Exploring student preferences for implementing a digital mental health intervention in a university setting: Qualitative study within a randomised controlled trial

Hayley M Jackson[1] ⓘ , Amelia Gulliver[1] ⓘ , Penelope Hasking[2],
Liana Leach[3], Philip J Batterham[1] ⓘ , Alison L Calear[1]
and Louise M Farrer[1]

Abstract

Objective: Digital interventions can be effective in preventing and treating common mental health conditions among university students. Incorporating student experiences and perspectives in the design and implementation of these programmes may improve uptake and engagement. This qualitative study explored university students' perspectives of a low-intensity video-based mental health intervention, their recommendations for implementing the programme in university settings, and their views and recommendations to address barriers to engagement.

Methods: Participants (N = 115) were students (mean = 20.63 years, SD = 2.10) with elevated distress from 31 Australian universities drawn from a randomised controlled trial of the Uni Virtual Clinic-Lite (UVC-Lite). Data from students randomised to the intervention condition were collected via semi-structured interviews (n = 12) and open-ended questions during post-intervention surveys (n = 103). Data were analysed using content analysis.

Results: Participants generally reported positive views of the intervention, and most felt it should be offered to students as a universal intervention. Multiple methods of disseminating the intervention were suggested, including through university counselling, official platforms (e.g. student support services) and informal channels (e.g. word-of-mouth promotion). Difficulty integrating the programme into everyday life, pre-existing beliefs about mental health and technology-related factors were highlighted as barriers to engagement.

Conclusion: A low-intensity video-based mental health intervention was generally considered to be acceptable and appropriate for students with mild to moderate distress. Participants provided several suggestions to encourage uptake of the intervention and possible pathways to disseminate the intervention to students. The effectiveness of these should be examined in future trials.

Keywords

Universities, students, young people, mental health, internet-based intervention, engagement, qualitative research

Submission date: 19 January 2024; Acceptance date: 5 August 2024

[1]Centre for Mental Health Research, National Centre for Epidemiology and Population Health, The Australian National University, Canberra, Australia
[2]Curtin enAble Institute and School of Population Health, Faculty of Health Sciences, Curtin University, Perth, WA, Australia
[3]National Centre for Epidemiology and Population Health, The Australian National University, Canberra, ACT, Australia

Corresponding author:
Louse M Farrer, Centre for Mental Health Research, National Centre for Epidemiology and Population Health, The Australian National University, 63 Eggleston Road, Acton ACT 2601, Australia.
Email: louise.farrer@anu.edu.au

Introduction

Approximately one-third of university students meet criteria for a mental health condition each year.[1,2] Major depression and generalised anxiety disorder are the most common conditions, with cross-national prevalence estimates indicating that 18.5% of students meet criteria for depression and 16.7% experience generalised anxiety disorder each year.[2] General psychological distress is also common, with almost half of students reporting moderate to severe levels of distress[3,4] These rates have increased since the beginning of the COVID-19 pandemic.[5] However, only one in four students who experience a mental health condition in any given year has access to treatment.[6] Students reported barriers to help-seeking include stigma, a preference for self-reliance, time constraints, high treatment costs, poor mental health literacy, and lack of knowledge about mental health services.[7] Even when students are prepared to seek help, long waiting lists and insufficient capacity in university services to meet demand can impede timely access to support.[8] Digital mental health interventions (DMHIs) offer a low-cost and accessible solution to address barriers to help-seeking and reduce burden on university counselling and health services.

Considerable evidence has indicated that DMHIs can be effective in preventing and treating mental health problems among both university students and adults in the general population, with the strongest empirical support for approaches based on cognitive behavioural therapy (CBT).[9–13] Low-intensity programmes that target common problems affecting university students are suited to large-scale or 'universal' implementation, can provide prevention and early intervention, and are potentially more cost-effective and may lead to better population-level outcomes than treatment-based approaches.[14,15] However, low rates of uptake and adherence pose a considerable challenge to the effectiveness of DMHIs,[16] and there is currently a lack of research that examines effective methods of implementing DMHIs in university settings.[17] Furthermore, a mismatch between intervention design, delivery, and user preferences has been highlighted as a key barrier to engagement with DMHIs.[11,18] It follows that understanding the experiences of end users, in this case university students, and involving them in the development and implementation of DMHIs may help improve engagement and subsequent effectiveness in real-world settings.[11,19]

Qualitative methods are particularly well suited to exploring subjective user experiences and preferences. Previous interview and focus group studies have explored a range of issues related to university students' views about accessing online mental health support, as well as their perspectives on the design of web-based mental health services, including recommendations for end user needs and priorities.[20,21] In general, these studies suggest that university students are interested to use digital tools to support their mental health, highlighting advantages such as improved accessibility, convenience and reduced stigma compared to traditional in-person services.[21–23] Nevertheless, students also underscore the importance of providing flexible, personalised content and addressing issues related to data security and confidentiality.[20,24,25] A limitation of this evidence is that relatively few studies have focused on students who have accessed a DMHI for a period of time,[26] and those that have are often focused on students with moderate to severe symptoms of depression or anxiety.[27] Little is known about student experiences and preferences in the context of low-intensity programmes targeting a broader range of students with less severe symptoms. Furthermore, few studies have aimed to understand how DMHIs should be delivered and embedded within existing university systems, from the perspectives of students themselves.[17] Given the potential for DMHIs to address barriers to service access, understanding student experiences and recommendations are essential for implementing interventions in ways that match the needs and preferences of this population.

