



A next-generation social media-based relapse prevention intervention for youth depression: Qualitative data on user experience outcomes for social networking, safety, and clinical benefit



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ABSTRACT

Major depressive disorder (MDD) has a high prevalence and relapse rate among young people. For many individuals depression exhibits a severe course, and it is therefore critical to invest in innovative online interventions for depression that are cost-effective, acceptable and feasible. At present, there is a scarcity of research reporting on qualitative data regarding the subjective user experience of young people using social networking-based interventions for depression. This study provides in-depth qualitative insights generated from 38 semi-structured interviews, and a follow-up focus group, with young people (15–25 years) after the implementation of a moderated online social therapy intervention for depression relapse prevention (“Rebound”). Exploratory analysis identified patterns of content from interview data related to three main themes: 1) preferred content compared to perceived helpfulness of the online platform, 2) interest in social networking, and 3) protective environment. Two clear groups emerged; those who perceived the social networking component of the intervention as the most helpful component; and those who preferred to engage in therapy content, receiving individualized content suggested by moderators. The Rebound intervention was shown to be acceptable for young people with major depression. Integration of social networking features appears to enhance intervention engagement for some young people recovering from depression.

1. Introduction

Major depressive disorder (MDD) occurs within youth populations at comparable rates to adult populations (Kessler et al., 2010). By age 19 nearly 25% of young people will have experienced an episode of MDD (Rohde et al., 2013), with younger adults (18–25 years old) having the highest incidence and cumulative prevalence of depression (Kessler and Walters, 1998). Relapse rates in populations of young people are also high, ranging between 34% and 75% within the first five years after the index episode (Kennard et al., 2006). Complications

of depression include major psychiatric comorbidity, impaired functioning, and suicidality (Zisook et al., 2007).

Young people's interest in and use of Internet-based communication positions this technology well for mental health help-seeking with over 97% of young people using the Internet daily (Pew Research Center, 2014). Specifically, social networking sites (SNS) have been extraordinarily pervasive, becoming the new framework for communication and social support among young people (ACMA, 2015). Attractive features of Internet-based interventions include anonymity (Lederman et al., 2014), lack of hierarchy among users (Schrank et al.,

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2010), ease of communication due to the removal of the face-to-face component (Houston et al., 2002; Pierce, 2009) and an increased sense of belonging (Newman et al., 2011). These characteristics may lead to increased emotional disclosure (Weisband and Kiesler, 1996), decreased inhibition and isolation (Dennis, 2003), development of supportive relationships and enhanced self-esteem (Collin et al., 2011; O’Keeffe and Clarke-Pearson, 2011), and a potentially reduced fear of stigma (Houston et al., 2002).

Integrating social networking within online relapse prevention interventions may be a cost-effective alternative to maintain intervention gains from specialized early intervention services, and may also bridge the gap between specialized intervention and standard treatment improving longer-term engagement with standard mental health services (Álvarez-Jiménez et al., 2012, 2016; Andersson and Titov, 2014). Therefore, innovative psychosocial Internet-based treatment specifically designed for young people may present new opportunities to deliver psychological treatments and improve intervention acceptability and engagement among young people experiencing depression (McDermott et al., 2010).

Although several Internet-based interventions have been proven to be as effective as face-to-face psychotherapy (Andersson et al., 2013; Andersson and Hedman, 2013), it is difficult to establish the unique effects of specific therapeutic components of these interventions. Moreover, personal preferences in treatment delivery may be an important factor to take into account when assessing the effectiveness of online-based interventions. Self-help treatment approaches (e.g., written, visual, audio and recorded treatment material self-administered by a patient with or without the therapist direction (Botella et al., 2007)) have been found effective for problems such as anxiety, depression, sleep difficulties and somatic problems (Gould and Clum, 1993). Among these, cognitive behavioural-oriented online interventions seem a promising self-help therapeutic option for depression (Rice et al., 2014). However, there is a lack of evidence on which are the most effective specific therapeutic techniques of online-based interventions (e.g., problem-solving strategies, psychoeducation, wellbeing strategies) (Rice et al., 2014). For example, initial results from an online Problem Solving Therapy intervention showed this technique was effective for improving young people’s problem-solving skills and reducing depression (Hoek et al., 2012). Several reviews show that the peer support component of some online interventions (Pfeiffer et al., 2011) and the use of social networking in online-based interventions among young people also seem to improve depression (Rice et al., 2014) and suicide risk (Robinson et al., 2016).

