2016). The fsQCA software utilises the logistic function as the calibration function, which is a suitable choice as it ensures monotonic functions that always increase or decrease to a certain point. However, there are scenarios where a non-monotonic function is necessary for calibration, such as when focusing on political moderates, where individuals with strong left-wing or right-wing ideologies should be excluded. In such cases, a bell-shaped function is preferred, and alternative software options like R may be needed, as the logistic function is the sole calibration function available in the fsQCA software. Furthermore, aside from the logistic and bell-shaped functions, there are numerous other functions for calibration (Thiem, 2014). It is noteworthy that empirical evidence indicates that calibration functions do not substantially alter fsQCA results when utilising the same set of calibration thresholds (Dusa & Thiem, 2014).

5.4.2 Data Calibration

As emphasised by Pappas and Woodside (2021), the calibration of data is a critical aspect of fsQCA. The process involves transforming raw numerical data into fuzzy sets, which accommodates various data types, including dichotomous and Likert-type responses, within fsQCA. Typically, multi-item scales are employed to derive a single value for each case on every condition, although alternative methods such as factor or Rasch scores may also be considered for their potential to better account for individual item effects on the construct (Brush & Soutar, 2022). The transformation process is crucial, and while fsQCA software can

perform this automatically, direct calibration is recommended. Theoretical considerations should inform the choice of calibration thresholds, as these decisions can significantly impact on the results (Thiem, 2014). Direct calibration entails selecting three qualitative breakpoints that define the level of membership in the fuzzy set for each case: full inclusion, full exclusion, and the crossover point reflecting maximum ambiguity (Mendel & Korjani, 2018).

In fields like political and social science, researchers often have reference points for determining membership criteria, but such benchmarks are rare in marketing research. Therefore, researchers must choose these values, typically by utilising original scale values as thresholds or calculating percentiles. For example, with a 7-point Likert scale, common approaches include specifying thresholds as six, four, and two, or utilising measures of central tendency such as the median (Ordanini et al., 2014; Russo & Confente, 2019). For a 5-point Likert scale, the suggested thresholds are four, three, and two (Pappas & Woodside, 2021). The calibration process begins by regulating data into fuzzy sets that define cases as completely in, completely out, or in between specified sets. In this research, the values of the research variables were assessed on a 7-point scale into fuzzy set membership scores ranging from 1.00 (full membership) to 0 (full non-membership). Three qualitative anchors were utilised for calibration, with recommendations from Ordanini et al. (2014), Pappas et al. 2016), and Pappas and Woodside (2021) guiding the decision. Specifically, 6 was set as full membership (value of 1), 4 as the crossover point (value of 0.5), and 2 as full non-membership (value of 0). The fsQCA3 software facilitated this calibration process, and the results, along with additional descriptive statistics, are summarised in Table 5.10.

Table 5.10: Calibrations and descriptive statistics

Constructs	Fuzzy set Calibration							
	Fully-in	Cross-over	Fully-out	Mean	S. D	Min	Max	N-Cases
PEV	6.00	4.00	2.00	4.95	1.55	1.00	7.00	414
PSV	6.00	4.00	2.00	4.97	1.31	1.00	7.00	414
PPV	6.00	4.00	2.00	5.33	1.10	1.00	7.00	414
PQV	6.00	4.00	2.00	5.15	1.46	1.00	7.00	414
HP	6.00	4.00	2.00	4.95	1.55	1.00	7.00	414
SE	6.00	4.00	2.00	5.36	1.01	1.00	7.00	414
ITU	6.00	4.00	2.00	5.45	1.49	1.00	7.00	414
IINT	6.00	4.00	2.00	4.83	1.55	1.00	7.00	414

PEV=Perceived emotional value of vaccines, PSV=Perceived social value of vaccines, PPV=Perceived price value of vaccines, PQV=Perceived quality value of vaccines, HP=Consumer hope, SE= Self-efficacy, ITU=Intention to use a vaccine, IINT= Implementation intention to use a vaccine

Note: Calibration cutoff: (fully-in = upper quartile, crossover = median, fully-out = lower quartile).

5.4.3 Analysis of Necessary Conditions

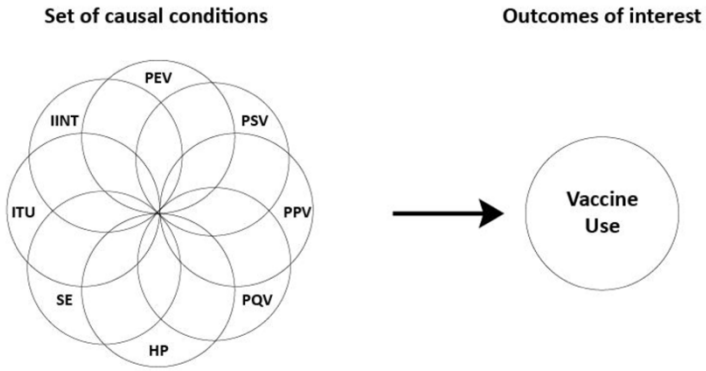
The next phase involved evaluating the presence of a necessary condition or configurational elements. This analysis determined whether a single condition consistently appears or disappears when the outcome is present or absent. A condition is generally regarded as necessary when its consistency score surpasses 0.90 (Ragin, 2000). The necessity analysis assesses the proportion of fuzzy set scores in a condition (across all instances) that are equal to or lower than the equivalent scores in the outcome (Llanos-Contreras et al., 2020). In this analysis, one outcome variable vaccine use (actual behaviour) and eight antecedents (PEV, PSV, PPV, PQV, HP, SE, ITU, IINT) were evaluated. The results presented in Table 5.11 show the necessary conditions for achieving the outcome. According to Pappas et al. (2020), conditions that meet or exceed the 0.65 consistency threshold are sufficient. The findings in Table 5.11 reveal that the consistency levels for all causal conditions exceed 0.65. Therefore, all causal conditions are typically considered necessary.

Table 5.11: Necessary condition analysis results

Configurational element	Outcome: Vaccine use (actual behaviour)	
	Consistency	Coverage
PEV	0.834[a]	0.859
PSV	0.809[a]	0.851
PPV	0.836[a]	0.854
PQV	0.851[a]	0.862
HP	0.850[a]	0.868
SE	0.816[a]	0.836
ITU	0.915[a]	0.862
IINT	0.863[a]	0.900

PEV=Perceived emotional value of vaccines, PSV=Perceived social value of vaccines, PPV=Perceived price value of vaccines, PQV=Perceived quality value of vaccines, HP=Consumer hope, SE=Self-efficacy, ITU=Intention to use a vaccine, IINT= Implementation intention to use a vaccine
Note: [a]Meets the 0.65 consistency benchmark for usually necessary conditions

Figure 5.4 depicts the necessary conditions identified through fsQCA and their impact on the vaccine use. This visual representation highlights the necessary factors that must be present for the desired outcome to occur.



PEV=Perceived emotional value of vaccines, PSV=Perceived social value of vaccines, PPV=Perceived price value of vaccines, PQV=Perceived quality value of vaccines, HP= Consumer hope, SE= Self-efficacy, ITU=Intention to use a vaccine, IINT= Implementation intention to use a vaccine

Figure 5.4: Condition analysis

5.4.4 Solution

The fsQCA has the ability to distinguish crucial conditions from those that are less central or irrelevant, with the distinction based on the strength of evidence concerning the outcome (Fiss, 2011). The fsQCA software offers three potential solutions: complex, intermediate, and parsimonious. The complex solution comprehensively presents all possible combinations of conditions and potentially results in numerous identified configurations, including configurations with multiple terms, thus making the interpretation of results somewhat challenging and often impractical (Pappas & Woodside, 2021).

The parsimonious solution represents a simplified version of the complex solution, and highlights only the indispensable causal elements, often referred to as core conditions, that must be included in any solution while excluding peripheral conditions. However, this approach necessitates simplifying assumptions regarding unpopulated truth table rows and may incorporate solutions with limited cases regardless of their empirical plausibility (Schneider & Rohlfing, 2016). In the intermediate solution, additional conditions are included that are present in cases that are consistently associated with the outcome but may require challenging counterfactuals that are consistent with empirical but not theoretical knowledge to be overlooked (Greckhamer et al. 2018). These additional conditions, often termed peripheral, form a subset of the parsimonious solution. A solution that incorporates both core and peripheral conditions is generally preferred as it provides a more nuanced and comprehensive understanding of the findings (Fiss, 2011). This intermediate solution is the focus of this analysis. Table 5.12 showcases the outcomes concerning vaccine behaviour, which are implied by Ragin's (2009) notations.