The present study

This study was conducted as part of a randomised controlled trial (RCT) designed to evaluate the effectiveness of a low-intensity internet-based intervention, Uni Virtual Clinic-Lite (UVC-Lite).[28] The UVC-Lite intervention is a brief transdiagnostic, video-based intervention designed to help university students manage mental health problems and related issues. The programme includes student stories, tailored psychoeducation, and psychotherapeutic strategies targeting anxiety, depression, and other mental health conditions that commonly affect university students. This study uses qualitative analysis of interviews and free-text survey data to explore participants' experiences and perceptions of the programme, their recommendations for implementing the programme in university settings, and their views on barriers to engagement. Understanding student views regarding barriers to engagement with DMHIs and their preferences for implementing these types of programmes may provide guidance for universities to implement more accessible care pathways.

Methods

Overview

This qualitative study used a critical realist approach, which focuses on understanding and explaining rather than verifying experience or social reality,[29] to analyse data from two sources: (1) semi-structured interviews conducted with participants in the intervention condition of an RCT evaluating the UVC-Lite intervention and (2) free-text survey

responses within the post-intervention questionnaire administered to RCT participants. The study integrated qualitative data from interviews and surveys to comprehensively explore student experiences and perspectives of the intervention. This approach aimed to provide depth and contextual information, while also capturing a broad range of viewpoints, including from students who may have been more inclined to share their experiences through survey responses rather than interviews. Intervention group participants received access to the UVC-Lite intervention for a period of six weeks. Full details on the methods and primary outcomes for the trial are available elsewhere.[28] All participants randomised to the intervention group (n = 243) were eligible for this study. Ethical approval for the research was obtained from the Australian National University Human Research Ethics Committee (protocol #2020/412), and all participants provided written informed consent prior to study initiation. This study is reported according to the Standards for Reporting Qualitative Research (SRQR) and the Consolidated Criteria for Reporting Qualitative Research (COREQ) guidelines (see Appendices 1 and 2 for checklists).[30,31]

Recruitment

Recruitment for the RCT took place between August 2021 and May 2022. The trial recruited students with mild to moderate levels of psychological distress (i.e. scoring between 8 and 17 on the Distress Questionnaire–5)[32] who were aged 18–25 years and attending university in Australia. A comprehensive recruitment approach was used to ensure broad dissemination of trial information. This included targeted advertising on Facebook and Instagram, posts in university-affiliated social media groups and distribution through official student communication channels such as university newsletters. Additionally, student advocacy groups, housing coordinators, university marketing teams, survey management departments, student counselling and wellbeing centres, and academic unit coordinators were approached to request assistance in sharing information about the trial with students. Detailed information on participant recruitment into the trial is provided in the main trial paper.[28]

Intervention

In brief, UVC-Lite is an online intervention comprising 12 modules targeting the common mechanisms that underlie mental health problems in university students. Each module includes a 3- to 6-min video in which a series of animated characters introduce and share their lived experience of one or more mental health problems. A therapist character presents relevant psychoeducation and therapeutic techniques, and a PDF exercise designed to facilitate practice of the therapeutic technique(s) follows each video.

Additional features include self-monitoring quizzes for participants to track and receive feedback on their symptoms (modules 1, 3, 4, 5, 7, and 11) and links to additional help-seeking resources provided at university or in the community if warranted. The 12 modules include the following: (1) dealing with depression and low mood (behavioural activation); (2) tackling negative and anxious thoughts (cognitive reframing), (3) dealing with anxiety (cognitive reframing, breathing and grounding techniques); (4) managing study issues: procrastination and time management (practical strategies for time management); (5) perfectionism (challenging perfectionistic thoughts and behaviours); (6) coping with stress (mindfulness practice); (7) managing sleep issues (sleep hygiene); (8) social anxiety and shyness (behavioural experiments/exposure techniques); (9) relationships and loneliness (communication skills and social support); (10) social media use (practical strategies for reducing social media use); (11) body image (body functionality appreciation); and (12) thoughts of suicide (safety planning).

Data collection

Survey. Post-intervention surveys were completed between 20 October 2021 and 7 July 2022. Of the 243 participants in the intervention group, 131 (53.9%) completed post-intervention surveys. Among this group, 78.6% (103/131) provided one or more free-text responses and were included in this study. Participants' satisfaction with and views of the intervention were assessed during the post-intervention survey by asking intervention group participants whether there was anything they liked about the modules (open-ended), whether there was anything they disliked about the modules (open-ended), whether they had any additional topic suggestions (open-ended) and whether they would change anything about the intervention (open-ended). Participants' recommendations for rolling out the intervention at Australian universities were assessed using three pre-defined response options (through university counselling or health services; through a link on the university website; all students should complete the modules during orientation) and a free-text response option to capture additional insights or suggestions. The survey questions were based on items developed by our research group for use in a previous trial[33]; therefore, permissions from copyright holders were not required. Findings from the earlier trial indicated that these questions effectively captured a range of participant experiences and perspectives related to a similar digital intervention among university students.