Preliminary quantitative data from the implementation of a moderated online social therapy (MOST) (Lederman et al., 2014; Wadley et al., 2013) for first-episode psychosis (the Horyzons study) (Alvarez-Jimenez et al., 2013; Gleeson et al., 2014) and for relapse prevention in depression (the Rebound study) (Rice et al., 2016) demonstrated that this model is acceptable, feasible and safe for young people. MOST follows a theory-driven model of online human support (i.e., supportive accountability (Mohr et al., 2011)) and the positive psychotherapy model (i.e., strengths-based models (Seligman et al., 2006)) and comprises a) self-help therapy modules; b) active moderation by clinical experts; c) a social networking component; and d) peer support (from *Super Users*: users who receive peer support training and supervision). However, a detailed understanding of user experience is required to discover key therapeutic mechanisms, factors associated with treatment engagement, and the subjective importance of key features of the intervention (i.e., social networking). For example, one of the software features in trials of the MOST platform uses an evidence-based problem-solving space (referred to as *Talk it Out*), where young people can propose a difficulty they would like assistance in solving (D’Zurilla and Nezu, 2007). Within the Rebound pilot study, problems were nominated by a third of young people (Rice et al., 2016), indicating the value of this function. Due to the social and flexible nature of the *Talk It Out* component of the MOST model, some young people contribute by

nominating a problem, others by suggesting solutions, while others may benefit by reading problems and solutions without directly contributing information. In-depth qualitative interviews are necessary to understand user experiences of the system as well as its subjective perceived helpfulness and perceptions of clinical benefit.

Qualitative methods have been used to investigate particular aspects of online interventions for depression in different populations. However, to our knowledge there is only one qualitative report from an online-based intervention for youth depression based on the Supportive Accountability model which also included online peer support (Ho et al., 2016). This 10-week CBT-based pilot study had a small sample size ($N = 13$) and included at-risk young people (i.e., those meeting criteria for depression were excluded). Moderators only ensured safety and did not directly participate in the site. Findings showed an initial use of the peer-networking feature of the site with a progressive decrease of participation due to disengagement of other participants. Finally, results provided general qualitative information without conducting a structured thematic analysis.

We seek to fill the current research gap by reporting detailed qualitative data on young peoples’ experiences using a novel social networking-based intervention for depression relapse prevention. We report data from a clinical population in the critical developmental period of developing depression. Because the impact of social networking-based interventions is contingent on interactions between users, type of intervention content, and the safety of the online environment (Rice et al., 2014), the aim of the present study was to meaningfully understand young people’s experiences of participating in the Rebound pilot study using semi-structured interviews and focus group data regarding a) their preferred content and the perceived helpfulness of the online platform, b) interest in social networking, and c) a protective environment online. Given the nature of the research question, an exploratory (i.e., non-hypothesis driven) approach was chosen in order to report comprehensively the subjective experiences of young people.

2. Material and methods

2.1. Participants

One hundred and three young people were approached following referral by youth mental health clinicians from three early intervention clinics in Melbourne, Australia (the Youth Mood Clinic at Orygen Youth Health, and two headspace centres in the Western Suburbs of Melbourne) between June and December 2014. Of these, 27 did not meet the study criteria, 18 refused to participate and 11 were unable to be contacted. During assessment a further 5 participants were found ineligible. Therefore, recruited participants were 42 young people who completed an online intervention for relapse prevention in depression over a 12-week period. Four participants were lost to follow-up, with 90.5% of the original sample completing the follow-up assessment (50% males, mean age 18.5 years, $SD = 2.1$). Nearly all of the participants (97%) reported daily Internet use. Further details of the sample and demographics are reported elsewhere (Rice et al., 2016).

2.2. Procedure

Ethical approval for the study was granted by the Melbourne Health Human Research Ethics Committee (approval: 2013.276). All participants provided informed consent to participate in the study. The study intervention platform, referred to as Rebound, was based on the moderated online social therapy (MOST) model (Alvarez-Jimenez and Gleeson, 2012; Gleeson et al., 2012; Lederman et al., 2014). Detailed information about the intervention methodology is provided elsewhere (Rice et al., 2016), but in brief, Rebound is a strengths-based intervention based on positive psychology principles enhancing well-being and social connectedness (Cruwys et al., 2015) including the use of mindfulness techniques and cognitive-behavioural therapy specifically

designed for relapse prevention of depression (Kennard et al., 2008). The Rebound platform comprised: a) online social networking with peers; b) individually tailored interactive psychosocial therapy; and c) involvement of expert mental health clinicians (moderators) and expert peer support.

At 12-week follow-up, semi-structured interviews were undertaken with all young people lasting approximately 60 min. Data saturation was not assessed since we purposely interviewed all young people to obtain comprehensive feedback on the intervention. In accordance with Krueger and Casey's (2000) recommendations, further follow-up data was obtained in the form of a focus group lasting 90 min undertaken with 6 young people (Heary and Hennessy, 2002). Individual interviews were conducted in person by an experienced research assistant, either at the clinical service, or at the participant's residence. The focus group was conducted at The University of Melbourne (Melbourne, Australia) moderated by SR (clinical psychologist, PhD) a male, with experience in focus groups, co-facilitated by PR, an experienced female member of the research team (Masters degree).

