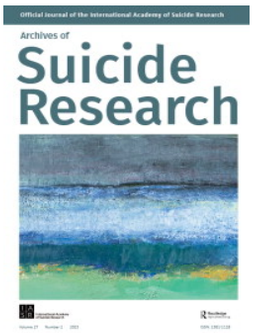

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The Acceptability of a Smartphone App (BlueIce) for University Students Who Self-harm

Bethany Cliffe, Zoe Stokes, and Paul Stallard

ABSTRACT

University students are twice as likely to self-harm than community controls but, unfortunately, help-seeking among this population is particularly low. Given the stigma around self-harm, the face-to-face nature of traditional support for self-harm can be a barrier to help-seeking. Smartphone applications (apps) are a possible alternative source of support, and research has shown that students are receptive to this option. This study sought to assess the acceptability of a smartphone app called BlueIce for university students who self-harm. Semi-structured interviews were conducted with 25 students with a history of self-harm. A qualitative content analysis was undertaken and five categories were identified: the content of BlueIce, the use of BlueIce with university students, the function of BlueIce, comparison with other support, and the implementation and uptake of BlueIce. Responses to BlueIce were very positive with students believing BlueIce to be a helpful resource that was perceived as more accessible than alternative support. Participants believed it could provide help in moments of distress as well as helping individuals learn longer-term coping skills. Others felt that BlueIce would not be adequate for some people and would be better used alongside other face-to-face support. Overall, it was clear that BlueIce was acceptable to the students in this study. Future research should seek to evaluate the feasibility and effectiveness of BlueIce within a university setting with students.

HIGHLIGHTS

- Students who self-harm found the BlueIce app to be an acceptable and appealing source of support for self-harm as well as other mental health difficulties.
- Participants felt that the app was more accessible than other forms of support, particularly for individuals who prefer not to discuss self-harm with a professional.
- Some felt that BlueIce could provide immediate support in moments of distress, while others believed it to be a longer-term solution that could help students learn more adaptive coping strategies.

KEYWORDS

Digital intervention; mental health; mHealth; self-harm; university student

Supplemental data for this article is available online at at publisher's website.

INTRODUCTION

Self-injury embraces a range of behaviors although the underlying motivation, i.e., is it suicidal or non-suicidal, has been the subject of much debate. Consequently, the American Psychiatric Association (2013) added a new diagnosis of non-suicidal self-injury (NSSI) in the 5th Edition of the Diagnostic and Statistical Manual (DSM-5). However, some have questioned the distinction between "non-suicidal" and "suicidal" intent arguing that this is not clinically useful and may result in self-injury being wrongly misclassified and treated (Kapur, Cooper, O'Connor, & Hawton, 2013). An alternative, broader definition, was proposed by the National Institute for Health and Care Excellence (NICE) in the UK. This defines self-harm as any act of self-poisoning or self-injury carried out by a person, irrespective of their motivation, and will be the definition adopted in this paper (NICE, 2013).

Self-harm is a significant concern at universities with students being twice as likely to self-harm than community controls (Swannell, Martin, Page, Hasking, & John, 2014). Prevalence rates are often underestimated but around 20–25% of students are suggested to self-harm at some point during university (Griffin, Twynstra, Gilliland, & Seabrook, 2021; Sivertsen et al., 2019), compared to around 10% of young adults in the community (O'Connor et al., 2018). Adapting to university can be challenging given the associated newfound independence, responsibilities, people, and environments (Taliaferro & Muehlenkamp, 2015). Theories of emotion dysregulation suggest that an individual who is not well-equipped to process the difficult emotions associated with these challenges may use self-harm to regulate negative affect (Gratz & Roemer, 2008; Linehan, 1993). This is supported by Nock's Four Function Model of self-harm (2009), in which decreasing negative effects or cognitive states is outlined as a main function of self-harm.

Stigma and hesitancies around disclosing self-harm contribute to low levels of help-seeking. It is estimated that, of students who self-harm, only around 19% seek professional support (Fitzgerald & Curtis, 2017). Moreover, one study found that only half of the students who were self-harming and were receiving professional support had disclosed self-harming to their therapist (Whitlock, Eckenrode, & Silverman, 2006). This indicates that self-harm is a largely private matter and comparatively few university students seek help.