Interviews. Convenience sampling was used to recruit interview participants (n = 12), with all participants assigned to the intervention condition who completed the post-intervention survey (131/243, 53.9%) invited to provide further feedback about their experiences of using the

intervention. Among this group, 51 students (38.9%) indicated an interest in participating in an interview and 33.3% (17/51) responded to the subsequent email invitation. Of these, a total of 12 out of 17 (23.5% of those willing) participants took part in an interview. Reasons for not participating included loss of contact (n = 3) and being overseas (n = 2). One follow-up email was sent to participants who did not respond to the initial invitation. No further sampling was deemed necessary given that all eligible participants were invited to interview, and no incentives were offered for participation.

Semi-structured one-on-one interviews were conducted to accommodate variability in the experiences and perspectives of students while ensuring that the key topics of interest were covered with all participants. The interviews were conducted between April and August 2022 by HMJ, a female PhD student with training in psychology who is investigating how young people and adults engage with internet-based mental health programmes, with ongoing supervision provided by the senior author (LMF, a researcher and psychologist in the field of digital mental health). The interviewer had no prior contact with participants. Interviews were conducted from one week to five months after the end of participation in UVC-Lite; most (9/12, 75%) took place within one month. Interviews were conducted over Zoom (n = 7) or via telephone (n = 5) according to the participant's preference. Previous research suggests that offering different interview formats may enhance participant recruitment and data quality.[34] Before commencing, participants were informed about the procedure for conducting the interview and the aim to explore their thoughts about the UVC-Lite intervention and its usefulness in a university environment. Participants were informed that the interviewer was a PhD student working as a research assistant on the project prior to participating. They were encouraged to select a quiet and private space away from others to ensure confidentiality and facilitate open discussion. The interview guide was developed by the project team to capture three main topics: (1) participants' thoughts about and views of the intervention; (2) suggestions for implementing the intervention in a university setting; and (3) any barriers to the intervention being used by university students or being delivered in a university setting. The full list of questions is provided in Box 1. In accordance with the interview guide, the interviewer prompted further discussion based on the participants' responses to encourage participants to clarify or elaborate on their responses. No major changes were made to the interview guide over the course of the study. Field notes were taken following each interview to capture important observations and contextual details. Transcripts were not returned to the participants for comment, and repeat interviews were not conducted.

Box 1.   Interview questions.

Topic 1: Experiences and views of the UVC-Lite program

1. What did you think of the videos?
   (a) Prompts: Did you find them helpful/informative? What did you think of their quality?
2. Did you practice any of the exercises that went along with the videos? Which ones and why?
3. How well did the program meet your needs?
   Topic 2: Recommendations for implementation

4. Next, I'd like to ask your thoughts about how best to provide the UVC-Lite program to university students. Do you have any ideas about how the program could be best delivered to university students?
   (a) Prompt: How would you prefer to access the program in a university setting? E.g., potential delivery modes: via official university student platforms, social media, email, text, residential halls

5. Who do you think should have access to the UVC-Lite program?
   (a) Prompt: Who do you think the program could be particularly useful for?
   Topic 3: Barriers to engagement

6. Are there any barriers to the program being used by university students or being delivered in a university setting? How could these barriers be overcome?
   (a) Do you think there might be any groups of students who might find it hard to access/engage with the program? How could we help them to access/engage with the program?
   (b) Is there anything that might have helped you to engage more with the program?

Analysis

The interviews were audio-recorded and transcribed verbatim using a speech-to-text transcription application (Otter.ai). Transcripts were edited for accuracy by the first author (HMJ). To maintain participant confidentiality, participant and university names were omitted from transcripts. Interview transcripts were analysed in Quirkos (desktop version) using qualitative content analysis.[35,36] This approach was identified as the most suitable method through consultation with a qualitative researcher. It provides a systematic method to organise data into a structured format and was selected because the primary aim of the study was to investigate participants' views and recommendations, rather than exploring participants' lived experience or developing a theoretical framework.[35] Following data familiarisation, the first author (HMJ) coded participants' statements in response to the questions within each topic

using a primarily inductive and manifest approach (i.e. keeping close to the apparent or visible meaning of the content).[35] Codes were iteratively refined and re-applied through comparison across transcripts, and similar codes within each question were grouped together into categories to develop a coding schema. The senior author (LMF) independently reviewed and verified a subset of coded extracts for accuracy and completeness. Discrepancies were resolved through consensus meetings between HMJ and LMF to achieve agreement on final codes and categories. Throughout the data analysis phase, the first and senior authors met regularly to review sections of transcripts, codes, and categories. The identified categories are described under each predetermined topic and arranged based on their relative importance, as determined by the number, volume and quality of comments associated with each category. Direct quotes are used to illustrate the categories. Interview participants are identified by their gender and a coded number (e.g. F1 = female, participant number 1). Quotations are presented verbatim, although some filler words (e.g. 'like') were removed to improve readability.