The individual semi-structured interview schedule included prompts in case answers were vague, or questions were misunderstood (see Supplementary information for detailed questions). Regarding the focus group, the moderator followed a schedule, which included content to guide the discussion and elicit information from young people, maximizing results from the focus group (Morrison-Beedy et al., 2001). In the focus group young people were asked about their experience with the content (relevance, meaning, length and usefulness of the content) and questions about specific parts of the content (*Find your Strengths, Pathways, Steps, Do It, The Café, Talk it Out, Talking Points*) (see Table 1 for an explanation).

2.3. Data reporting and analysis

Data reporting was performed following the Consolidated Criteria for Reporting Qualitative Research (COREQ; Tong et al., 2007). Field notes were taken during semi-structured interviews and participant responses were transcribed for analysis. The focus group was audio recorded and transcribed verbatim for analysis. The moderator double-checked the transcript for accuracy. Potentially identifiable information was removed during this process. Transcripts were not returned to young people for further feedback or corrections.

Thematic analysis was chosen because it is an accessible and flexible qualitative method for identifying patterns of responding while simultaneously maintaining a rich description of the data (Braun and

Clarke, 2006). We analysed the data following Braun and Clarke's guidelines over six steps: 1) familiarization with the data, 2) generating an initial coding frame, 3) searching for themes, 4) reviewing themes, 5) defining and naming themes, 6) reporting. Two independent authors separately analysed data to enable inter-rater reliability as recommended by Barbour (2001). The first author (OSE) read through the data transcripts several times to ensure familiarization with the data (Step 1). A second researcher (SR) checked the initial coding frame generated by OSE against the transcripts. Any resulting discrepancies were discussed with the aim to gain consistency and reliability of the coding (Step 2). Pre-defined themes were derived from the semi-structured questions (Step 3), Items included questions about the most preferred and helpful site-based features (i.e., therapy content, moderation, peer support – Q1, Q4 and focus group), social networking features (i.e., The Café, Talk it out, peer support – Q2 and focus group), and general safety of the site (Q3 and focus group). Qualitative responses to the questions pertaining to site preferred features were coded into “liked”, “disliked”, and “neutral”; and to site most helpful content were coded into “useful”, “not useful” and, “neutral”. Responses to questions regarding social networking features were coded into “interacted in SNS” and “did not interact in SNS”. Responses to questions regarding safety were coded into “safe” and “unsafe”. New themes were developed or combined and grouped into minor themes as necessary when taking into account the focus group data (Step 4). The coding was refined by consultation with another author (SR). Questions from the semi-structured interviews are reported elsewhere (see Supplementary information). The focus group was treated as a whole data set.

3. Results

Three main themes were identified in relation to young people's responses to the semi-structured interview: 1) preferred content compared to perceived helpfulness, where perceived helpfulness was subdivided into three subthemes (moderators, peer support, and therapeutic content); 2) interest in social networking, divided into two subthemes (high interactors, low interactors); and 3) protective environment, divided into three subthemes (stigma, confidentiality and cyber-bullying). The focus group responses were also employed to support each theme. Evidence for the themes is discussed below. A visual representation is presented in a thematic scheme (Supplementary Information eFigs. 1, 2 and 3).

Table 1
Description of the main Rebound features and therapy modules.

Component	Description
Find your strengths	An interactive online card-sort game where young people were introduced to the strengths concept and identified their individual strengths. Based on the positive psychology framework (Rashid and Ostermann, 2009; Seligman et al., 2006)
Therapy content	
Steps	Interactive therapy modules covering a single concept, each requiring approximately 20 mins. In Rebound there were steps targeting known risk factors for relapse of depression (i.e. rumination, substance misuse and self-criticism), steps promoting well-being (discovering your strengths, maximizing and savouring the good things in life, relaxation) and steps on social connectedness.
Pathways	Collection of Steps that conceptually link together to lead the young person to a specific therapeutic goal.
Do Its	Unique behavioural experiments known as Actions (Rouf et al., 2004) where the young person can apply therapy content (e.g., mindfulness, self-compassion and personal strengths) in relevant real world situations, with the objective of bolstering adaptive coping strategies. The ultimate goal of Actions is to increase practice and generalization of skills to real-life situations by using context specific, action-based recommendations (Van Gemert-Pijnen et al., 2014).
Social networking	
The Café	The social networking component of Rebound, similar to a Facebook newsfeed where users can contribute posts and comments; share own experiences, give and obtain support from other young people and moderators.
Talk it Out	A moderated space where young people can nominate a specific problem they would like group-based support with; following an evidence-based problem-solving framework (D'Zurilla and Nezu, 2007). Each Talk it Out goes through an iterative process of problem definition, brainstorming solutions given by other young people, identification of pros and cons and a final summary of all the ideas.
Talking Points	Questions embedded within the Steps that promote users to discuss and share their own experiences regarding a specific topic integrating the social networking component.

Table 2
Answers to questions regarding preferred and most helpful feature (questions Q-a and Q-b) by young person.