Table 5.12: Intermediate solution results

Paths	1	2	3	4	5	6	7	8	9	10
PEV	●		●	●	●	●	●	●		
PSV	⊗	●		●		●	●		●	●
PPV	●		⊗	●			●		●	
PQV	●			⊗	⊗	●	●			
HP	●		●	⊗	●	⊗	⊗			●
SE		⊗	⊗		●	●	⊗		●	●
ITU	⊗				⊗	●			⊗	●
IINT	⊗	⊗	•	•	•	⊗	•	⊗		●
Raw coverage	0.422	0.280	0.269	0.289	0.321	0.368	0.298	0.259	0.286	0.268
Unique coverage	0.031	0.039	0.016	0.010	0.089	0.026	0.072	0.015	0.013	0.012
Consistency	0.953	0.890	0.978	0.983	0.982	0.974	0.984	0.942	0.939	0.987
Solution coverage 0.867										
Solution consistency 0.827										

PEV=Perceived emotional value of vaccines, PSV=Perceived social value of vaccines, PPV=Perceived price value of vaccines, PQV=Perceived quality value of vaccines, HP=Consumer hope, SE= Self-efficacy, ITU=Intention to use a vaccine, IINT= Implementation intention to use a vaccine

● indicates presence of the variable, ⊗ indicates the absence of the variable, and a blank space indicates that presence or absence of the variable does not significantly contribute to the outcome.

The proposed framework demonstrates a consistency that surpasses 0.80 across the intermediate solution and its subsets, with an overall consistency of 0.827, given the distinct criteria that characterise each of the 10 solution paths and the presence of multiple satisfactory solution paths leading to equifinality (Fiss, 2011). It is noteworthy that perceived emotional value appears in 7 out of the 10 paths, while intention to use a vaccine is evident in only 2 out of the 10 paths. These findings underscore how fsQCA analysis enables the establishment of causal relationships among variables in some configurations while remaining disconnected in others. As per Ragin's (2008) recommendations, an overall solution coverage score of 0.867 indicates that the 10 causal condition configurations for antecedents can explain 86 percent of vaccine use (actual behaviour), which aligns with the suggested range of 0.25–0.90.

5.5 Summary of SEM-fsQCA Results

The SEM results showed significant positive relationships between perceived emotional value, price value, quality value, and consumer hope. Consumer hope also exhibited significant positive relationships with the intention to use a vaccine, implementation intention to use a vaccine, and vaccine use (actual behaviour). However, the moderating role of self-efficacy between consumer hope and intention to use a vaccine was insignificant. Additionally, perceived social value of vaccines did not show a driving influence on consumer hope. These findings contribute to a comprehensive understanding of the factors that influence vaccine behaviour and underscore the importance of emotional, price, and quality value perceptions in shaping consumer hope.

Based on the findings from the fsQCA analysis, several key conclusions can be drawn about the factors that influence vaccine use. Firstly, perceived emotional value of vaccines emerged as a significant factor, as it was present in 7 out of the 10 solutions explaining vaccine use, which suggests that emotional perceptions play a crucial role in consumers' decision-making processes. Similarly, the perceived social value of vaccines was influential, appearing in 6 out of the 10 solutions. Moreover, the perceived price and quality value of the vaccines consistently featured more frequently than not in explanations of vaccine use, which underscores the importance of consumer perceptions of affordability and effectiveness. Additionally, consumer hope emerged as a prevalent factor, as it was more frequently present than absent, thus indicating its significance in shaping vaccine behaviour. Furthermore, the analysis revealed that self-efficacy and intention to use a vaccine exhibited variability in their influence on vaccine use, with their presence or absence dependent on their interaction with other factors. This result underscores the complexity of consumer decision-making processes and the nuanced interplay of the various factors outlined in the SEM analysis. Lastly, the

implementation intention to use a vaccine was found to be more frequently present than absent, which highlights the significance of concrete plans and strategies in translating intentions into actions (Yokum et al., 2018).

While the SEM provided insights into the direct relationships between variables and their effects on consumer hope and vaccine behaviour, the fsQCA offered a nuanced understanding of the complex configurations of factors that lead to vaccine use. By integrating both approaches, a comprehensive understanding of the multifaceted nature of vaccine behaviour can be achieved, and targeted strategies for promoting vaccine use can be identified. The summary of SEM and fsQCA findings can be found in Table 5.13.

Table 5.13: Summary of findings using SEM-fsQCA approach

SEM approach	fsQCA approach
Perceived emotional value of vaccines has a direct positive impact on consumer hope	Perceived emotional value of vaccines is present in 7 out of 10 solutions that explain vaccine use
Perceived social value of vaccines does not directly influence consumer hope	Perceived social value of vaccines explains vaccine use in 6 out of 10 solutions
Perceived price value of vaccines has a direct positive impact on consumer hope	Perceived price value of vaccines is more frequently present than absent when explaining vaccine use
Perceived quality value of vaccines has a direct positive impact on consumer hope	Perceived quality value of vaccines is more frequently present than absent when explaining vaccine use
Consumer hope has a direct positive impact on consumer intention to use a vaccine	Consumer hope is more frequently present than absent when explaining vaccine use
Self-efficacy does not strengthen the positive relationship between consumer hope and intention to use a vaccine	Self-efficacy can either be present or negated when explaining vaccine use depending on how they combine with the other factors
Intention to use a vaccine has a direct positive impact on vaccine use	Intention to use a vaccine can either be present or negated when explaining vaccine use depending on how they combine with the other factors
Implementation intention to use a vaccine has a direct positive influence on vaccine use	Implementation intention to use a vaccine is more frequently present than absent when explaining vaccine use

5.6 Conclusion

This chapter presents the results obtained from a range of analytical methods, such as t-tests, SEM and fsQCA. These methods were employed to gain a better understanding of the role of consumer hope and other related constructs in shaping vaccine use (actual behaviour). The t-tests highlighted differences between various groups of participants in the scenario based experiments, providing insights into how perceived value of vaccines (emotional, social, price and quality) influence consumer hope. SEM delved into the complex relationships between various constructs, offering a more profound understanding of the factors affecting vaccine use. Furthermore, through fsQCA, essential conditions and solutions that influence vaccine use were identified.

CHAPTER 6 : CONCLUSION AND IMPLICATIONS

The complex relationship between consumer value perceptions, emotions, intentions, and behaviours regarding vaccine use has been extensively examined in this research. Instead of merely emphasising factors like vaccine-related knowledge, attitudes, perceptions, or intentions, this study delves into the deeper understanding that prompt consumers to engage in vaccine use. Behavioural theories offer valuable frameworks for understanding the psychological processes behind consumer decision-making and behaviour change (Ajzen & Schmidt, 2020). By utilising support from overarching behavioural theories such as the TPB and the HBM, alongside others, this research endeavours to elucidate the underlying drivers of vaccine use and inform the development of effective social marketing strategies. This research identifies various constructs, including the perceived emotional value of vaccines, perceived social value of vaccines, perceived price value of vaccines, perceived quality value of vaccines, consumer hope, self-efficacy, intention to use a vaccine, implementation intention to use a vaccine, and vaccine use (actual behaviour). Through rigorous data collection methods such as surveys and experiments, actionable insights are derived from consumer research to drive social change. Notably, consumer hope emerges as a significant factor driving the intention to use vaccines, indicating its importance in shaping actual behaviour.

This thesis provides a comprehensive exploration of emotions in the context of vaccination. It begins by establishing the research background and highlighting the significance of vaccination, along with existing gaps in the literature. The review of existing studies in Chapter 2 systematically examines how emotions have been studied in vaccine-related research. Building on this foundation, Chapter 3 introduces the theoretical underpinnings of the study, including key concepts such as hope, perceived value, intention, behaviour, and self-efficacy, culminating in the development of a conceptual model of consumer hope.

Chapter 4 explains the methodological approach adopted to investigate the research questions, and Chapter 5 presents and interprets the findings from both the survey and experiments.

This chapter summarises the discussion and research contributions in the context of theory and practice. The chapter begins with a discussion of the research's theoretical contributions, followed by an explanation of the managerial implications. This implications directly address the practical and social challenges which explicitly addresses the practical and social challenges arising from the findings, accompanied by recommendations tailored for policymakers. Subsequently, social implications are presented, followed by a discussion of the research limitations.

6.1 Discussion and Theoretical Contributions

The primary objective of this research was to enhance our understanding of how perceived value can be translated to vaccine use by highlighting the role of positive emotions in the vaccination context. This has been achieved through an SLR that examined the existing literature across the diverse disciplines of social marketing, public health, consumer positive psychology, and healthcare marketing. In contrast to prior studies that predominantly characterise hope as a motivational force pertaining to illness or disease (Duncan et al.,2021; Feldman & Corn, 2022; Sanatani et al., 2008), the present research adopted a different perspective. In this research, consumer hope was conceptualised as an emotional response to preventing disease that emerges when consumers encounter adversity, such as an epidemic or a pandemic, rather than being solely motivated by the presence of illness or disease. Consequently, the theoretical foundations and operationalisation of this construct differed from previous work that predominantly views hope as a combination of beliefs, cognitions, motivations, or a mix of these cognitive factors (Chou & Budenz, 2020; Feldman & Kubota, 2015; Pleeging & Burger, 2020).