Survey data were analysed using quantitative content analysis, wherein related content within each question was grouped together and counted to determine the prevalence of specific topics or issues raised by the participants. Free-text statements provided by interview participants were combined with their interview data for analysis. HMJ has formal training in qualitative methods, and all authors have previous experience working with qualitative methods and publishing qualitative studies.

Results

Participants

Characteristics of the interview and survey participants are presented in Table 1. A total of 71.2% (82/115) of the interview and survey participants were female. The mean age of participants was 20.63 (SD 2.10) years. Most participants were domestic students (96/115, 83.5%) studying at the undergraduate level (92/115, 80%) from a variety of disciplines (e.g. health/medicine, arts/social sciences, science). The interviews lasted between 13 and 30 min, with an average length of 18 (SD = 4.7) minutes. Participants were from 31 universities in Australia.

Intervention usage

Uptake and engagement with the UVC-Lite programme among participants in this study was high relative to the full intervention group,[28] especially among interview participants. Across both groups, almost all participants accessed at least one of the intervention modules (interviews: 12/12, 100%; surveys: 99/103, 96.1%). On average, interview participants accessed 10.58 (SD = 3.06) modules out of a total of 12 and

Table 1. Characteristics of the interview and survey participants.

	Interview participants (n = 12)	Survey participants (n = 103)
Gender, n (%)		
Female	8 (67)	74 (71.8)
Male	4 (33)	26 (25.2)
Other	0 (0)	3 (2.9)
Age (years), M (SD)	20.42 (2.07)	20.65 (2.11)
Discipline of degree studied[a,b]		
Health/Medicine	5 (42)	26 (25.2)
Arts/Social Sciences	3 (25)	11 (10.7)
Science	1 (8)	19 (18.4)
Engineering/ Computing	0 (0)	10 (9.7)
Business/Economics	1 (8)	4 (3.9)
Law	1 (8)	6 (5.8)
Education	0 (0)	5 (4.9)
Year of degree[a]		
Undergraduate	7 (58)	85 (82.5)
Postgraduate	4 (33)	18 (17.5)
Student status		
Domestic	12 (100)	84 (81.6)
International	0 (0)	19 (18.4)

[a]One interview participant did not report.
[b]Twenty-two survey participants did not report.

completed 9.08 (SD = 3.60) videos out of the available 12. This was somewhat lower among survey participants, who accessed an average of 8.82 (SD = 4.05) modules and completed an average of 3.72 (SD = 4.30) videos.

Interviews

Topic 1: experiences with and views of the UVC-Lite programme. The first interview topic explored participants' experiences with and views of the UVC-Lite intervention

(questions 1 and 3, see Box 1). Three main categories were identified through discussion of this topic: (1) engaging and relatable delivery, (2) perceptions of intervention content and (3) enhancing knowledge and normalising student experiences.

Engaging and relatable delivery. The use of videos to deliver the intervention was viewed favourably by the participants, with some suggesting that videos might be easier for students to engage with than purely text-based information:

> *I thought they were a good medium to get the information across to people, especially along with the text information. 'Cause often, you know, a lot of people don't really want to just sit down and read a document, but it makes it so people actually get the information.* (M1)

The brevity of the videos (ranging in length from 3 to 6 min) was also seen as important to motivate ongoing engagement with the modules:

> *I liked how they were generally quite, you know, quite short, so like only five minutes long. I think much longer than that, and people will probably get disinterested.* (F2)

> *I have like a short attention span sometimes…Because they [the videos] were like really short, it was kind of just good to be engaged with it and it was like, really straight to the point, too.* (F7)

Participants also reported liking the format of each video, and in particular, the use of student stories followed by the therapist character who provides psychoeducation and therapeutic techniques:

> *I liked how it had the beginning sort of like a bit of a scenario. And then, like, the health practitioner, or someone came in, and then sort of talks a little bit more about what was going on. So, I thought the format was good.* (F3)

One participant also spoke positively about the representation of students from different backgrounds and experiences within the videos:

> *Even the stories were diverse…the diversity was reflected in, in the narration and in the animation as well.* (F2)

Perceptions of intervention content. Overall, interview participants tended to view the intervention positively, and many characterised the intervention modules as '*educative*' (M3), '*practical*' (F1) and '*comprehensive in the topics that they discussed*' (F4). The self-monitoring

quizzes and tailored feedback were a particular highlight, with one participant commenting:

> *Oh, I thought the exercises were really cool. Especially how it gave…me results about how I'm feeling and how I can help it with stuff like that.* (M4)

Others echoed this sentiment, noting that these components prompted self-reflection and made the modules more interactive and engaging: '*Everyone wants to do a quiz about themselves so it kind of makes you more engaged with it*' (F8). Most participants described the simplicity of the intervention as a strength, with one participant stating it was: '*straightforward, and it was just easy to listen to. It wasn't like a pain*' (F7). However, another participant remarked that the general nature of the information may not be helpful for some students, particularly those who are already familiar with it:

> *It was really broad in a way where it was meant for everyone…So, I feel like in that sense, it didn't really help much, because I kind of knew all the solutions, everything I could do to like to take care of the problem, such as, like, for example, if I had depression then it's like I work out, and I have to get sunlight in. And it's like stuff like that is like, you know, I already know about it, everyone talks about it.* (M4)

Enhancing knowledge and normalising student experiences. Most interview participants highlighted that the intervention improved or reinforced their existing knowledge about mental health, particularly in terms of recognising the signs or symptoms of poor mental health in themselves or others:

> *I think going into the course it was more so for me just a way of getting to know kind of more about mental health so that I could identify any signs that I might have, or other people might have. So yeah, through the information provided, and the quizzes, and all that sort of thing, I think I've got a good, obviously basic, kind of handle on that now.* (F5)

Another participant shared a similar experience:

> *Even if I didn't know or feel I was having, you know, difficulty in some area…I think the body image one, I had no idea I was thinking any of that stuff. Then I watched the video and I'm like 'Oh yeah, sometimes I think that, you know, that's interesting'.* (M2)

In some cases, participants stated that this knowledge (and access to the intervention materials) helped, or could help, them to support others experiencing mental health problems:

…I've known people or have friends who you know…who have like, some of those disorders so it interesting to see what it's all about, like the extent of it…and what you can do to try and help you know, and spread awareness or, you know, just say, 'Hey, I'm here' or do small things to help out. (F7)

Although mentioned less often, some participants highlighted that the intervention helped them to prioritise and focus on their mental health, with one participant noting that using the modules '*…was almost like me time. I was allowed to just switch off and focus on that instead*' (F6). Others noted that the intervention normalised and validated their mental health experiences, helping them to feel that they were not alone:

It's quite a relief to see that this videos are stating the fact that they understand this particular plight…So, for me, it's already a big relief for me. (M3)

Topic 2: recommendations for implementing the UVC-Lite program in universities.

The second topic explored participants' recommendations for implementing the UVC-Lite intervention within Australian university settings (questions 5 and 6, see Box 1). Three main categories were generated through discussion of this topic: (1) provide optional access for all students, (2) provide targeted access for specific student groups, and (3) multiple dissemination strategies are needed to encourage uptake.

Provide optional access for all students.

Interview participants overwhelmingly felt that all students could benefit from having access to the intervention. For instance, one participant remarked, '*I think it would be useful for all kinds of students*' (F7), while another emphasised the need to reach a broad audience:

You want to reach a lot of people. I think it's good emailing that out to all students like, 'here's the option of doing this'. (M2)

Often, this was because the participants believed that all students could benefit from improved access to mental health-related information and support but also because they felt that even if the student themselves were not experiencing mental health problems, then somebody they knew would be:

There might be a group of students that…don't have any mental health problems that…don't know of people with mental problems, but I'd say the majority either have or know someone who has. So, these modules would help… either the person or help the person to support someone else. (F2)

Among the participants, online learning environments were generally viewed as an acceptable way to deliver the intervention, with one student highlighting that the programme '*…should be something that everyone's enrolled into, like, you shouldn't have to enrol yourself*' (F4). However, another questioned '*how much interaction*' (F3) students would have with the intervention if delivered in this way, and some suggested that e-mail-based delivery was particularly accessible as they: '*check it like daily, multiple times in a day. So yeah, for me, it was just super easy. I was going to check it anyway*' (M4).

Participants generally had negative opinions about making the intervention compulsory. Most recommended against doing so as they felt that this would reduce active and meaningful engagement that is generated through personal choice: '*I wouldn't make them mandatory because it makes people just get through them and not want to do them*' (F6). However, some suggested that making at least part of the programme compulsory, such as an introductory video, might be helpful to facilitate students' awareness of the intervention and how to access it if needed, but they also suggested that it should not '*force people to watch every video in case, you know, they might not need it, but force people to know where it is, and how to access that if they need it*' (M1).

Provide targeted access for specific student groups.

Interview participants stated that providing targeted access for some students could help reach those at greater risk of experiencing mental health difficulties. Several commented that first-year students might benefit from access to the intervention. This view was often grounded in the belief that the first year of university could introduce new stressors, with one participant commenting, '*everything's just new to them. And everything's happening super fast*' (M4). Additionally, some participants highlighted that early access to materials could help mitigate later mental health difficulties:

Being in my final year of uni, this is when my mental health is taking the biggest toll. So, maybe it would be good for first year students because they can develop the good habits to get them through their degrees. (F4)

Some participants commented that providing the intervention to students facing certain academic challenges—such as those enrolled in later-year undergraduate, honours, or postgraduate degrees as well as students in disciplines with high entry grades or expectations (e.g. medicine, law)—could also be beneficial, particularly if '*targeted a little bit*' (F3) to their specific concerns. One student noted that the most appropriate time to deliver the intervention in terms of need might vary from course to course:

It depends on the degree because some have varying levels of difficulty. Like ours, is somewhat difficult throughout, but the start of third year was very difficult. Like the most difficult part of the whole thing. It's just gonna vary with each course. (F6)

Several participants also stated that students who have relocated to attend university, such as those who have moved from interstate or rural areas, but especially international students might benefit:

Or people who…maybe like international students, who might be more likely to experience loneliness, or social anxiety or things to do with…you know cultural barriers, which might lead to some of those mental health issues. (F8)

Although not as commonly cited, other groups viewed by participants as potentially being able to benefit from targeted access to the intervention included Aboriginal and Torres Strait Islander students and those affected by physical illness or disability.