Given these difficulties, the face-to-face delivery model of typical psychological therapies may limit help-seeking (Franklin et al., 2016). An alternative option is digital mental health interventions (DMHIs), with some reporting feeling more able to share about their mental health *via* DMHIs (Berry, Salter, Morris, James, & Bucci, 2018; Cook & Doyle, 2002). A survey of 13,451 students from 157 universities found that 97% of students owned a smartphone (Brooks & Pomerantz, 2017) meaning DMHIs are accessible, and students have favorable attitudes toward them citing their convenience, accessibility, flexibility, and ease of use (Dederichs, Weber, Pischke, Angerer, & Apolinário-Hagen, 2021; Dunbar, Sontag-Padilla, Kase, Seelam, & Stein, 2018; Ryan, Shochet, & Stallman, 2010). Studies indicate that DMHIs are effective for students struggling with anxiety, depression, and stress (Davies, Morriss, & Glazebrook, 2014; Farrer et al., 2013; Lattie et al., 2019); while there is research to suggest that DMHIs are safe, acceptable and effective for individuals struggling with suicidal ideation and self-harm (Cliffe, Tingley, Greenhalgh, & Stallard, 2021; Stefanopoulou et al., 2020), no literature explores this amongst university students specifically.

BlueIce is a smartphone app found to be promising in helping adolescents manage self-harm (Grist, Porter, & Stallard, 2018; Stallard, Porter, & Grist, 2018). It has a therapeutic grounding in cognitive-behavioral and dialectical behavior therapy, the recommended treatments for self-harm (NICE, 2013). The central role of service users in developing digital interventions to be more engaging, acceptable, and effective has been highlighted (Bevan Jones et al., 2020). BlueIce was therefore co-produced with adolescents with lived experience of self-harm. The initial evaluation with young people aged 12–17 showed that BlueIce was safe, highly acceptable, easy to use, and improved mental health (Grist et al., 2018; Stallard et al., 2018). Given the high prevalence of self-harm and low levels of help-seeking at universities, this study aimed to explore the acceptability of BlueIce with students with experience of self-harm.

METHODS

Participants

Participants were students from one UK University with experience of self-harm thoughts/behaviors; there were no exclusion criteria. Adverts around campus and on social media provide links to an online information sheet and form to register interest. Respondents were then contacted by the researcher to discuss the study, complete the consent form and questionnaires, and arrange an interview. The sample size (25) was determined a priori and was informed by literature suggesting that little new data is produced after around 20 interviews (Green & Thorogood, 2018) and that 25 participants

Table 1. Participant demographic information.

Demographic	*N* (%)
Age	
18–20	16 (64%)
21–23	6 (24%)
24+	3 (12%)
Gender identity	
Female	20 (80%)
Male	4 (16%)
Non-binary	1 (4%)
Year of study	
1	10 (40%)
2	10 (40%)
3	2 (8%)
4	2 (8%)
Degree type	
Undergraduate	21 (84%)
Post-graduate	4 (16%)
Ethnicity	
White	20 (80%)
Asian/Asian British	4 (16%)
Mixed	1 (4%)
Sexuality	
Heterosexual	14 (56%)
Bisexual	9 (36%)
Gay/Lesbian	1 (4%)
Queer	1 (4%)
Self-harm status	
Past self-harm	20 (80%)
Current self-harm	5 (20%)

are ideal for smaller projects (Charmaz, 2006). Participants were predominantly female (80%), aged 18–31 ($M = 20.6$, $SD = 3.2$), and had previous experience of self-harm (80%) (please see Table 1).

Interview Schedule

Interviews were semi-structured and included questions relating to students' opinions on interventions for self-harm generally as well as on BlueIce. For this analysis, only the responses to questions about BlueIce are included and other responses are reported elsewhere. Participants were shown screenshots of the BlueIce app (please see Supplementary Material) and its functionality was described. The interview schedule (Appendix A), designed by BC, used a practical approach. To understand the help-seeking behaviors of students, including whether they would consider technology-based support and BlueIce specifically, questions were designed to elicit responses relative to these specific aims. Questions were open-ended where possible, with closed prompt questions used if participants struggled to answer a question after open prompts.