This research also presented a consumer hope model within the context of vaccines that was aimed at examining the mediated role of consumer hope, consumer intention to use a vaccine, and implementation intention to use a vaccine. Additionally, the study sought to capture actual behavioural outcomes that result from hope and intentions in the vaccine context. By extending theories from positive psychology and social marketing, particularly TPB and HBM, this research sheds light on the complex interplay between perceived value of vaccines, hope, intention formation, and subsequent behavioural patterns related to vaccine usage. Through comprehensive data collection and analysis, this study has contributed to an understanding of the mechanisms through which consumer hope influences vaccine-related behaviours. Table 6.1 provides a condensed overview of the study's research objectives, key findings, and theoretical contributions.

Table 6.1: Overview of research aims, findings and contribution

Research aims	Findings	Theoretical contributions
Study 1		
Examine the causal relationship to determine whether perceived value of vaccines, including emotional, social, price, and quality factors, directly impact on consumer hope?	T-tests show support for three out of four experiments. Experiments produced significant results that support three hypotheses proposing that perceived emotional value of vaccines influences consumer hope. Perceived price value of vaccines and perceived quality value of vaccines also drive consumer hope. However, the hypothesis proposing that perceived social value of vaccines leads to consumer hope was not supported.	Perceived emotional value of vaccines, perceived price value of vaccines, and perceived quality value of vaccines are crucial in generating hope. The absence of causation between perceived social value of vaccines and consumer hope suggests that it may not strongly influence hope levels. Experiments showed that higher levels of perceived value of vaccines (emotional, price and quality aspects) are associated with higher levels of hope, while lower levels of perceived value of vaccines (emotional, price and quality aspects) are linked to lower levels of hope.

Research aims	Findings	Theoretical contributions
Study 2		
Does consumer hope mediate the relationship between perceived value of vaccines and intention to use a vaccine?	Path analysis shows that the relationship is mediated.	Provides a consumer hope model in the context of vaccines that investigates the mediated role of consumer hope, intention to use a vaccine, and implementation intention to use a vaccine.
Does implementation intention to use a vaccine mediate the relationship between intention to use a vaccine and vaccine use (actual behaviour)?	Path analysis shows that the relationship is mediated.	Examines actual behavioural outcomes driven by consumer hope and implementation intention to use a vaccine.
Does consumer intention to use a vaccine mediate the relationship between consumer hope and vaccine use (actual behaviour)?	Path analysis shows that the relationship is mediated.	Contributes to our knowledge of how consumer hope influences vaccine-related behaviour.
Does self-efficacy moderate the relationship between consumer hope and intention to use a vaccine?	Path analysis shows that self-efficacy does not moderate the relationship between consumer hope and intention to use a vaccine. Slope analysis does not support the moderation.	

This research extended the TPB (Ajzen, 1985) by incorporating hope's emotional aspect within the vaccine context. The TPB proposes that attitudes, subjective norms, and perceived behavioural control influence consumer behavioural intentions, which, in turn, shape their actual behaviour. While prior research has expanded upon the TPB by integrating various additional variables such as social emotions (La Barbera et al., 2022), trust, previous vaccination (Servidio et al., 2022), fear of COVID-19 (Ullah et al., 2021), and others, there has been limited investigation that has specifically focused on the role of hope within the vaccination context, which underscores the distinctiveness of this research, as it identifies and integrates the emotional aspect of hope as a determinant of consumer vaccine intentions and subsequent behaviour. Therefore, this research contributes uniquely to the existing literature.

Perceived value is essential in the context of vaccines as it shapes public acceptance, addresses vaccine hesitancy, influences vaccine uptake rates, and enhances confidence in social marketing measures (Childers-Strawbridge et al., 2022). Hence, communicating and promoting the perceived value of vaccines is crucial for successful vaccination campaigns and improving social marketing outcomes. This research also advances the HBM (Becker, 1974) by highlighting the role of perceived value dimensions in the context of general vaccination. Previous researchers have attempted to advance the HBM by incorporating variables related to perceived value (Qian et al., 2023; Yuen et al., 2021; Yuen et al., 2023); however, these studies have yet to investigate the influence of perceived value, specifically its emotional, social, price, and quality dimensions. Hence, this research has expanded our theoretical understanding of perceived value by demonstrating that health-related actions/behaviour are also influenced by consumers' emotional, social, price, and quality value perceptions, particularly in preventive measures like vaccines. Also, by demonstrating that the emotional, price, and quality value perceptions are significant drivers of positive emotions (hope), this research further expands the understanding of the HBM by emphasising the importance of value-based considerations in health-related decision-making processes, particularly in the context of vaccination.

Including perceived value of vaccines in the research model broadened the scope of the HBM and emphasised its significance in health-related contexts beyond illness management (Esmail, 2021; Malik et al., 2020; Robinson, 2002). This highlights that consumers' decision-making processes are influenced not only by their beliefs about susceptibility, severity, benefits, and barriers (Becker, 1974; Karimi & Liu 2020; Xia et al., 2020) but also by their value perceptions associated with emotional experiences, economic considerations, and quality factors (Sweeney & Soutar, 2001; Gordon et al., 2015). In a real-life scenario, consider the example of a consumer planning to get vaccinated in a pandemic or epidemic. If

a consumer perceives the vaccine to be safe, with minimal side effects and a high level of efficacy, it creates a sense of emotional security, and this perception of safety and emotional security can contribute to the development of hope in the consumer. They believe that by receiving the vaccine, they are taking a proactive step towards protecting themselves and their loved ones, which instils a hopeful outlook.

The perception of price can also impact on consumer hope in the vaccination context. In Australia, where vaccines are often free or subsidised, a consumer who perceives the vaccine as affordable may experience reduced financial concern, allowing them to focus on the positive outcomes, thus enhancing hope (Miles et al 2021). Similarly, perceptions of vaccine quality also plays a significant role in driving hope among consumers. When consumers perceive the vaccines as being of high quality, backed by scientific research, thorough testing, and regulatory approval, it gradually establishes consumer confidence in the vaccine. They trust in the effectiveness and safety of the vaccine, which leads to a greater sense of hope in the positive outcomes it can offer. From a social marketing perspective, these findings expand the understanding of how emotional, price, and quality values can be used to influence health behaviour. Traditional social marketing frameworks highlight the importance of segmentation, messaging, and positioning based on consumer attitudes and beliefs (Lefebvre, 2011; Luca & Suggs, 2013). This research suggests that value-driven emotional states like hope are equally critical in designing social marketing strategies. By fostering consumer hope through perceived emotional, price, and quality value dimensions, social marketing campaigns can drive stronger intentions and actions towards vaccination.

While the results supported the emotional, price, and quality aspects of consumer value perception regarding vaccines, they did not support the notion that perceived social value drives hope in the context of vaccination, which means that a consumer's belief in the social

value of getting vaccinated, such as contributing to herd immunity, being socially accepted, or protecting vulnerable populations, including their loved ones, may not directly influence their level of hope. This result suggests that while social value may be a relevant consideration for vaccine use, it may not be a significant driver of hope in this context. The finding that consumer social value of vaccines does not drive consumer hope raises interesting implications and prompts for further exploration. Several reasons can be considered to explain this result. First, consumer-perceived social value in the vaccination context may differ from other perceived value dimensions (emotional, price, and quality). While emotional, price, and quality aspects are more directly related to personal benefits and outcomes, social value is less influential in shaping one's level of hope.

Second, consumers may prioritise their emotional and physical well-being rather than social factors in their health-related perceptions. This is especially relevant in the context of Australia, which is considered an individualistic society where personal benefits and outcomes are typically more emphasised than collective concerns (Hofstede, 2009). Moreover, social value may be influenced by factors beyond the scope of this research. Cultural, societal, and personal beliefs can significantly influence the perception of social value in vaccination, and the specific social dynamics surrounding vaccination, such as social norms, peer influence, or social pressures, may influence consumer hope. Third, other factors that are again beyond the scope of this research, such as trust in healthcare systems, government policies, and perceived risks associated with vaccines, may have a more noticeable impact on the level of consumer hope and overshadow the influence of perceived social value of vaccines. The findings of this research also highlighted the importance of consumer hope as a means of promoting favourable consumer intentions towards vaccination. When individuals feel hopeful about the potential benefits and positive outcomes associated with vaccination, they are more likely to express a solid intention to use the vaccine, which

emphasises the significance of cultivating hope as a strategic approach to encouraging vaccine use.