Multiple dissemination strategies are needed to encourage uptake. Interview participants recommended a range of methods to facilitate uptake of the intervention by students when asked how the programme could be delivered. Most suggested that university counselling services could assist in delivering the intervention by '*providing information or creating word-of-mouth*' (F5) to students who contact their service or offering the intervention (or specific modules) as an adjunct resource to students attending counselling:

…I assume if someone's been into counselling that these modules would be helpful, tailored to them. Like, you know, like, if they've got social anxiety, they get the social anxiety kind of module. (F6)

At the same time, some participants highlighted that alternative methods would be needed to reach students who are unwilling to contact counselling services due to concerns about stigma:

I feel like there's a stigma or something like that around going into counselling or something like that. Or like, you know, even being in that whole field. So, I feel like having something separate from that could be useful. (M2)

Additional methods suggested by participants included disseminating the intervention through official university platforms such as student services (e.g. learning support and student life services), student clubs and societies and online through the university's website:

When people search up like uni support, student assist, whatever it is, it could be, it could come off as like a little pop up 'Have you tried these videos?' (F8)

However, some participants also recommended using more informal channels (e.g. on-campus posters with QR codes), particularly because some students do not engage with official university services or communications, and one participant highlighted the potential value of word-of-mouth promotion that relies on students recommending the intervention to others:

It's the word-of-mouth, I think, would be one good way and creating, like a shareable link, like included in the onboarding email. Or … I don't know about every week, but at least in the onboarding email, because like, I mean, I recommended this already to a friend of mine. (F2)

Topic 3: barriers to engagement. The third interview topic explored participants' thoughts regarding barriers to engagement among university students and their recommendations to facilitate engagement (question 8, see Box 1). Three main categories were generated through discussion of this topic: (1) integration into daily life, (2) beliefs about mental health and (3) technology-related factors.

Integration into daily life. Most participants believed that the degree to which students could integrate the programme into daily routines, such as being able to find the time and motivation to use the programme, could affect engagement with the programme. Lack of time and competing demands were reported barriers to programme use by several participants:

I think the only barrier would probably be, like, just not having the time…like you have a million things on your plate, and maybe watching a video…you're not really needing that help or that might be the last thing you want to do. (F3)

Just the students that already have really high workloads. That just cannot fathom adding something else to that. (F4)

Difficulties with motivation and procrastination were also mentioned as barriers to both initial uptake and ongoing use:

I feel like I just lost a bit of steam doing it. I was really liking it. And then I just like got a bit lazy [laughs]. And then I was like 'No, I should not be procrastinating, I learnt this'. But you know, you do still. (M2)

To improve integration of the programme into student routines, several participants expressed a preference for

the modules to be delivered once weekly at specific times during the week (e.g. Mondays or at nighttime), and during quiet periods in the semester (i.e. not during examinations). One participant suggested tailoring the timing of the modules to the preferences of the student:

> I think it depends on the student, maybe. I don't know whether it would be too much to have an option for, I guess like students to choose the frequency at which they receive these materials. But maybe that's an option that could be offered. (F2)

Other recommendations, discussed to a lesser degree, included using reminders or feedback messages to reinforce prior engagement, offering incentives (such as the opportunity to win a prize) and emphasising the brief length of the programme and modules.

Beliefs about mental health. Participants felt that the pre-existing beliefs that students have about mental health, their need for support, and online mental health programmes could affect engagement. Stigma was cited by several participants as having the potential to interfere with programme uptake:

> Probably stigma as well, like, some people would be very interested in it. But other people might just be like, 'oh, it doesn't apply to me…it's not relevant…I'm not crazy or I don't have problems' and stuff. (F1)

> Well, I feel like the not wanting to admit or diagnose yourself as wanting help, you know what I mean. There's that to initially signing up. (M2)

Participants also noted that low perceived need for mental health support or limited relevance of specific module topics might reduce engagement, with one participant commenting, '…*some people might think 'oh, nah, I don't need that.' Maybe that might be something*' (F3) and another stating, '*I think it would be lack of relevancy*' (F8). Concerns that the programme would not be effective or informative, or that it could cause harm, were also discussed:

> …maybe people just don't want to do it because if they do it, they might spiral, they start overthinking things relating to it. (F7)

> I think I touched on this, but things like not knowing if they'll be helpful. I think a lot of people just yeah, they wouldn't bother, because they wouldn't think that their issues can be solved through this sort of thing. (F4)

Participants provided various recommendations to address the impact of pre-existing beliefs on uptake and engagement. These included emphasising that students can use the specific modules as needed or tailoring the programme based on student-identified areas of concern. Promoting the programme as a tool that can be used for supporting others was also suggested by one participant in order to reduce the stigma associated with seeking mental health support:

> Definitely labelling it as, 'hey, this is a totally normal thing, that you might not be going to it for yourself. You could be going to it for someone else'.(F5)

Technology-related factors. Some participants commented that technology-related factors, such as not having access to a personal computer or experiencing internet issues, could also be a barrier to engagement among students:

> If they were an online student and they had bad Wi-Fi where they live. Probably. That's probably a main one. (F1)

However, others commented that technology-related factors would not pose a significant challenge to engagement, as most students would either have a personal computer or, if not, could access the intervention via the university's public computers or free Wi-Fi:

> I guess if you don't have a laptop or a phone then you can just go to school library and just use the laptop or computer there. (M4)

> I don't know any students that don't have personal laptops or computers. I know that there's a lot of access to that through the library and things like that, with public computers that they can use. They'd be able to access it that way. (F5)

One participant suggested highlighting the availability of free Wi-Fi on campus to improve visibility of the intervention:

> Like saying, oh, you know…'offer free Wi-Fi, you can do it here on the campus'. You know, like, 'don't forget there's ways to access the internet here'. Just make it more personalised. (F7)

Survey responses

Positives and negatives of the intervention. A total of 53 participants responded to the question asking about positive aspects of the intervention, and 44 responded to the question regarding negative aspects of the intervention. Table 2 presents the coded responses and example quotes for participants responding to each of these questions. For

Table 2. Coded responses and example quotes for positive and negative aspects of the UVC-Lite intervention.

Categories and codes	Example quotes	Respondents mentioning code, n (%)
Positive aspects of the intervention (n = 53)		
Content		
Clear/useful content	• '…made the points clear and easy to understand' • 'Very simple & straight to the point & made me be aware more of how I was feeling'	20 (37.7)
Practical strategies	• 'I loved the links to the exercises, and implemented a few of them in my everyday life. This is because these activities were very realistic, easy and did not take too much time to do.'	12 (22.6)
Relevance	• 'How relevant they were' • 'I liked that they were relevant to me…'	3 (5.7)
Self-assessment quizzes	• 'The questionnaires which provided feedback about your feelings depending on what score you got.'	3 (5.7)
Delivery		
Videos	• 'the videos that was given to me'	6 (11.3)
Student stories	• 'The relatability using real student case studies'	3 (5.7)
Animation style	• 'I liked the animation style'	1 (1.9)
Ease of use		
Appropriate length	• 'They were a good length of time (I couldn't have fitted anything longer into my schedule)'	7 (13.2)
Easy to navigate/use	• 'Easy to navigate and understand'	2 (3.8)
Other		
No positives	• 'N/A' • 'no'	3 (5.7)
Liked everything	• 'All like'	1 (1.9)
Intervention enabled time for reflection	• 'It was really nice to sit down and actually reflect on my thoughts, feelings and progress rather than just pushing on like I normally do'	1 (1.9)
Negative aspects of the intervention (n = 44)		
No negatives	• 'No significant issues. Would love to do a longer version of this.' • 'No, actually. Very well made. :)'	23 (52.3)
Content		
Generic/basic information		6 (13.6)

Table 2. Continued.

Categories and codes	Example quotes	Respondents mentioning code, n (%)
	• 'The information in the videos were quite basic, and I felt as if it was common knowledge.'	
Boring/repetitive	• 'some of them were a bit repetitive'	3 (6.8)
Too much content	• 'Amount overwhelmed me'	3 (6.8)
Self-assessment quizzes	• 'Not enough self-assessment quizzes' • 'Too many surveys'	2 (4.5)
Delivery		
Narration/animation	• 'The animation style felt corporate and low effort, the opposite of relatable.'	2 (4.5)
Timing	• 'Maybe consider sending the modules once per week instead of twice as it can be a time consuming task to add into university timetable'	1 (2.3)
Lack of interactivity	• 'Some weren't very interactive'	1 (2.3)
Other		
Lack of motivation	• 'Ironically it was hard to motivate myself to watch them even though they were meant to help with such issues'	2 (4.5)
Harms	• 'Sometimes they triggered me a little'	1 (2.3)
Therapeutic approach/ model	• 'i thought that some of the modules attributed problems with students' thinking to be the cause (e.g. social anxiety), when actually their observations could be spot on and external factors such as other people could be causing the condition discussed in the module.'	1 (2.3)
Include materials as email attachment	• 'It would be great if the resources were sent within the email as a document to be referred to later'	1 (2.3)

Note: n = 7 participants contributed >1 code on positive aspects; n = 2 participants contributed >1 code on negative aspects; 4 participant responses excluded from the analysis due to insufficient or unclear information.

positive aspects, more than one-third of participants (20/53, 37.7%) noted that the intervention provided clear, simple and useful information. Other positives included the provision of practical strategies (12/53, 22.6%), the use of videos to deliver intervention content (6/53, 11.3%) and the length of the intervention (7/53, 13.2%). Among those who responded to the question asking about negatives of the programme, more than half (23/44, 52.3%) did not report any negative aspects, although the most common concern was that the content could be too generic or basic (6/44, 13.6%).