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	n (%)	
Q1																																								
Therapy content	✓	✓	✓	✓	✓		✓		✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓																		10 (26.3%)	
Pathways																																							4 (10.5%)	
Steps																																							4 (10.5%)	
Actions																																							1 (2.6%)	
Moderators																																								
	✓																																						9 (23.7%)	
Social Networking																																								
Users						✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	18 (47.4%)	
Peer Support																																							5 (13.2%)	
Café																																							0 (0%)	
Talk it Out																																							1 (2.6%)	
																																							3 (7.9%)	
Safety																																								
Layout	✓																																						5 (13.2%)	
Helpful																																							9 (23.7%)	
Availability																																							3 (7.9%)	
																																							5 (13.2%)	
Q2																																								
Therapy content	✓	✓	✓	✓	✓		✓		✓		✓	✓	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		12 (31.6%)
Pathways																																							6 (15.8%)	
Steps																																							6 (15.8%)	
Actions																																							1 (2.6%)	
Moderators																																								
	✓																																						10 (26.3%)	
Social Networking																																								
Users						✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		22 (57.9%)
Peer Support																																								5 (13.2%)
Café																																								2 (5.3%)
Talk it Out																																								2 (5.3%)
Safety																																								
Layout																																								2 (5.3%)
Helpful																																							1 (2.6%)	
Availability																																							4 (10.5%)	

Note: Q1-a: What did you like most about Rebound?; Q1-b: What did you find most helpful about Rebound?; Participants 5 and 22 did not report anything helpful for Q1-b.
Note: In green: young people reporting on therapy content; In orange: young people reporting on social networking; Cases reporting both are highlighted (participants 14 and 19 for Q1-a and participants 13, 14, 35 and 38 for Q1-b).

3.1. User experience: preferred content compared to perceived helpfulness

A summary of participant responses to questions regarding their preferred feature and the most helpful feature are presented in Table 2 (Q1-a and Q1-b from the Supplementary Information). Noticeably, visual examination of the table indicates that young people strongly preferred either therapy content or social networking as the Rebound component they liked most or found most helpful. Although there were some instances of young people endorsing both therapy and social networking as important and helpful, this was not the norm (Q1-a: young people 14 and 19; Q1-b: young people: 14, 35 and 38).

“Mainly used the pathways not the social networking, but that’s just me.” (R19, male, aged 15)

“I didn’t do them [pathways]. I felt I couldn’t do it, would take 30–60mins, a lot of writing. I’d spend time on Rebound writing replies and reading comments and felt like I could only do this with the time I had on there. Only had limited time. And felt that could help me more.” (R45, male aged 15)

Table 2 shows that overall, 26% of young people reported the therapy content as their most liked component of Rebound, while 47% reported the social networking aspect of the site as their preference. This paralleled the results for perceived helpfulness (32% therapy; 58% social networking).

A noticeable difference between the ratings of preferred content and perceived helpfulness was the value given to *Talk it Out* within the social networking component. Although only 8% reported the *Talk it Out* component as their most liked aspect of the system almost a third (29%) named it as the most helpful single component of Rebound.

We report moderation separately due its hybrid nature, including aspects of social networking and therapy delivery. User experience was equivalent for preference and perceived helpfulness, with 25% of young people reporting that among all the features they found moderation the most attractive feature of the system and also the most helpful component of Rebound.

Finally, 26% of young people indicated that other features (layout, safety, availability) were the most attractive component of Rebound and 21% thought these were the most helpful part of Rebound. Importantly, among those, 24% of young people reported that they liked using Rebound due to the engaging layout of the site. However, this was not a significant factor in determining helpfulness (only 3%).

3.1.1. Perception of helpfulness

In general, all young people found the site helpful and would recommend it to other young people. However there were noticeable divergences in which features were perceived as most helpful. Questions regarding each single component of Rebound were asked through the semi-structured interview (Q2-a, Q2-b and Q2-c from the Supplementary Information).

3.1.1.1. Perception of help from peer support. The vast majority of young people reported not perceiving help from peer support (known in the site as *Super Users*) due to the fact they were not aware of their presence.

“Didn’t know there were super users. Don’t think I spoke with any.” (R5, female, aged 17)

“Didn’t know they were a thing. If more obvious might mean that I would have asked them “what’s a good action or pathway to do?” (R46, male, aged 20)

Other users were able to identify *Super Users* (given the distinct symbol on their avatar image). Knowledge that some of the young people were part of the peer support team was seen as a barrier by some young people. For some young people, *Super Users* were viewed as authority figures. Nonetheless, the view from those aware of *Super Users*

was that the peer moderation aspect of the site provided a useful bridge between young people and the expert moderators. Some young people acknowledged the fact that peer supporters were young people with similar age, experiences and background. Because peer supporters were in recovery themselves, they created a feeling of hope, and their advice was taken with more credibility. They were seen as a role model to follow.