The results from the data analysis did not support the hypothesis that self-efficacy moderates the impact of consumer hope on the intention to use a vaccine. This finding offers an opportunity to explore potential explanations for this outcome. Drawing upon social cognitive theory (Bandura, 2005), which posits that consumer behaviours are influenced by self-efficacy beliefs, outcome expectations, and personal goals, self-efficacy may be developed in four ways: (1) personal experience, (2) social modelling, (3) improvement in physical and emotional states, and (4) verbal persuasion (Laranjo, 2016). Considering these principles, the unsupported hypothesis may be explained by the firm and independent relationship between consumer hope and the intention to use a vaccine. Consumer hope may serve as a potent motivator that influences consumer intention to use a vaccine, irrespective of their self-efficacy levels. Alternatively, the measures used to assess self-efficacy may not have adequately captured its specific role in the context of vaccines. Utilising alternative measures that align with the principles of social cognitive theory (Bandura 1986), such as assessing the personal experience of success, social modelling, and verbal persuasion (Faasse et al., 2015; Laranjo, 2016) related to vaccine use, could yield more comprehensive insights into the moderating effect of self-efficacy on the relationship between consumer hope and vaccine intentions.

As well as these critical findings, the results also confirmed how implementation intention to use a vaccine acts as a mediator that facilitates the translation of consumer intentions into concrete actions regarding vaccine use (actual behaviour). Implementation intention refers to formulating specific plans and strategies to overcome potential obstacles that may hinder the execution of an intended behaviour (Carrington et al., 2010; Grimmer & Miles, 2017;

Milkman et al., 2013). By employing implementation intention techniques, consumers can effectively bridge the gap between their initial intention to use a vaccine and their actual behaviour. This finding highlights the importance of having the intention to use a vaccine and developing clear plans and strategies to ensure its implementation.

The results also confirmed that consumer intention to use a vaccine is an essential mediator between consumer hope and vaccine use (actual behaviour). When consumers possess positive emotions (hope) towards a vaccine, intention to use it becomes essential in translating their positive thoughts into actions. The connection between hope and behaviour is established through the influence of intention, as consumers with higher levels of hope tend to display a greater likelihood of vaccine use. Hence, promoting positive emotions (hope) among consumers is very important, as it significantly impacts on their actual behaviour through their intention to use a vaccine.

6.2 Managerial Implications

This research offers healthcare policymakers, workers, and social marketers valuable insights. By understanding the role of consumer hope in driving vaccine behaviour, policymakers can incorporate these findings into decision-making processes. Recognising the crucial role of implementation intention to use a vaccine, they can implement policies focusing on vaccine supply, and distribution and addressing underlying factors influencing implementation intention. For instance, campaigns can inform the consumers about vaccine availability and importance, while highlighting success stories to stimulate hope, especially during a pandemic. Additionally, policymakers can ensure equitable vaccine access by setting up centers in remote areas and collaborating with healthcare providers and community organisations to address barriers like misinformation. Policymakers can also use these insights to design behavioural interventions such as commitment prompts, planning aids, and

reminder systems that strengthen implementation intentions, ultimately leading to higher vaccination rates. Emphasising not just access but emotional engagement through storytelling, testimonials, and community-driven initiatives. This can help maintain hope and motivate action among diverse demographic groups.

By integrating hope and implementation intention aspects, policies can foster vaccine acceptance and use, aiding pandemic control and public health restoration. Managerial implications also include shaping value perceptions of vaccines by providing accurate information, reinforcing the emotional and social benefits of vaccination, leveraging positive emotions like hope to enhance vaccination intention, emphasising implementation intention through practical guidance, and tracking actual behaviour (vaccine use) to optimise strategies. These approaches can enhance vaccination rates globally and improve social marketing outcomes.

The above-mentioned approaches can help social marketers in Australia and across the globe to enhance vaccination rates and effectively manage social marketing outcomes. Moreover, they can leverage the insights from this research to develop impactful social marketing campaigns. By highlighting the importance of hope and emphasising the relationship between perceived value of vaccines, intention to use a vaccine, implementation intention to use a vaccine, and vaccine use (actual behaviour), they can tailor their messaging to inspire and motivate consumers to cultivate hope, which will enable them to take action and get vaccinated. Additionally, social marketing campaigns should consider segmenting their audiences based on perceived emotional, price, and quality values. Tailored messaging that addresses these specific perceived values can strengthen consumer engagement and reinforce the path from hope to action. For example, messages emphasising emotional value could share stories of individuals who felt a renewed sense of security and optimism after vaccination. Messages targeting price value could highlight free or low-cost access to

vaccines and the long-term cost savings associated with preventing illness. Messages addressing quality value could focus on the scientific rigor behind vaccine development and the proven effectiveness and safety of vaccines. By aligning messaging with these distinct perceived values, health promotion initiatives can more effectively cultivate consumer hope, motivate action, and increase vaccination use. These practical applications of the research findings can potentially drive positive change and contribute to successful vaccination efforts.

6.3 Social Implications

Australia is known for its diverse population, and it encompasses consumers from various culturally and linguistically diverse (CALD) backgrounds. (Mahimbo et al., 2022). This diversity stems from a rich history of immigration and a commitment to multiculturalism as a core value. The Australian population includes people from Asian, European, Middle Eastern, African, and Pacific Islander backgrounds, which makes it a vibrant and multicultural society (Collins, 2020). With regard to promoting vaccine use among CALD communities, the research findings that highlighted the significance of perceived emotional value of vaccines, price value of vaccines, and perceived quality value of vaccines in driving consumer hope can inform practical approaches for shaping the perceptions of consumers from CALD backgrounds.

Culturally tailored communication and educational campaigns can be developed that utilise media such as community radio, ethnic newspapers, and targeted social media platforms. For example, information about the emotional value of vaccines can be disseminated through storytelling campaigns that highlight the personal experiences of individuals from CALD backgrounds who have received the vaccine and experienced positive health outcomes. These narratives can be shared in multiple languages and accompanied by culturally sensitive imagery or short 1-2 minute videos to resonate with the target audience. To address the

perceived price value of vaccines, practical steps can include setting up free vaccination clinics in areas with high CALD populations, collaborating with community organisations to provide free transportation assistance to vaccination sites, and offering information in community languages about government subsidies.

Additionally, partnering with local pharmacies and healthcare centres with multilingual staff can help to provide accurate information about available vaccination options in their area. To address the perceived quality value of vaccines, culturally appropriate vaccination information sessions led by healthcare professionals from CALD backgrounds could be organised. These sessions could be held in community centres, places of worship, or online platforms where attendees can ask questions, address concerns, and receive evidence-based information in their native languages. Collaborating with community leaders, faith-based organisations, and multi-cultural associations can enhance trust and credibility in the information being provided, which will help to shape positive perceptions of vaccine quality from religious and faith perspectives.

Hope, perceived value of vaccines (emotional, price and quality), intention to use a vaccine, and implementation intention to use a vaccine can serve as effective tools to promote vaccine use (actual behaviour) and foster positive change. The following points offer a comprehensive understanding of the recommendations within the social implications of this research.

(1) Messaging campaigns: Social marketers can develop messaging campaigns using social, digital, and print media that emphasise the positive outcomes associated with vaccination, such as regaining a regular lifestyle, protecting loved ones, and contributing to community health. By highlighting these benefits, perceived emotional value of vaccines can be targeted, which further drives hope.

(2) Personal stories using social media platforms: Sharing personal stories of consumers who have received the vaccine and experienced positive outcomes can be powerful in shaping the perceived quality value of vaccines. These stories can create a sense of hope, showcase real-life examples of how vaccination has made a difference, and inspire others to do the same.

(3) Empowering consumers: Empowering consumers by providing them with the necessary information and resources to make informed decisions about vaccination can enhance their control and increase their intentions to get vaccinated. This can be achieved by offering clear and accessible information about vaccine safety, efficacy, and availability.

(4) Implementation intentions: Social marketing campaigns can be tailored to encourage individuals in remote regional areas and small, vulnerable communities to make specific plans and commitments regarding vaccination through implementation intentions. For instance, advising consumers in these areas to set a particular date and time for getting vaccinated and providing information on nearby vaccination centres and offering transportation options can facilitate the translation of intentions into actual behaviour. Also, government initiatives and schemes can be implemented to address the unique challenges faced by regional areas, such as long commute distances and limited access to healthcare facilities. These initiatives can include mobile vaccination clinics that visit remote regions (Askew et al., 2023; Leibowitz et al., 2021), partnering with local community organisations to arrange transportation services for vaccine appointments, and providing educational resources on the importance of vaccination specifically tailored for vulnerable communities (Zhong et al., 2021).