Procedure

This study was approved by the University Research Ethics Approval Committee for Health [EP 19/20 015]. Participants completed an online consent form before the interview and provided verbal consent at the beginning of the interview recording. Due to the COVID-19 pandemic, interviews were conducted and audio-recorded over an audio-only call using Microsoft Teams. They occurred between October and November 2020 and took 17–68 min (average 29 min). All interviews were conducted and transcribed by BC. Participants were made aware in advance that the interview would discuss self-harm and so were advised to be in an environment where they would feel comfortable answering freely. No interviews were interrupted for any reason.

Data Analysis

An inductive qualitative content analysis was undertaken to analyze the data independently coded by two researchers (BC and ZS). Firstly, BC transcribed the interviews verbatim, followed by both coders reading and rereading the transcripts to familiarize themselves with the data. Three transcripts (10%) were then chosen (using a random number generator) and independently coded by BC and ZS who then developed a coding frame (please see Appendix B). They aimed for 20–25 codes in the frame to ensure that there were no more codes than transcripts (O'Connor & Joffe, 2020). Both then coded another randomly selected transcript using the coding frame. Cohen's Kappa suggested a good agreement of .73. Agreed adjustments were made to the coding frame before coding the remaining transcripts. The final Kappa suggested good agreement at .77. The codes were grouped into categories which were re-organized until the researchers believed them to accurately describe the data.

RESULTS

Categories

Five categories and their sub-categories were identified and are outlined below.

Category 1: Content of BlueIce

Participants liked BlueIce's simplicity and ease of use and felt that it could provide comfort and support by helping to "*calm you down and almost realise that things aren't as stressful" [p13].* They believed the mood tracker could help to identify changes in mood over time and facilitate help-seeking. However, others were concerned that constantly monitoring mood as low may have a detrimental effect on well-being.

Participants valued the "ride it out" section, based on ideas from dialectical behavior therapy (DBT), for providing information about safer alternatives to self-harm. The personalizable options were also well received as participants felt this would make the app widely applicable:

> *that's a very clear toolbox of things that you can do and you can adapt to suit yourself, which is incredible. We all have… well everyone I know who has a story like mine has a piece of A4 paper with scribbled notes of a toolbox of what may help, but that is a digital example that's really well set out that you can edit and you can change so according to what's happened in your life you can view what's helped in the past super easily. That is amazing! [p02].*

The option to set reminders to use the app was praised as some participants felt it was comforting to be reminded that the app is there and that alternatives to self-harming are available. Reminders received further praise as some participants mentioned that it can often be hard to remember to engage with self-help support.

Changes. While many features of BlueIce were appreciated, participants shared additional features that they would like to see. Some participants discussed how telephone calls can be unappealing, so including a chat feature could be beneficial—particularly a peer support chatroom or a webchat with a mental health professional. Despite some appreciating the simplicity of the mood wheel, others felt that the options ranging from happy to sad were over-simplistic and that the "other" option or adding notes to the mood diary would not be sufficient.

> *I think the kind of, happy to sad thing isn't the whole picture… when you're in the stage when you might be kind of like self-harming, it was sort of in a panic attacky state, or because you'd kind of gone beyond sad, you weren't sad anymore it was like an emptiness, me and a friend used to call it circling the void [p18]*

The other suggested changes related to phone numbers that could be added to the contacts section, primarily Samaritans and the University's specific helpline.

Category 2: The Use of BlueIce by University Students

Responses to BlueIce were largely positive with it being described as "*definitely a good option for people" [p05],* and as having "*everything you might need" [p06]*, "*huge potential to be hugely beneficial" [p19],* and not having "*any disadvantages" [p24].* Some

explicitly commented that they would like to use the app or, for those who were not currently at risk of self-harming, that they would have pursued it at the time. There was also an acknowledgment that it could be widely beneficial for others.