“I like the idea because they are more likely to have shared similar experiences to my own as opposed to the moderators who may not have done so. [It] gives them more credibility.” (R39, female, aged 19)

“That’s a good thing to have; they have previous experience and good role modelling. They have background. Make it more blatant.” (R23, female, aged 21)

3.1.1.2. Perceived help from moderators. Almost all young people found moderators helpful. The aspect most mentioned was the personality characteristics expressed online by the moderators. Not only were they viewed as friendly, caring and supportive, but they were also perceived as having genuine interest and concern for the young people. The moderators were viewed as inclusive and dedicated without being intrusive. Their availability and constant interaction maintained the friendly and helpful tone of the site while encouraging participation from young people. This in turn made the site more engaging. Their contributions and suggestions were seen as very helpful because of their personalization and relevance. Their role as trained professionals was discussed, recognizing their knowledge and expertise.

“Nice and engaging. Caring. Had an interest in me individually. When they were specific with recommendations, I really liked that.” (R5, female, aged 17)

“Really good. Their input was always relevant and made you think. People who weren’t talking online could still get something from it if they read it. No changes to moderation. I think they did really good.” (R9, female, aged 21)

“The team was lovely, inclusive and encouraging of participation. I don’t think they could have done anything better, [I] wouldn’t change anything. Very professional for sure.” (R38, female, aged 21)

A small number of young people felt that the approach taken by the moderators was too positive, and that in contrast to other users on the site, the moderators lacked personal disclosure. Some young people felt as though the site was run by moderators rather than young people, creating an atmosphere of control. The small size of the social network in Rebound was acknowledged as a potential reason for this.

“It was good, but it felt like the moderators had a bigger role than the clients. Possibly because it’s early days and there weren’t many clients online. I didn’t really like it that much (the moderation). I would have rather the clients had more to say.” (R7, female, aged 20)

3.1.1.3. Perception of help from Talk It Out. Young people endorsed the *Talk It Out* problem solving component as one of the most helpful aspects of therapeutic content on the platform. In general, all users agreed *Talk it Outs* were a cooperative task, creating a sense of inclusion where everybody could potentially contribute and help those going through difficulties. Important characteristics were the respectful atmosphere and the lack of arguments. The majority pointed out the genuine support young people gave to others for the reward of helping others without expecting any recognition afterwards.

“The good thing about Rebound in general is, especially in Talk It Out, everyone can come and contribute. Like, at the end of the day, that person with a problem might actually walk away feeling better; whereas in everyday life you might not be able to do that; you might not be able to cheer somebody up. You might not have the opportunity to do that. I

don't know I get like that; I am sure other people do, too. They love - like, I am just making that one little act of goodness." (Focus group)

However, although young people found *Talk it Outs* helpful, some found them lengthy and laborious. This was largely due to the process of problem definition, brainstorming solutions, identification of pros and cons, and summarizing possible choices, which would typically span around 2-weeks for each topic.

"I think they are a really, really good idea, and I really like them, but they take too long; especially because I remember...anxiety around Christmas time and I didn't get a definitive thing until afterwards and I'm like, "I am already past it." (R26, male, aged 19)

3.1.1.4. Perception of help from therapy content

3.1.1.4.1. *Pathways and steps.* Although most young people agreed that therapy content comprised too much text-based information and was long to read, the majority nonetheless found it helpful. Users reported the quantity of therapy information overwhelming and overall, not particularly well organized. Some felt that the information provided was not specific enough, or that some of the information was redundant, as the main themes had been covered in their individual face-to-face therapy.

"I don't think it is for everybody because some people might already - they might be in recovery. They might not be an existing patient. So they might not need those kind of activities and stuff. But then again, it's good for self-evaluation and stuff like that. I didn't like it, to use it. Despite all the moderators bugging me, "Do this step" People have different stages of their recovery and stuff." (Focus group)

In contrast, a significant majority found the therapy content helpful. Users especially recalled that *Talking Points* (the social part of the therapy) were useful as they provided an interactive element. In general, young people agreed they found the progressive sequenced structure of the pathways helpful, where they could build knowledge and develop skills with each further step, following their own pace of learning. The fact that the content was an adjunct to their individual therapy (for major depression) was seen as an advantage because they could learn new techniques. In general, therapy content was seen as relevant to real life, informative, and a way to enhance their mood.

"Interactive, helpful to extend stuff talked about with clinicians." (R8, female, aged 16)

"Helpful. Didn't have to call your caseworker to talk about it. You could just do it yourself there, and you didn't have to do it all at once, you could do it a step at a time." (R24, female, aged 17)

3.2. Interest in social networking

3.2.1. High interactors

Among those who wanted to interact, the vast majority agreed that connecting with other young people who shared similar experiences, background, age and mental health problems was the most relevant part of the site for them. Connection with others created a sense of belonging and community, facilitating their willingness to share their own story. Many of the young people reported feeling understood and supported, appreciating that there were other young people like them who were caring, and who could provide advice and support. They felt it was important to realize they could also help other young people in similar circumstances.