(5) Community engagement: Engaging diverse local communities and leaders can drive perceived quality value of vaccines. By involving community influencers, healthcare professionals, and trusted leaders in vaccination efforts, a sense of collective hope and

responsibility can also be fostered among regional and vulnerable communities and result in increased uptake of vaccines (Keshet & Popper, 2021).

(6) Vaccine education through tailored messaging: Understanding consumer segments' diverse needs and concerns is essential. By tailoring messaging to address specific barriers or misconceptions regarding price or quality, social marketing campaigns can enhance perceived value of vaccines (emotional, price and quality), driving hope and eventually increasing the likelihood of vaccine use. This approach could also involve addressing concerns about vaccine safety and efficacy or addressing religious or cultural beliefs.

(7) Access and convenience: Ensuring easy access to vaccination sites and providing convenient options such as extended clinic hours can remove potential barriers, promote implementation intention to use a vaccine, and drive vaccine use. By making the vaccination process as convenient as possible, consumers may be more motivated to follow through with their intentions.

6.4 Limitations and Future Research Potential

While this research provides valuable insights into the relationship between perceived value of vaccines, consumer hope, intention to use a vaccine, implementation intention to use a vaccine, and vaccine use (actual behaviour), it is important to acknowledge certain limitations.

First, this research primarily focused on the mediating role of consumer hope and implementation intention to use a vaccine without thoroughly exploring other potential factors that could influence the emotion-intention-behaviour relationship. There may be additional psychological, social, or contextual variables, such as trust (in the Australian health system), general vaccine attitude, and perceived risk that could play a significant role

in bridging the emotion-intention-behaviour gap but were not fully explored as they were beyond the scope of this research.

Second, the research relies heavily on self-report measures, which have inherent limitations. Participants' responses may be influenced by social desirability or memory recall bias, which can lead to potential inaccuracies in the data (Jann & Wolter, 2019). Incorporating more objective measures, such as behavioural observations or electronic tracking, could provide a more comprehensive understanding of actual behaviour. Another area for improvement is the the generalisability of the findings.

Third, the study mainly focused on the role of hope as a positive emotion and its influence on intention and behaviour. However, other positive emotions of contentment, serenity, happiness, love, or interest may also significantly shape consumer intention. Future research could explore the interplay of different emotions and their effects on vaccine-related intentions to provide a more comprehensive understanding.

Fourth, the research did not consider the dynamic nature of consumer behaviour and how it may change over time. External factors can influence consumer emotions, intentions, and behaviours, such as evolving state or territory health department guidelines, news events, or social influences. A longitudinal study design could provide valuable insights into how these external factors interact with the variables studied and their impact on the emotion-intention-behaviour relationship in the context of vaccines.

Lastly, a key limitation of this study is its limited consideration of cultural contexts and the potential impact they may have on the relationship between perceived value, consumer hope, and vaccine-related intentions and behaviours. The research primarily focused on the Australian population, and while Australia's demographic diversity is considered, cultural

differences in values, attitudes, and perceptions of vaccines may influence how these variables interact. For example, societal factors such as individualism vs. collectivism, as well as trust in health systems, could vary across different cultural groups and regions. Thus, the generalisability of the findings to other countries or cultural contexts may be limited. Future research could expand this study by examining these relationships in diverse cultural settings, which would provide a deeper understanding of how cultural differences shape vaccine-related intentions and behaviours. Additionally, gender skewness in the sample (with approximately 78% of participants being female) may also limit the generalisability of the findings. This imbalance could impact the findings, as gender differences may play a role in vaccine-related intentions and behaviours. Future research should aim for a more balanced gender distribution or consider the influence of gender as a variable to better understand its potential impact on vaccine-related outcomes.

6.5 Conclusion

This chapter offers a comprehensive summary of the research findings, drawing attention to significant research contributions, key conclusions, theoretical and managerial insights, and broader social implications. Additionally, it delineates research limitations and highlights avenues for future research.

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APPENDICES

8.1 Ethics Approval Evidence

[2022-2812E] - Ethics application approved!

RE

Tanya Quesnel on behalf of Res Ethics
To: Syed Fazal-e-Hasan; Hormoz Ahmadi
Cc: Res Ethics; Ibne Hussain
Tue 14/02/2023 12:59

Dear Applicant,

Chief Investigator: Dr Muhammad Fazal E Hasan and Dr Hormoz Ahmadi
Student Researcher: Ali Hussain
Ethics Register Number: 2022-2812E
Project Title: CONSUMER INTENTIONS TO USE VACCINES: IDENTIFYING ENABLING MECHANISMS THROUGH SOCIAL MARKETING
Date Approved: 14/02/2023
End Date: 31/12/2023

This is to certify that the above human ethics application has been reviewed by the Australian Catholic University Human Research Ethics Committee (ACU HREC). The application has been approved for the period given above.

Continued approval of this research project is contingent upon the submission of an annual progress report which is due on/before each anniversary of the project approval. A final report is due upon completion of the project. A report proforma can be downloaded from the ACU Research Ethics website.

Researchers are responsible for ensuring that all conditions of approval are adhered to and that any modifications to the protocol, including changes to personnel, are approved prior to implementation. In addition, the ACU HREC must be notified of any reportable matters including, but not limited to, incidents, complaints and unexpected issues.

Researchers are also responsible for ensuring that they adhere to the requirements of the National Statement on Ethical Conduct in Human Research, the Australian Code for the Responsible Conduct of Research and the University's Research Code of Conduct.

Any queries relating to this application should be directed to the Ethics Secretariat (res.ethics@acu.edu.au). Please quote your ethics approval number in all communications with us.

We wish you every success with your research.

Kind regards,

Tanya Quesnel
on behalf of ACU HREC Chair, Assoc Prof. Michael Baker

8.2 External Peer Review of the Questionnaire

Peer review outcome

Ali Amrollahi <ali.amrollahi@mq.edu.au>
Wed 01/02/2023 10:04

To: Ibne Hussain <ibne.hussain@myacu.edu.au>

Cc: Syed Fazal-e-Hasan <Syed.Fazal-e-Hasan@acu.edu.au>;Hormoz Ahmadi <Hormoz.Ahmadi@acu.edu.au>

You don't often get email from ali.amrollahi@mq.edu.au. Learn why this is important

CAUTION:This email originated from outside of the organisation. Do not click links or open attachments unless you recognise the sender and know the content is safe.

Dear Mr Ibne Ali Hussain

Thank you for sending me your research proposal entitled CONSUMER INTENTIONS TO USE VACCINES: IDENTIFYING ENABLING MECHANISMS THROUGH SOCIAL MARKETING.

I have read the research proposal for the abovenamed project and I consider that: the research method you have selected is appropriate;
the sample size you have mentioned is sufficient and supports the research method and research question, or the sample size is sufficient for the study, and the proposed project has significant research merit.

I wish you the best of luck with your research.

Dr Ali (Alireza) Amrollahi
Lecturer in Business Information Systems at Macquarie Business School
PhD in Information Systems with several research studies conducted and published using quantitative and qualitative methods.
A former colleague of the supervisor team in Mr. Hussain's PhD project.

Regards

Ali

Dr Ali R. Amrollahi

Lecturer
Macquarie Business School
Actuarial Studies and Business Analytics
Room 507 I Building E4A I 4 Eastern Road
Macquarie University I NSW I 2109 I Australia
E: ali.amrollahi@mq.edu.au I P: +61 (02) 9850 9269

8.3 Internal Peer Review of the Questionnaire

MS

Mohd Sadiq <sadiq.otago@gmail.com>

To: Ibne Hussain

Cc: Syed Fazal-e-Hasan; Mohammad Rahmati; Hormoz Ahmadi

Fri 18/11/2022 10:31

Measure V2_Sadiq.docx
41 KB

Dear Ibne,

Hope you are doing well.

I have gone through the measurement document. Since most of the items are derived from well-established scales, the modification done is good. However, some items are repetitive or not related to the construct (please see my comments).

I hope this helps.

JazakaAllah.

Kind Regards,
Mohd Sadiq

Mohammad Rahmati

To: Syed Fazal-e-Hasan; Mohd Sadiq <sadiq.otago@gmail.com>

Cc: Ibne Hussain; Hormoz Ahmadi

Sat 19/11/2022 04:24

Salam Brothers
I hope you all have a lovely weekend.
I had a review of measures.
Totally, the measures are Ok, but I have two suggestions for improvement.

1. Some parts of this table need to be completed like hope measure from Trait hope and state hope Snyder and General attitude towards vaccines.
2. For Items, it's enough to mention one sample instead of three or more items and add the questionnaire in the appendix. So this table will be shortened.