> *There are a lot of people who are introverts, I think this would definitely help them quite a bit and I do know people personally who are introverts who can't afford therapy or who just don't want to go talk to another person and I could see them using this. [p08]*

Appropriate. Considering it was designed for adolescents, participants were asked whether they thought BlueIce would be appropriate for university students. While one participant felt BlueIce appeared more targeted toward adolescents, all participants felt that it would still be appropriate for university students. Some participants also felt that BlueIce seemed *"helpful for anyone" [p02], "good for any age" [p01]* and that *"I don't think there's anyone that wouldn't benefit" [p32]*. Participants often specified that they perceived BlueIce to be safe for use with university students and that it would not cause harm.

> *"I can't see ANY risks of making it available to anybody, not making it accessible could cause more risks." [p04]*

Category 3: The Function of BlueIce

When discussing the utility of BlueIce, participants often referenced specific functions they believed it could serve.

In the Moment Support. Most of the functions identified related to support that could be provided in crisis moments, for example, a distraction to help *"disengage yourself from those thought" [p06]*. Others reported that BlueIce also provided immediate access to therapeutic techniques:

> *I think it's great, the apps great, the whole idea is great, the fact that those are things that I've seen in therapy and that are there in clear format and can be used by everyone and that nobody has access to unless they've been through the mental health system is what we need for everyone. [p02]*

Similarly, participants also felt that accessing healthier ways of coping is difficult to do in moments of distress, so BlueIce could serve as a reminder of this:

> *When you're in that moment it's so overwhelming so it's hard to think outside of it, so I think if you had something just in front of you I think you'd be more likely - more motivated to disengage from it, if that makes sense, just because when that urge is so strong, that is like the dominant thought force, so like, anything just to make it easier to access your other coping strategies is super good. [p06]*

Learning How to Cope. Participants also believed that BlueIce could help users to identify patterns that lead them to experience self-harm urges, as well as identifying behaviors and activities that have previously helped:

> *It will help you see the patterns and once you can notice patterns you can start to make little changes to avoid those behaviours or whatever, and having that visible track there for you could be really useful. [p32]*

They also felt that the app could help individuals learn how to process their emotions. They valued the autonomy that BlueIce would therefore afford them, appreciating the chance to maintain *"authority over the situation" [p18].*

Category 4: Comparison with Other Support

Participants often discussed how BlueIce compared to various other forms of support, including other apps and face-to-face support.

BlueIce Fills a Gap. Many participants felt that the immediate accessibility of BlueIce addressed limitations of other forms of support which often require time and effort to access, and long waits for scheduled sessions. Specific features of BlueIce were also praised for being more accessible than therapy tasks, such as mood diaries, due to simplicity, increased ease, and immediacy of access wherever you are as "*everyone has a phone nowadays, and has their phone in front of them" [p06]:*

Another barrier to accessing other support commonly mentioned is the human interaction involved. For some, face-to-face support was a *"last resort" [p19]* so they expressed relief at BlueIce not requiring that. They discussed how BlueIce may be able to offer the same level of support but without the added burden of disclosing self-harm before they feel able or ready to:

> *Some people don't want to talk to people, so some people don't want to seek the help from counselling but to be able to have this accessible to them might help them in ways that counselling would but without the counselling. [p04]*

BlueIce was also compared favorably to other apps, with reasons given including increased functionality, distrust of big companies that provide apps, the variety of options within the app, and having these tools in one place.

More Support Is Required. While many positives were identified, others felt that BlueIce would be most effective if used in conjunction with professional support, particularly for those who may be experiencing more significant distress or more severe self-harm.

> *I think it's something that the university counselling services should offer, but I think also, yeah you've obviously got people who might be experiencing more milder low moods… but maybe if they use this app and find that they're just feeling low all the time then that would be the time to kind of, take it a bit further with the university. [p01]*

Similarly, participants discussed whether an app is appropriate for something as severe as self-harm. This may suggest that self-harm requires more intensive support, meaning an app may not be sufficient. In these instances, participants felt that professional support was most appropriate.

> *"I needed someone to talk to, I didn't need an app" [p10]*

Others also felt that BlueIce would be most effective for individuals who had some previous experience of professional support as this would help them to understand the techniques included in the app and would increase the chances of it having a positive impact on them.