"Speaking to somebody about things that have happened - so just as an example, something that has happened in my past, talking to a friend about it, it doesn't feel the same, because they don't - they haven't been through that kind of thing. But being able to talk to somebody who has been through something similar, I think it definitely helps. Like, it doesn't

matter overall, I am still going to talk to my friends about this, but I think it definitely helps. In the back of your mind, you can think, "Okay, they have been through something similar like this. They are going to understand"." (Focus group)

Young people suggested that they were willing to interact due to the positive environment and welcoming culture of the site, which made them curious and engaged. Importantly, some young people reported experiencing more social interactions on Rebound than offline, helping them overcome feelings and experiences of loneliness.

"It definitely helped people that kind of introduced themselves to you. I remember I got a post from XX, when I first joined saying, "Welcome to community" - like, "welcome to Rebound"... I got them from a lot of people. I think that really helped because - especially for people that aren't as outgoing as others, it's kind of like somebody else will take that first step for you and it just helps you initiate the relationship." (Focus group)

"Good that there was the option to speak to people. I have social anxiety. Now [I'm] not feeling completely alone. Now days I don't feel so alone until I've ruled out every option and Rebounds is an option." (R27, female, aged 26)

3.2.2. Low interactors

Some young people directly expressed their lack of interest in the social networking component with two clear subgroups arising. One subgroup did not like online interaction and felt they already had sufficient supportive offline relationships. Another subgroup felt socially inhibited due to shyness. This group reported that the site was not sufficiently active, and that it was difficult for them to initiate conversation with fellow users. Not knowing the other young people was nominated as a significant barrier for them. Among this group some did interact, but exclusively with moderators, with whom they felt more comfortable.

"Didn't do much of that, [I'm a] private person and don't use social network. I don't have Facebook. So wasn't my thing. Would be useful for others, if they are less private people by nature." (R39, female, aged 19)

"Nerve-racking to initiate a conversation and no one else doing it. I would have liked to have chatted online a little bit." (R6, male, aged 20)

3.3. Protective environment

Safety was a recurrent theme identified by young people. Other well-known sites (e.g., Facebook) were named as comparison examples of unsafe sites. Safety comprised three sub-components: stigma, confidentiality, and cyber-bullying.

3.3.1. Stigma

Young people frequently identified the non-judgemental environment of Rebound as an important factor. They reported feeling as though no one would judge them or the comments they made within the platform, since all young people on the site had experienced similar difficulties with their mood. Participants contrasted their experience using Rebound with experiences talking their friends, or on other social media platforms, where people were less familiar or supportive of disclosures related to mental illness. The lack of stigma and perceived judgement were identified as a positive aspect of the site.

"Nice, they were all going through similar things. It was weird, I felt like I could talk to them because they have been through it more than my friends that have no idea about mental illness. No judgement." (R43, male, aged 18)

"Also, they are not going to judge, either. You don't have to be careful about what you say. You can go on there and say, "I am having a shitty

day. I am feeling this way.” And everyone on there, understands because they have also done that.” (Focus group)

3.3.2. Confidentiality

Young people underscored the importance of having a protected environment where privacy was highlighted, and being anonymous was a possibility. While all agreed that confidentiality was important, some participants shared felt that after having created a strong sense of supportive community on the site, they would have liked to have the opportunity to stay connected after the trial, in order to maintain the support experienced. Nonetheless, others preferred not to disclose personally identifiable information in their profile (i.e., name or gender).

“People don't know if I'm male or female, so I could be anonymous.” (R41, male, aged 20)

3.3.3. Cyberbullying

Rebound was identified as a safe place, protected from cyberbullying when compared to other social networking sites that lack expert moderation. Young people reported that the moderation maintained safe interactions between young people and prevented negative interactions. None of the young people disclosed any experiences of cyberbullying during the study, describing the site as a place where bullying was not possible.

“People deactivate Facebook accounts due to bullying and that's not possible that to happen on Rebound. Rebound is like a nice Facebook.” (R15, male, aged 18)

“It's supposed to feel safe. If wanted barely any [minimal] moderation then I wouldn't go on Rebound. I didn't value moderation much at the start but now feel it's more useful. Facebook I get bullied but moderation people [on Rebound] keeps it feeling like a safe environment, not afraid of getting bullied [on Rebound], just shy.” (R28, identified as transgender, aged 18)

“Facebook.... There's so many different aspects of things that you wish you could change. There's people who are bullying other people and there's really rude posts and things like that. If you put it out there like that, it would ruin it.” (Focus group)

3.4. Additional user comments

For some of the young people, Rebound was especially useful in their transition between specialized intervention for depression and the usual care facility maintaining benefits of previous support.