Regards
Mohammad

8.4 Consent Form

Faculty of Law and Business

CONSENT FORM

Copy for Researcher / Copy for Participant to Keep

TITLE OF PROJECT: Consumer intentions to use vaccines: Identifying enabling mechanisms through social marketing

APPLICATION NUMBER: ……(2022-XXX)

(NAME OF) PRINCIPAL INVESTIGATOR (or SUPERVISOR): Dr. Syed Fazal e Hasan

I ..... *(the participant)* have read (*or, where appropriate, have had read to me)* and understood the information provided in the participant information letter. Any questions asked in the study will be answered to my satisfaction. I agree to participate in this study for a timeframe of up to 20-30 minutes. I understand that this activity will be digitally recorded, realising that I can withdraw my consent and close my response window at any time without any adverse consequences. However, I agree that I cannot withdraw my consent once the reponses are completed and submitted. All the responses will remain anonymous and I understand that research data collected for this study may be published or provided to other researchers in a form that does not identify me in any way.

DATE: .....

I agree and wish to proceed

I don't agree and wish to leave

8.5 Participant Information Letter

AUSTRALIAN CATHOLIC UNIVERSITY

PARTICIPANT INFORMATION LETTER

Project Title: Consumer intentions to use vaccines: Identifying enabling mechanisms through social marketing

Dear Participant,

You are invited to participate in the research project described below.

What is the project about?
The research project examines the emotional mechanisms (such as hope) and influence of emotions on consumer intentions in context of vaccines. This research also investigates the influence of consumer perceptions on emotions in context of vaccines.

Who is undertaking the project?
This project is being conducted by Ibne Ali Hussain, PhD student, Australian Catholic University. Ibne Ali has a strong background in business, leadership/management and health promotion. Chief investigator of this study is Dr Syed Fazal e Hasan and co-investigators are Dr Samantha Murdy and Dr Hormoz Ahmadi who are supervising Ibne Ali on this project.

Are there any risks associated with participating in this project?
There are no foreseeable risks associated with the questions that you may wish to answer. Information you provide is not identifiable. Any electronic data will be kept on cloud.acu.edu.au, ACU's centrally managed cloud server managed by the research team. It will also be kept on a password-protected computer in the same location. Only the research team will have access to the data.

What will I be asked to do?
Questions are about vaccine perceptions, emotions and intentions. You have been invited to participate because you are above 18 years of age. Your participation will involve completing an anonymous study. The questions in this study will not be of a sensitive nature: rather they are general and will enable us to enhance our knowledge of your perceptions, emotions and intentions towards all types of vaccines.

How much time will the project take?
Completing your responses will take up to 20 minutes of your time. By completing the responses and submitting, it is implied that you have consented to participate in this study (for further details on consent, please refer to the consent form provided).

What are the benefits of the research project?
This study will benefit you in terms of a financial reward of USD $5 for completing your responses. This research may also benefit participants and the community indirectly. The information participants offer the research team will be used to develop and test theoretical frameworks and the findings of this study will be available to the readers of academic journals to help them develop better understanding about the topic.

How will you receive your payment?
Payment will be processed directly from Qualtrics. Should you require any further information on this, please contact Qualtrics team.

Can I withdraw from the study?
Please understand that your involvement in this study is voluntary and we respect your right to stop participating in the study at any time without consequence and without needing to provide an explanation. You are not under any obligation to participate. If you agree to participate, you can withdraw from the study at any time without any consequences. No individual will be identified by name in any publication of the results. Participants cannot withdraw once they submit their responses as responses are anonymous.

Will anyone else know the results of the project?
The results and findings of this study will be published in academic journals. Given the information collected from you is unidentifiable, participants will not be identified in publications. The results may be provided to marketing firms in an aggregated format that does not identify participants in any way. We also intend to use collected data for some future research studies.

Will I be able to find out the results of the project?
The results or a summary of the results will be made available to the participants if they send an email to the co-investigator wishing for the same. Results may be used for future research studies.

Who do I contact if I have questions about the project?
Feel free to contact us with any questions about this research by emailing any of us at:
ibne.hussain@myacu.edu.au
syed.fazal-e-hasan@acu.edu.au
samantha.murdy@acu.edu.au

What if I have a complaint or any concerns?
The study has been reviewed by the Human Research Ethics Committee at Australian Catholic University (**HREC Reference Number: 2022-2812E**). If you have any complaints or concerns about the conduct of the project, you may write to the Manager of the Human Research Ethics and Integrity Committee care of the Office of the Deputy Vice Chancellor (Research).

Manager, Ethics and Integrity
c/o Office of the Deputy Vice Chancellor (Research)
Australian Catholic University
North Sydney Campus
PO Box 968
NORTH SYDNEY, NSW 2059
Ph.: +61 2 9739 2519
Fax: +61 2 9739 2870
Email: resethics.manager@acu.edu.au
Any complaint or concern will be treated in confidence and fully investigated. You will be informed of the outcome.

I want to participate! How do I sign up?
By completing your responses, it is implied that you have consented to participate in this study.
Yours sincerely,

	Name	*Signature*	*Date*
Chief investigator or project supervisor	Dr Syed Fazal-e-Hasan	[redacted]	14/05/2023
Co-supervisor	Dr Samantha Murdy		17/05/2023
Associate-supervisor	Dr Hormoz Ahmadi		14/05/2023
Co-Investigator or Student Researcher	Ibne Ali Hussain		12/05/2023

8.6 Scale Adaptation

Measure	Scale adapted from	Total number of items	Definition by author from scale has been adapted	Industry	Respondents	Code
Perceived emotional value of vaccines	Sweeney and Soutar (2001)	4	the utility derived from the feelings or affective states that a product generates	Education	Post graduate students from Australian universities	PEV
Perceived social value of vaccines	Sweeney and Soutar (2001)	4	the utility derived from the product's ability to enhance social self-concept	Education	Post graduate students from Australian universities	PSV
Perceived price value of vaccines	Sweeney and Soutar (2001)	4	the utility derived from the product due to the reduction of its perceived short term and longer-term costs	Education	Post graduate students from Australian universities	PPV
Perceived quality value of vaccines	Sweeney and Soutar (2001)	4	the utility derived from the perceived quality and expected performance of the product	Education	Post graduate students from Australian universities	PQV
Consumer hope	Snyder et al. (1996), Martin-Krumm et al. (2015)	5	a positive emotion that develops a capability to derive pathways to desired goals and motivate the consumer via agency thinking to use those pathways	Education	Undergraduate students	HE, HOP
Self-efficacy	Chen et al. (2001)	4	How much people believe they can achieve goal, despite of difficulties	Education	University undergraduates	SE
Intention to use a vaccine	Sheriffdeen (2017)	4	Refers to behaviour where the stronger the intention to perform the behavior, the more likely the behavior will be performed	Health	Adult Australians	ITU
Implementation intention to use a vaccine	Nydegger et al. (2013)	4	Implementation intentions are plans to achieve a certain goal	Health	Participants from drug diversion sites in California	II
Vaccine use (actual behaviour)	Wu and Chen, (2014)	5	behaviour to use the product	Sustainability	Green product consumers	AB

8.7 Experiment Questionnaire

Screening questions	**Responses**
Have you received any vaccines in the past five years?	Yes No -All participants who answered no were screened out
What is your age?	Under 18 18 - 24 25 - 34 35 - 44 45 - 54 55 - 64 65 - 74 75 - 84 85 or older -All under 18 participants were screened out
Do you live in Australia?	Yes No -All participants who answered no were screened out

Demographics	Responses
Gender: What is your gender?	Male Female Prefer not to say Other
Education: What is the highest degree or level of school you have completed?	Less than a high school diploma High school degree or equivalent (e.g. GED) Some college, no degree Associate degree (e.g. AA, AS) Bachelor's degree (e.g. BA, BS) Master's degree (e.g. MA, MS, MEd) Doctorate or professional degree (e.g. MBBS, BDS, PhD)
Employment: What is your current employment status?	Employed full time Employed part time or casual Unemployed and currently looking for work Unemployed not currently looking for work Student Retired Homemaker Self-employed Unable to work Other
Income: What is your gross annual income range?	Less than $50,000 $50,000-$90,500 $91,000-$100,500 $101,000-$200,000 $200,000 and above Other

Start of experiment block (Low perception scenarios)

Introduction:

Thank you for participating in this social marketing survey. The survey is divided into two parts, and we estimate that it will take approximately 20 minutes to complete.

The first part of the survey comprises scenario-based questions. For each question, we kindly ask you to read the provided scenario and imagine yourself in that situation before answering.

The second part of the survey consists of questions presented in a rating scale format. When responding, we encourage you to express your genuine feelings rather than focusing on what you believe is generally correct. Your honest opinions will greatly contribute to the accuracy of our findings.