Category 5: Implementation and Uptake of BlueIce

Participants commonly referred to the importance of individuality with regards to how different types of self-harm require different support and how people cope in different ways. For example, participants emphasized that, even if they liked the app and felt they could benefit from it, others may not (and vice versa), which is important to note throughout this section.

> *"It might work for me, but I know other people who would rather have face-to-face [support] or have someone there, but I'd rather not have somewhere there, but yeah that's just me." [p26]*

Wider application of BlueIce: Participants commonly acknowledged that BlueIce could be helpful for students struggling with other mental health difficulties, including low mood or stress. Some participants even discussed how everyone could benefit from BlueIce whether they struggle with mental health difficulties or not, as they felt it is always helpful to engage with your emotions, and that BlueIce could offer distractions for anyone who may be struggling.

> *I think it could be more of a general wellbeing app, like, because it could be that you need a distraction from your assignment, with uni you can get really bogged down and it doesn't necessarily have to be in urges to self-harm, you can get bogged down in work, you can get bogged down in lots of things, and I think having something that just suggests some escapes and has just ideas on there I think that could be really useful for anyone. [p32]*

Barriers to Using BlueIce

Potential barriers to students downloading or engaging with BlueIce included the perceived effort involved in using the app and the motivation that would be required to engage with it.

> *It depends on your kind of mind state at the time and maybe how bad it is or generally what you're like as a person, but I'm not sure if I was feeling really, really crap and I had an urge to self-harm, I'm not sure I would go through my phone and scroll through an app. [p14]*

Despite the mood diary commonly being highlighted as a beneficial feature of the app, there was also some concern around whether seeing lots of consecutive "bad days" would discourage the user:

> *"you may see sort lots of really negative days and get really bogged down in that and think 'why bother'". [p11]*

DISCUSSION

Self-harm is prevalent at universities yet help-seeking remains low. DMHIs offer accessible and valued support for university students struggling with their mental health, but it is currently unknown whether they would be appropriate specifically for students who self-harm. This study, therefore, aimed to understand the acceptability of a smartphone app (BlueIce) for university students who self-harm. Opinions on BlueIce were

favorable with many indicating that they would use the app, although some limitations were considered.

Although co-designed with adolescents, BlueIce was acceptable to university students. Participants believed BlueIce could help them cope in crisis moments and learn coping skills. This aligns with BlueIce being underpinned by CBT and DBT which both involve skills-based components to improve well-being and manage emotions (Gibson, Booth, Davenport, Keogh, & Owens, 2014; Stanley et al., 2009). Given the emotion regulation theories of self-harm that suggest it is a means of reducing negative affect (Linehan, 1993), it seems as though BlueIce could help students to find alternative, more adaptive ways of achieving this. The positive response to BlueIce corroborates previous research with adolescents and confirms that university students also find a mental health app to address urges to self-harm appealing (Grist et al., 2018).

Participants suggested additional features for BlueIce, particularly a peer-support chat function. Peer support has been highlighted as important to people who self-harm due to the benefits of a community sharing similar experiences (Lavis & Winter, 2020). However, digital peer support for mental health is in the early stages of development and effectiveness has not yet been established (Fortuna et al., 2020). Similarly, the design of digital peer support systems requires careful consideration (Andalibi & Flood, 2021), and supporting someone who self-harms can be a heavy responsibility (Lavis & Winter, 2020).

Some participants reported that it is easier to manage their self-harm *via* an app than through formal disclosure to a professional. This mirrors research suggesting some find it easier to express their feelings through an app (Berry et al., 2018). Research has previously found that self-harm is particularly difficult to discuss in comparison with other mental health difficulties, therefore, apps may offer an acceptable alternative for those unable or unwilling to seek face-to-face help (Stefanopoulou et al., 2020).

BlueIce was perceived as more accessible than other support. Indeed, university services are reported to have experienced a significant increase in demand, with 25% of students using or waiting to use them (Thorley, 2017). With mental health services struggling to meet demand, an evidence-based app, such as BlueIce could help increase the number of students accessing support.