“I think I found it really helpful, especially towards the end of being at Orygen and transitioning from seeing a psychologist once a week/fortnight or whatever, to not. I think it kind of - it felt like a level of support that I didn't have, but that I was still kind of getting.” (Focus group)

4. Discussion

This study synthesises semi-structured interview and focus group data about young peoples' experiences on a moderated online social therapy for depression relapse prevention (Rebound). The most striking finding from this data is related to the variability in experiences of usage and involvement in the Internet-based platform. We can differentiate two groups of young people using Rebound; those who engaged through the social networking feature of the site (connection with other young people, peer support, *the Café* and *Talk it Outs*), and another group who did not directly connect with others but instead engaged with the therapeutic content (i.e., *Pathways*, *Steps* and *Do Its*). Developing insights into the motivations underpinning these types of

usage patterns may help improve the effectiveness of youth mental health social media-based interventions.

The only previous study using Internet-based problem solving therapy (PST), showed a decrease in depression and anxiety without inferring any mechanism of action for their results (Hoek et al., 2012). Nevertheless, this reduction was not significantly different from the waiting list control condition; although due to small sample sizes their results could not be meaningfully interpreted. The PST used asynchronous email feedback by moderators to improve problem-solving abilities. We build on previous results by finding consistent results with the previously reported study (Rice et al., 2016) of the clinical benefits of the Rebound intervention and possible mechanisms of action.

4.1. Perceived helpfulness of the intervention

There is previous evidence for the effectiveness of online therapy interventions using a cognitive-behavioural framework for depression, and preliminary evidence of the effectiveness of social networking interventions (Rice et al., 2014). However, creating platforms which can be adapted to suit young peoples' profiles, personal preferences and needs regarding treatment delivery may be a better approach and could potentially inform about the efficacy of one or other intervention (Coyle et al., 2007). Young people experiencing comorbid symptoms of social anxiety may be more likely to talk online because they feel less apprehensive (Pierce, 2009; Hammick and Lee, 2014), preferring communication that does not take place face-to-face (Saunders and Chester, 2008). This supports the need to recognize different subgroups of users and to design flexible interventions tailored to individual needs.

Interestingly, the component of the Rebound system and MOST model (Lederman et al., 2014; Wadley et al., 2013) identified as most helpful was *Talk it Out*, a hybrid of social networking and a therapy tool that uses an iterative process of brainstorming, and adding pros and cons. The present qualitative findings are consistent with quantitative data from the Rebound study where a third of the young people reported having proposed a *Talk it Out* topic (Rice et al., 2016). This may mean that when there is a specific purpose for the interaction embedded with a clear structure it is both easier to use it as well as more helpful for social interactions. This finding bridges a gap in the literature by showing preliminary evidence for the effectiveness of a sub-component of online interventions delivering cognitive behavioural therapy (e.g., problem solving) for depression (Rice et al., 2014). While further quantitative research is needed, our results contribute to the literature by showing that problem solving in Rebound may be more effective due to its therapy-SNS hybrid component (e.g., therapeutic tool moderated by clinicians with solutions, pros and cons suggested by peers).

Moderation by trained professionals was perceived as helpful and a facilitator for peer interaction. There is a scarcity of research on moderated sites for depression, with no studies providing direct moderation by professionals, relying on fully automated tools, occasional moderation through the phone, moderation to maintain a safe environment without providing guidance and participation, or direct peer-to-peer contact via chat (Hoek et al., 2012; Van Der Zanden et al., 2012; Ho et al., 2016). We provided a fully integrated model including clinician input which seemed to promote ongoing engagement with the site, therapy content and peers via the facilitating role of moderators.

Peer support seems to be an excellent strategy for mental health recovery (Solomon, 2004), and half of young people reported direct benefits from the use of the social network with peers. Our results are consistent though with previous reports which highlighted informal peer support relationships as the basis of peer support in mental health (Basset et al., 2010). Peer interaction in the SNS is an important component as it may lead to supportive relationships (Collin et al., 2011; O'Keeffe and Clarke-Pearson, 2011) and creates a sense of belonging (Newman et al., 2011), decreasing inhibition and isolation (Dennis, 2003). Moreover, taking into account some less favourable feedback on

having a special designation for some young people, it seems that the way to proceed would be by maintaining a sense of equal hierarchy among users. Nonetheless, given the small amount of feedback on formal peer support, further research should be undertaken.

4.2. Social networking

SNS are used to connect and re-connect with family and friends, with an overlap between offline and online connections (Boyd, 2014). Therefore, people with an established network of friends in real life may not seek and benefit from the social network component of the intervention (Cruwys et al., 2013). Conversely, those with social difficulties may especially benefit from the social part of the intervention. Moreover, it is not yet known whether preferences could be developed over time with increased familiarity of the site and encouragement of usage of certain features of the platform. Due to the high comorbidity between MDD and anxiety disorders (46% of people with lifetime MDD have a lifetime anxiety disorder (Kessler et al., 2015)) it is highly possible that many of the present participants were also experiencing symptoms of anxiety and social anxiety. Thus, it is important to develop tools and resources for both types of potential users (i.e., users diagnosed with depression with and without comorbid anxiety) to maximize the effects of the intervention and help to increase social connectedness (establish meaningful relationships) for those who seek connectedness but do not know other young people (Álvarez-Jiménez et al., 2016).