Perceived quality value of vaccines - Scenario 1.2
Image: MasterTux, Pixabay, CC0 (https://creativecommons.org/publicdomain/zero/1.0/)

Imagine yourself in a time when there is a severe outbreak of COVID caused by a new and highly dangerous viral strain. The health department has recommended getting vaccinated for travel and work purposes. Without getting vaccinated, you cannot work, travel or socialise. You are expected to receive an unbranded vaccine that is not from a well-known or trustworthy pharmaceutical company.

Priming:
What makes you think that an unbranded vaccine made by not very well known and trusted pharmaceutical company is not of good quality?

Manipulation check:
Please tick one option in the box below after reading the question.

What are your views on the quality of an unbranded vaccine produced by not very well known pharmaceutical company	Extremely negative (1)	Moderately negative (2)	Slightly negative (3)	Neither positive nor negative (4)	Slightly positive (5)	Moderately positive (6)	Extremely positive (7)

Consumer hope: Likert scale (1 strongly disagree – 7 strongly agree)
Please respond to all of the questions below. They are about how positive you would feel regarding receiving an unbranded vaccine. To answer, indicate the extent to which you agree or disagree with each statement.

HE1A1: The vaccine would keep me healthy in a pandemic/epidemic
HE1A2: I would feel positive towards getting vaccinated in pandemic/epidemic
HE1A3: I would think of ways to get vaccinated in pandemic/epidemic
HE1A4: Vaccine is the solution to the pandemic/epidemic problem
HE1A5: In a pandemic/epidemic, thinking about the vaccine's effectiveness would give me the confidence to stay healthy

Perceived social value of vaccines - Scenario 2.2

Imagine yourself in a time when there is a severe outbreak of COVID caused by a new and highly dangerous viral strain. The health department has recommended getting vaccinated for travel and work purposes. Without getting vaccinated, you cannot work, travel or socialise. However, you are reluctant to get vaccinated because you believe that getting vaccinated does not increase your social acceptance.

Priming:

After reading and imagining yourself in the scenario above, please indicate your level of agreement.

Being vaccinated and socially accepted is not important to me during a pandemic (Likert scale 1-7)

Manipulation check:

After reading and imagining yourself in the scenario above, please indicate to what extent you agree to the statement below.

Vaccination does not increase my social acceptance	Strongly Disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)

Consumer hope: Likert scale (1 strongly disagree – 7 strongly agree)

Please respond to all of the questions below. They are about how positive you would be about getting vaccinated if you thought that it would have no effect on your social circle. To answer, indicate the extent to which you agree or disagree with each statement.

HE2A1: The vaccine would keep me healthy in a pandemic/epidemic
HE2A2: I would feel positive towards getting vaccinated in pandemic/epidemic
HE2A3: I would think of ways to get vaccinated in pandemic/epidemic
HE2A4: Vaccine is the solution to the pandemic/epidemic problem
HE2A5: In a pandemic/epidemic, thinking about the vaccine's effectiveness would give me the confidence to stay healthy

Perceived emotional value of vaccines - Scenario 3.2

Imagine yourself in a time when there is a severe outbreak of COVID caused by a new and highly dangerous viral strain. The health department has recommended getting vaccinated for travel and work purposes. Without getting vaccinated, you cannot work, travel or socialise. You are reluctant to get vaccinated and believe that it does not make you feel satisfied, safe and secure from disease.

Priming:

After reading and imagining yourself in the scenario above, please indicate your level of agreement.

Being vaccinated and feeling safe/secure from disease is not important to me

Manipulation check:

After reading and imagining yourself in the scenario above, please indicate to what extent you agree to the statement below.

Vaccine does not keep me safe/secure from disease	Strongly Disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)

Consumer hope: Likert scale (1 strongly disagree – 7 strongly agree)

Please respond to all of the questions below. They are about how positive you would feel about getting vaccinated if you thought that it would not keep you safe/secure from disease. To answer, indicate the extent to which you agree or disagree with each statement.

HE3A1: The vaccine would keep me healthy in a pandemic/epidemic
HE3A2: I would feel positive towards getting vaccinated in pandemic/epidemic
HE3A3: I would think of ways to get vaccinated in pandemic/epidemic
HE3A4: Vaccine is the solution to the pandemic/epidemic problem
HE3A5: In a pandemic/epidemic, thinking about the vaccine's effectiveness would give me the confidence to stay healthy

Perceived price value of vaccines - Scenario 4.2

Imagine yourself in a time when there is a severe outbreak of COVID caused by a new and highly dangerous viral strain. The health department has recommended getting vaccinated for travel and work purposes. Without getting vaccinated, you cannot work, travel or socialise. You had planned to get vaccinated but now you have to pay $15 because of a new government policy.

Priming:

Why do you believe that government should not charge $15 for vaccines? Please write a few words.

Manipulation check:

After reading and imagining yourself in the scenario above, please indicate to what extent you agree to the statement below.

Government should not charge $15 for vaccine	Strongly Disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)

Consumer hope: Likert scale (1 strongly disagree – 7 strongly agree)

Please respond to all of the questions below. They are about how positive you would feel after the government's decision of charging $15 for vaccine. To answer, indicate the extent to which you agree or disagree with each statement.

HE4A1: The vaccine would keep me healthy in a pandemic/epidemic
HE4A2: I would feel positive towards getting vaccinated in pandemic/epidemic
HE4A3: I would think of ways to get vaccinated in pandemic/epidemic
HE4A4: Vaccine is the solution to the pandemic/epidemic problem
HE4A5: In a pandemic/epidemic, thinking about the vaccine's effectiveness would give me the confidence to stay healthy

Start of experiment block (High perception scenarios)

Introduction:

Thank you for participating in this social marketing survey. The survey is divided into two parts, and we estimate that it will take approximately 20 minutes to complete.

The first part of the survey comprises scenario-based questions. For each question, we kindly ask you to read the provided scenario and imagine yourself in that situation before answering.

The second part of the survey consists of questions presented in a rating scale format. When responding, we encourage you to express your genuine feelings rather than focusing on what you believe is generally correct. Your honest opinions will greatly contribute to the accuracy of our findings.

Perceived quality value of vaccines - Scenario 1.1
Image: Reuters/Dado Ruvic

Imagine yourself in a time when there is a severe outbreak of COVID caused by a new and highly dangerous viral strain. The health department has recommended getting vaccinated for travel and work purposes. Without getting vaccinated, you cannot work, travel or socialise. You are expected to receive a branded vaccine that is from a well-known and trustworthy pharmaceutical company.

Priming:
What makes you think that a branded vaccine made by a famous and trusted pharmaceutical company is of very good quality?

Manipulation check:
Please tick one option in the box below after reading the question.

What are your views on the quality of a vaccine produced by a famous and trustworthy pharmaceutical brand?	Extremely negative (1)	Moderately negative (2)	Slightly negative (3)	Neither positive nor negative (4)	Slightly positive (5)	Moderately positive (6)	Extremely positive (7)

Consumer hope: Likert scale (1 strongly disagree – 7 strongly agree)
Please respond to all of the questions below. They are about how positive you would feel regarding receiving a branded vaccine. To answer, indicate the extent to which you agree or disagree with each statement.

HE1B1: The vaccine would keep me healthy in a pandemic/epidemic
HE1B2: I would feel positive towards getting vaccinated in pandemic/epidemic
HE1B3: I would think of ways to get vaccinated in pandemic/epidemic
HE1B4: Vaccine is the solution to the pandemic/epidemic problem
HE1B5: In a pandemic/epidemic, thinking about the vaccine's effectiveness would give me the confidence to stay healthy

Perceived social value of vaccines - Scenario 2.1

Imagine yourself in a time when there is a severe outbreak of COVID caused by a new and highly dangerous viral strain. The health department has recommended getting vaccinated for travel and work purposes. Without getting vaccinated, you cannot work, travel or socialise. You have planned to get vaccinated due to social reasons as people may not accept you in social settings if you are unvaccinated.

Priming:

After reading and imagining yourself in the scenario above, please indicate your level of agreement.

Being vaccinated and socially accepted is important to me during a pandemic

Manipulation check:

After reading and imagining yourself in the scenario above, please indicate to what extent you agree to the statement below.

Vaccination increases my social acceptance	Strongly Disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)

Consumer hope: Likert scale (1 strongly disagree – 7 strongly agree)

Please respond to all of the questions below. They are about how positive you would feel in the situation described above. To answer, indicate the extent to which you agree or disagree with each statement.