The effort required to engage with an app was noted as a limitation, suggesting that users need to be motivated to benefit from it. This is quite typical of mental health apps (Chandrashekar, 2018) and also of CBT (Marker, Salvaris, Thompson, Tolliday, & Norton, 2019), but participants acknowledged how the optional reminders could help to overcome this. A couple of participants commented how it will be a helpful resource but emphasized that it is not a solution for everybody. Similarly, some were concerned that BlueIce alone would not offer adequate support. This was also noted in a small Australian evaluation with adolescents admitted to an inpatient mental health unit following self-harm (Muscara et al., 2020), where half did not feel that BlueIce alone would keep them safe in a crisis. In the current study, some students said they would prefer to use BlueIce alongside other support, such as counseling from university services. This is how BlueIce is currently being evaluated with adolescents in the UK, where it is offered in addition to a face-to-face intervention (Greenhalgh et al., 2021). There is research to suggest that, while DMHIs can be very effective by themselves, they may be more effective when combined with human support (Santarossa, Kane, Senn, &

Woodruff, 2018). However, it is important to remember that many students who self-harm do not want or are not able to access human support. Together, this stresses the importance of ensuring students who self-harm have a variety of options for support available to them.

Limitations

This study was conducted during the first COVID-19 lockdown necessitating interviews to be conducted virtually. Participants were therefore unable to use the app which may have limited their understanding of it and influenced their feedback. This study may also be limited by a lack of diversity. Participants were predominantly white females meaning these findings may not represent the experiences of others. Given the high rates of self-harm and lower levels of help-seeking among ethnic minorities (Al-Sharifi, Krynicki, & Upthegrove, 2015; Guo, Nguyen, Weiss, Ngo, & Lau, 2015; Holden, McGregor, Blanks, & Mahaffey, 2012), their perspectives are essential to determine whether this intervention may be beneficial to individuals from other backgrounds. Finally, this is a small study undertaken in one University and these findings may not represent the wider student population.

Future Directions

These results are encouraging but further research is required in three main areas. Firstly, the feasibility of implementing BlueIce within a university setting needs to be determined. Secondly, the wider acceptability and effectiveness of BlueIce within this population needs to be established. Finally, future studies should aim to recruit a wider and more diverse sample to ensure that the views of the wider university population are represented.

CONCLUSION

Participants in this study provided positive feedback on the BlueIce app. While some limits to its use were expressed, participants generally felt like it would be a useful and welcome resource that would not be subject to typical barriers of accessing support. Overall, this study indicates that BlueIce is acceptable to university students. Further research is currently underway to explore the effectiveness of BlueIce with university students who are self-harming.

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DISCLOSURE STATEMENT

Bethany Cliffe and Zoe Stokes declare that they have no conflicts of interest. Paul Stallard designed the BlueIce app but receives no financial gain from the app or from this research.

AUTHOR NOTES

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Appendix A—Interview Schedule

Interview Schedule

Students' Opinions on Seeking Support for Self-harm

Questions & prompts

(1) If you were struggling with your mental health/self-harm, would you seek support and from where?

Example prompt questions

- Would you seek support from the university?
- Would you look online?
- Would you speak to friends/family?
- Would you contact a helpline for example?

(2) If you were to receive an intervention for self-harm, how would you want it to help?

Example prompt questions

- Would you want to reduce the frequency of self-harm?
- Would you want to learn other coping strategies?
- Would you want to improve your mood?

(3) What do you think about using technology for mental health/self-harm support?

Example prompt questions

- What would make you choose one over any others?
- What would you find helpful/unhelpful in a resource?
- How often would you use it?
- Would you consider using a smartphone app for self-harm?
- What would the advantages/disadvantages be?
- Do you think that an app for self-harm could be helpful for students particularly?
- What would your concerns be?
- Are there any apps that you are already aware of?

(Show screenshots of BlueIce and describe each one)

(4) What do you think about the design and content of BlueIce for use with students?

Example prompt questions

- What do you like about (certain part)?
- What don't you like about (certain part)?
- Would you be interested in using BlueIce yourself?
- Would you change anything about it to make it more appropriate for students?
- Do you think this could be a standalone intervention for self-harm?