In terms of users who did engage in the social networking component, our results are consistent with the helper-therapy principle (Riessman, 1965), where SNS and being able to offer support and assistance to other young people may have the potential to promote lack of hierarchy among users (Schrank et al., 2010), an increased sense of belonging (Newman et al., 2011), decreased inhibition and isolation (Dennis, 2003), development of supportive relationships and reduced self-stigma experiences (Corrigan, 2006). The most valued characteristic of the SNS was the similarity in background, age and shared experiences among all the users. This is consistent with social comparison theory where people prefer to compare themselves to peers on the basis of perceived similarity (Festinger, 1954). Because young people with depression usually perceive themselves as having lower social rank compared to others (Gilbert, 2000), user similarity may offer a great opportunity to improve social self-efficacy and depressive symptoms.

4.3. Protective environment

Perceptions on the safety of the site were consistent with quantitative data of the Rebound study where all participants reported feeling safe (Rice et al., 2016). All young people felt that the site protected against cyberbullying and was confidential, and emphasized the non-stigmatizing environment of Rebound (Chang et al., 2001; Griffiths et al., 2006; Houston et al., 2002). Given cyberbullying is common (ranging between 11%–43%) (Hamm et al., 2015), the probability of being cyberbullied is increased among depressed youth (Gámez-Guadix et al., 2013), and it is the primary concern for young people using social media (Dredge et al., 2014), our results highlight the importance of using moderation on social media-based interventions to increase the safety of these sites (Hur and Gupta, 2013).

4.4. Strengths and limitations

One of the strengths of the methodology of this study was the use of both semi-structured interviews and a focus group in order to assess the integration of preferred and perceived helpfulness of the content, social networking, and safety, of an innovative online intervention for depression. Qualitative data from semi-structured interviews are important but young people may feel intimidated by the one-to-one interaction with the research assistant. However, focus groups have been identified as an advantageous method of collecting data from young

people due to the more relaxed atmosphere. The group component is a natural environment that allows young people to interact when they feel more comfortable, they can elaborate on their peers' ideas and the final result is usually richer data than relying exclusively on individual interviews that focus on quantitative data (Peterson-Sweeney, 2005). Another important strength was the independent coding of the data by two researchers. This approach reduces coding bias and improves homogeneity, validity and reliability of themes proposed.

Nevertheless, this study had some limitations. First, to gather reliable data about usage patterns, interactions and clinical benefit to offset risk of relapse requires a longer-term intervention (i.e., > 18 months). Second, transcripts were not returned to participants for comments or corrections and they also did not provide feedback on the findings. Finally, a common limitation to all qualitative analysis is that some degree of subjectivity may have influenced researchers' understanding of participants' responses.

5. Conclusions and future directions

In summary, three main themes were identified in relation to young people's responses to an online intervention for depression: preferred content and perception of helpfulness, interest in social networking, and protective environment. This study demonstrated that the Rebound system and the MOST model were feasible, usable, engaging, and importantly, safe for users in recovery from depression. Our findings suggest the creation of an expert-moderated intervention for a group of people who share the same mental health problem. Qualitative data indicated two differentiated groups of young people, those who perceived the social networking as the most helpful component; and those who preferred to consume therapy content. Therefore, although both social networking and online therapeutic content may be helpful, feedback from young people is important to the development of next generation online interventions, learning from the preferences and desires of a specific population of young people. In order to target the unique needs of young people with mental disorders, a qualitative analysis approach is needed to meaningfully inform designers with regards to user engagement, clinical needs and subjective perceived helpfulness of the content and synergies and dynamics of an online intervention. New tools should be added so that therapeutic contents can be tailored to the needs and difficulties of participants (e.g., chat bots, natural language processing, machine learning based on what helps and user preferences (D'Alfonso et al., 2017)). Furthermore, in light of our results, short screening mental health online questionnaires should provide information regarding symptomatology (e.g., pure depression, anxiety, mixed depression/anxiety, somatoform, or other psychological disorders) and therefore target the type of online content that may be more suitable for each young person. Problem-solving seems a promising technique to include in interventions for young people with depression, although to make future implementations less laborious, the process may need to be streamlined. Future studies should conduct A/B or split testing to assess the real impact of this site component on depression. Therefore, the design and content of new features should be theory driven and informed by previous data on usage and user's feedback. The impact of each component should be assessed through the combination of rigorous experimentation and qualitative research. Finally, given small amount of feedback on formal peer support, further research should investigate the effect of peer support within SNS for depression.

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Declaration of interest

The authors declare that they have no conflict of interest.

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Appendix A. Supplementary data

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