HE2B1: The vaccine would keep me healthy in a pandemic/epidemic
HE2B2: I would feel positive towards getting vaccinated in pandemic/epidemic
HE2B3: I would think of ways to get vaccinated in pandemic/epidemic
HE2B4: Vaccine is the solution to the pandemic/epidemic problem
HE2B5: In a pandemic/epidemic, thinking about the vaccine's effectiveness would give me the confidence to stay healthy

Perceived emotional value of vaccines - Scenario 3.1

Imagine yourself in a time when there is a severe outbreak of COVID caused by a new and highly dangerous viral strain. The health department has recommended getting vaccinated for travel and work purposes. Without getting vaccinated, you cannot work, travel or socialise. You have planned to get vaccinated because it makes you feel satisfied, safe and secure from disease.

Priming:

After reading and imagining yourself in the scenario above, please indicate your level of agreement.

Being vaccinated and feeling safe/secure from disease is important to me

Manipulation check:

After reading and imagining yourself in the scenario above, please indicate to what extent you agree to the statement below.

Vaccine keeps me safe/secure from disease	Strongly Disagree (1)	Disagree (2)	Somewhat disagree (3)	Neither agree nor disagree (4)	Somewhat agree (5)	Agree (6)	Strongly agree (7)

Consumer hope: Likert scale (1 strongly disagree – 7 strongly agree)

Please respond to all of the questions below. They are about how positive you would feel about vaccine in the situation described above. To answer, indicate the extent to which you agree or disagree with each statement.

HE3B1: The vaccine would keep me healthy in a pandemic/epidemic
HE3B2: I would feel positive towards getting vaccinated in pandemic/epidemic
HE3B3: I would think of ways to get vaccinated in pandemic/epidemic
HE3B4: Vaccine is the solution to the pandemic/epidemic problem
HE3B5: In a pandemic/epidemic, thinking about the vaccine's effectiveness would give me the confidence to stay healthy

Perceived price value of vaccines - Scenario 4.1

Imagine yourself in a time when there is a severe outbreak of COVID caused by a new and highly dangerous viral strain. The health department has recommended getting vaccinated for travel and work purposes. Without getting vaccinated, you cannot work, travel or socialise. You have planned to get vaccinated because it is free of cost and also saves your time and the cost you would pay if you get sick.

Priming:

Why do you believe that government should offer free vaccines in a pandemic/epidemic? Please write a few words.

Manipulation check:

Please tick one option in the box below after reading the question.

What are your views on free vaccine availability in Australia?	Extremely negative (1)	Moderately negative (2)	Slightly negative (3)	Neither positive nor negative (4)	Slightly positive (5)	Moderately positive (6)	Extremely positive (7)

Consumer hope: Likert scale (1 strongly disagree – 7 strongly agree)

Please respond to all of the questions below. They are about how positive you would feel in the situation described above. To answer, indicate the extent to which you agree or disagree with each statement.

HE4B1: The vaccine would keep me healthy in a pandemic/epidemic
HE4B2: I would feel positive towards getting vaccinated in pandemic/epidemic
HE4B3: I would think of ways to get vaccinated in pandemic/epidemic
HE4B4: Vaccine is the solution to the pandemic/epidemic problem
HE4B5: In a pandemic/epidemic, thinking about the vaccine's effectiveness would give me the confidence to stay healthy

8.8 Survey Questionnaire

Introduction: Thank you for completing the first part of the survey and continuing to the second part. Your engagement and attention is highly appreciated. Please take your time to carefully read each question and provide your thoughtful responses. Your input will greatly contribute to the success of this survey. Let's proceed to the second part of the survey.
Perceived emotional value of vaccines: Likert scale (1 strongly disagree – 7 strongly agree) The following questions relate to your feelings concerning vaccines in a pandemic/epidemic situation. Please indicate the extent to which you agree or disagree with the following statements. Your response should be based on your feelings and not necessarily what you think is generally correct. PEV1: I feel calm when I think about the vaccine as a solution to the pandemic/epidemic PEV2: Vaccine will keep me safe in the pandemic/epidemic PEV3: I think the vaccine is useful for dealing with the pandemic/epidemic PEV4: I feel secure when I think about getting vaccinated in pandemic/epidemic
Perceived social value of vaccines: Likert scale (1 strongly disagree – 7 strongly agree) The following questions relate to your feelings related to social settings concerning vaccines in a pandemic/epidemic situation. Please indicate the extent to which you agree or disagree with the following statements. Your response should be based on your feelings and not necessarily what you think is generally correct. PSV1: Getting vaccinated during a pandemic/epidemic would provide me social approval PSV2: Getting vaccinated during a pandemic/epidemic would make people perceive me as harmless PSV3: Getting vaccinated during a pandemic/epidemic would create a positive impression on society PSV4: Getting vaccinated during a pandemic/epidemic is socially valuable
Perceived price value of vaccines: Likert scale (1 strongly disagree – 7 strongly agree) The following questions are about how you feel regarding the cost of the vaccine in terms of money and time during a pandemic/epidemic. Please indicate the extent to which you agree or disagree with the following statements. Your response should be based on your feelings and not necessarily what you think is generally correct. PPV1: Getting vaccinated during a pandemic/epidemic would help me keep my job PPV2: Getting vaccinated in pandemic/epidemic would save me time that I may lose being sick PPV3: Getting vaccinated in pandemic/epidemic would prevent me from financial hardship PPV4: In Australia, many vaccines are paid for by Medicare, so they are free of cost
Perceived quality value of vaccines: Likert scale (1 strongly disagree – 7 strongly agree) The following questions relate to your feelings about vaccine quality available in Australia in pandemic/epidemic situation. Please indicate the extent to which you agree or disagree with the following statements. Your response should be based on your feelings and not necessarily what you think is generally correct. PQV1: I believe that the vaccines available during a pandemic/epidemic are of high quality PQV2: The Australian health department does a good job by distributing high-quality vaccines during a pandemic/epidemic PQV3: I believe that the vaccines available during a pandemic/epidemic are from reputable brands PQV4: I believe that the vaccines available during a pandemic/epidemic have consistent performance

Consumer hope: Likert scale (1 strongly disagree – 7 strongly agree)
The following questions are about how optimistic you feel about vaccines during a pandemic/epidemic. Please indicate the extent to which you agree or disagree with the following statements. Your response should be based on your feelings and not necessarily what you think is generally correct.

HOP1:The vaccine would keep me healthy in a pandemic/epidemic
HOP2:I would feel positive towards getting vaccinated in pandemic/epidemic
HOP3:I would think of ways to get vaccinated in pandemic/epidemic
HOP4:Vaccine is the solution to the pandemic/epidemic problem
HOP5:In a pandemic/epidemic, thinking about the vaccine's effectiveness would give me the confidence to stay healthy

Self-efficacy: Likert scale (1 strongly disagree – 7 strongly agree)
The following questions capture your own beliefs and confidence in yourself during a pandemic/epidemic situation. Please indicate the extent to which you agree or disagree with the following statements. Your response should be based on your feelings and not necessarily what you think is generally correct.

SE1: I believe I can successfully take the necessary steps to protect myself during a pandemic/epidemic
SE2: I feel confident in my ability to overcome challenges during a pandemic/epidemic
SE3: I feel confident in my ability to achieve important outcomes during a pandemic/epidemic situation
SE4: During a pandemic/epidemic, I am confident in my ability to perform well despite any challenges

Intention to use a vaccine: Likert scale (1 strongly disagree – 7 strongly agree)
The following questions capture your inclination to use vaccines in the event of a pandemic/epidemic. Please indicate the extent to which you agree or disagree with the following statements. Your response should be based on your feelings and not necessarily what you think is generally correct.

ITU1: I plan to use the vaccine that is suggested by health authorities during a pandemic/epidemic
ITU2: I will use a vaccine recommended by health authorities in pandemic/epidemic
ITU3: I plan to continue using vaccines in future pandemics/epidemics
ITU4: I aim to follow health authorities advise on vaccine use

Implementation intention to use a vaccine: Likert scale (1 strongly disagree – 7 strongly agree)
The following questions relate to your plans on getting vaccinated if there is another outbreak in future. Please indicate the extent to which you agree or disagree with the following statements. Your response should be based on your feelings and not necessarily what you think is generally correct.

II1: I have decided to get vaccinated if there is another outbreak
II2: I have planned where to go to get a vaccine if there is another outbreak
II3: I have decided what advice to give my family about getting vaccinated if there is another outbreak
II4: I have decided on actions I will take to persuade my family to get vaccinated if there is another outbreak

Vaccine use (Actual behaviour): Likert scale (1 strongly disagree – 7 strongly agree)
The following questions are about your vaccine usage patterns. Please indicate the extent to which you agree or disagree with the following statements. Your response should be based on your feelings and not necessarily what you think is generally correct.

AB1: I have always preferred to stay up to date with my vaccinations
AB2: I have always preferred choosing vaccines that are of good quality
AB3: I have always advised others to get vaccinated when it is necessary
AB4: I have always preferred to ensure that my family is vaccinated
AB5: I have always preferred to ensure that my loved ones are vaccinated