(5) What would be the best way to make BlueIce available?

- Would it be safe to offer to any student without prescription, for example?
- Would students be able to access it from the Bath university website?
- Would it be feasible to offer to any Bath university student who wanted to access it?

(6) Do you have any other opinions or thoughts that haven't already been covered?

Example prompt questions

- Any further comments about smartphone apps for self-harm generally?
- Any further comments about BlueIce specifically?

Appendix B—Coding Frame

Code	Code title	Description	Examples
Distract	BlueIce as a useful distraction tool	BlueIce is a useful distraction tool to help the person stop thinking about/disengage from thoughts about self-harm.	"It's got everything you might need to sort of, disengage yourself from those thoughts"
Therapeutic techniques	BlueIce gives you access to therapeutic techniques and coping strategies	BlueIce helps to distribute skills and techniques typically found in therapy and other support from mental health professionals. It also helps individuals learn/practice coping strategies and skills. This code can also include the individuals rating a therapeutic component of the app as positive, e.g., self-harm alternatives or mindfulness.	"I think like if you've already had DBT or CBT, or your sort of in the process of getting those, all these things kind of interlink to those like activities that you would do in those therapies and stuff" "Make it easier to access your other coping strategies is super good"
Not useful	Students thinking that BlueIce wouldn't be used or useful	The individual wouldn't use BlueIce for any reason, e.g., thinking it wouldn't help or forgetting to. This could be in the moment or more generally.	"When you're thinking about something and your head's going crazy, I wouldn't go on my app and log the thing"
Usefulness/ impact	BlueIce as a useful tool	BlueIce is useful as it can provide support in moments of distress or of crisis, where the person is at risk of self-harming or is greatly troubled by thoughts of self-harm. It can also include more general references to students saying they would use this, or that it would be helpful for other students. This also includes references to the potential impact of BlueIce and it being useful for the university.	"That would be really useful for in the moment" "It would definitely be one of those things that people remember and think to come back to if they do need help." "I think this has the potential to help a lot of people"
Appropriate	BlueIce's appropriateness (or lack of) for university students	Individuals discussing whether they think BlueIce would be helpful for university students as a specific population, i.e., whether they think it will be helpful or not. This can also include references to its age appropriateness or whether it can offer tools that would be particularly helpful for students.	"All of those things are really important for any age group"
Accessible	BlueIce is accessible	This includes discussions of the ease of access/use of BlueIce, as well as its ability to reach a wider audience due to no limits to its access (e.g., no limit to downloads).	"Everyone has a phone nowadays, and has their phone in front of them, so I think it's a good idea."
Good feature	Specific feature highlighted positively	As above, this might need breaking down further to specify certain features, but at the moment it includes any reference to a specific element of BlueIce that people perceived positively (e.g., mood tracker, helplines)	"I think that the mood tracker is quite good"
Design	Design or layout praised	Participants not necessarily mentioning a specific feature, but commenting more generally on liking the way the BlueIce is laid out, the colors, the design, it being simple or straightforward	"It's very ordered, it's very simple and clear, and it's like, really organized which I really like"
No negatives	No negatives	People saying that there's nothing they dislike about the app.	"I think it all looks good to be honest. I think it's all fine." "There's nothing I don't like really"

(*continued*)

Continued.

Code	Code title	Description	Examples
Safe	BlueIce is safe to use/ would do no harm	People specifically mentioning that they think BlueIce is safe for students to use, and/or that it would do no harm.	"BC: Do you think there's any possibility that this could do any harm rather than good? 25: Umm, I don't think so"
Autonomy	BlueIce promotes autonomy and self-help	Participants discussing how BlueIce is good because it allows them to practice self-help and allows them autonomy.	"It's like building your own self soothing"
Gap filled	BlueIce fills gaps from other support that is hard to access	References to BlueIce providing things that other interventions cannot, including references to long waiting lists for services, difficult application processes, and other inconveniences. May overlap with accessibility.	"Something you can use in the meantime while you're on waiting lists and stuff like that" "I know there's quite long waiting times to get face to face support, and of course if you're like meeting someone like once a week for an appointment, obviously then there's a bit of a wider time frame for when stuff might be happening" "It provides you with something quite immediate which is really good that you can access straight away without having to wait around for your next session with student services and stuff like that"
Overall positive	BlueIce perceived positively	More vague reference to liking BlueIce as a whole, with no specific reason as to why, such as it being accessible, useful, appropriate, or any specific features mentioned.	"Yeah I think it looks good, I do think it looks good"
More support needed	Acknowledgement of importance of encouraging people to seek further support if necessary	Individuals saying that BlueIce would not be enough by itself for some people (e.g., people who self-harm "more severely" or who have been self-harming for a long time, and that it is not a replacement for other support so individuals should still seek professional help as well. Also includes references to people saying BlueIce should be used alongside other support, not by itself.	"Obviously also like make sure services are advertised" "I think like if it's going on for a long time then obviously there's a lot more going on and I think in that case like, probably seeking professional support is always the best way."
More support needed: human contact	Human contact specifically is important	Participants mentioning that BlueIce is bad specifically because it lacks the element of human contact which they perceive as important.	"Not even face to face but just the availability of someone to talk to"
Individuality	Acknowledgement that different individuals want different support	References to there not being a "one size fits all approach" and that some things work for some people and not others. This is slightly different to the 2 codes above which focus more on whether BlueIce would be appropriate by itself, whereas this code is more about acknowledging that different people want different things out of interventions/acknowledging that different people may disagree with their point of view.	"You can't have it perfect for everyone, some people like certain parts, some people won't. You'll never get everyone satisfied" "I can only speak for me personally"

(*continued*)

Continued.

Code	Code title	Description	Examples
Implementation: Strategy	Advertising/ implementation strategy	Suggestions or ideas for how and where to advertise BlueIce, e.g., on the website, on campus, posters, etc.	"Around campus, or like, you know in student services and stuff like that, or in fresher dorms and things like that, people would see it" "The university website for that kind of support is really important"
Implementation: Trigger warning	Does BlueIce need a trigger warning	The participant discussing whether or not they think a trigger warning is needed for advertising BlueIce.	"But yeah I think having a trigger warning before writing about what it is um, you know, let's say if it's on the Instagram story for example to promote it, like having a trigger warning on the page before and then having it would be really helpful and I think it definitely would reach the people that it would need to reach."
Implementation: Standalone	BlueIce working as a standalone intervention	Any reference to BlueIce being able to be used by itself, as a standalone intervention with no other support—and this being safe and appropriate to do.	"I think it would be really useful on its own."
Implementation: 1st step	BlueIce as a first step/ stepping stone to other support	BlueIce being perceived as something for individuals to use while on a waiting list, or while they are not yet able/willing to seek professional support. Also includes references to it helping people develop the confidence to seek other support. Also includes references to it perhaps being used by individuals with "lower level" self-harm or who have recently started self-harming.	"I think this is good for like a first step thing to get yourself to the place of actually being able to talk to a professional"
Implementation: Wider use	Wider application of BlueIce (e.g., not just for self-harm)	Participants discussing that BlueIce shouldn't just be advertised as/ limited to just helping self-harm, and that it may also be beneficial for people struggling with low mood, anxiety, etc.	"Even if there's someone like, this is a really broad example but, someone does think that maybe they have a mood disorder or something without having been diagnosed, if this is something that helps them deal with those symptoms, then I think this would be useful"
Barrier	Barriers to using BlueIce/concerns around using BlueIce	Anything a participant discusses as a barrier to using BlueIce, including concerns around safety/security, stopping someone from seeking further support, mood tracker making things worse, not being motivated enough, etc.	"The possibility that people use it and not access the support that they really need" "I would say is that if you are feeling shit, how many times would you kind of go and kind of, log it?"
Changes	Suggestions for changes to the app	Participants suggesting features that could be added or things that could be changed to improve BlueIce	"One thing I think would be helpful, but I don't know if this would work for other people, is um, if, you were able to specify what sort of behaviors you had engaged with so the app was almost tailored to your sort of, self-harm"