Additional topic recommendations. Among the 43 participants who responded to the question regarding additional topic suggestions, most (28/43, 65.1%) stated that they had no suggestions to include additional content. Among the 15 students

who provided additional topic recommendations, these included modules on relationships and home life (5/15, 33.3%) and balancing multiple roles (2/15, 13.3%). The full list of topic recommendations is provided in Appendix 3.

Recommendations for roll-out of the intervention. A total of 102 participants responded to the question regarding roll-out of the intervention. The full list of recommendations is presented in Table 3. Providing the modules to all students during university orientation was the most endorsed method. Similar to the interview participants, some participants pointed to concerns about making the programme mandatory or requiring students to contact counselling services in order to access the intervention:

Table 3. Participant recommendations for the roll-out of UVC-Lite.

Categories	Respondents recommending category (n = 102), n (%)
Through university counselling or health services	22 (21.6)
Through a link on the university website	36 (35.3)
All students should complete the modules during orientation	39 (38.2)
Via student email	2 (2.0)
Through student newsletters	1 (1.0)

Note: n = 95 selected a closed response option; responses from n = 4 participants were coded based on free-text data; n = 3 participants who selected 'Other' were not coded as they did not describe a roll-out method.

If its in an office/councelling [sic] some people are too scared to go to councelling so they would miss out on these great modules. I also think if it was compulsory during orientation it wouldnt have the same affect because people would only do it because they had to, not because they were open minded to some help.

Discussion

This study reports a detailed investigation of the experiences and perspectives of university students who participated in a trial of UVC-Lite, a low-intensity video-based mental health intervention. In addition, the study explored participants' recommendations for implementing the UVC-Lite intervention within Australian university settings, and their views regarding barriers to engagement. Although the topics explored in this study related to a specific digital intervention, the findings have broader applicability to the implementation of other similar interventions in university settings.

Most of the interview participants and numerous survey participants commented that the programme was clear, informative, and comprehensive in the topics covered. Participants from both groups also typically found the video format to be a practical and digestible way to deliver the intervention materials, and several noted that the length of the videos made the intervention convenient to use alongside study and other demands. The use of student stories and self-assessment quizzes with tailored feedback was also viewed positively, as participants felt that these features made the content more relatable, interactive and engaging. These findings are broadly consistent with several previous studies that have indicated that brief, visually engaging videos may be better able to capture and hold the attention of users than content that is purely text-based.[21,27,37] However, our study is the first to confirm these findings among a university student sample using a brief video-based intervention. Audiovisual content may be especially pertinent for young people who are accustomed to engaging with short videos, stories and other interactive content on platforms like YouTube, TikTok and Snapchat.[38,39] Overall, these results suggest that a brief video-based intervention targeting depression, anxiety and other problems commonly affecting university students (e.g. perfectionism, study issues, stress, sleep) is generally considered acceptable and appropriate for students with mild to moderate levels of psychological distress.

Although participants from both groups tended to view the intervention positively, some participants also commented that the intervention content could be either overly simplistic, too broad or not applicable to their specific circumstances or levels of pre-existing mental health knowledge. Designing interventions to be accessible at scale while also being responsive to the needs of diverse groups can be challenging. Prior experiences and knowledge are likely to play an important role in shaping how an intervention programme is experienced and, subsequently, how effective it is.[18,40] The design of DMHIs should take this individual variability into account. This might involve organising the intervention into tiers with varying levels of complexity to enable users to decide which materials to engage with, as well as offering customised pathways or content recommendations based on initial assessments (e.g. of existing mental health knowledge or expectations). Future studies could explore how to incorporate adaptive learning principles to dynamically adjust the content of interventions based on results of these assessments.[41] For example, if a user performs well on a knowledge quiz, they might be directed to more advanced materials, whereas those with less knowledge may be recommended more foundational content. Continuously adjusting content as users progress through the intervention based on user performance and feedback would help ensure that the intervention remains relevant and appropriate.

Additionally, a small number of survey participants highlighted that they found some of the content boring or

repetitive and some disliked the style of the videos. Lack of interest or involvement in an intervention is consistently highlighted as a major barrier to engagement with DMHIs.[18] Our study extends these findings by suggesting that even relatively brief interventions may struggle to sustain user interest, highlighting the need to identify more engaging ways to deliver content for students. In addition to providing personalised interventions, future research could explore the impact of integrating more interactive elements on engagement, such as the use of gamified activities (e.g. users earn points for completing tasks or exercises), quizzes and storytelling techniques. These strategies aim to sustain user interest, encourage active participation and promote a sense of enjoyment and achievement. Furthermore, altering the style of an intervention (e.g. colours and branding elements, using animated or real-life characters) to offer multiple programme options may also help cater to different style or delivery preferences. This is especially relevant given evidence that different branding approaches may appeal to different student groups.[42]

Overall, participants felt that the intervention should be accessible to all students, regardless of their current or past mental health needs. Among the interview participants, this preference was often rooted in the belief that the intervention could enhance mental health knowledge, normalise the student experience and empower students to support themselves and others. However, participants also expressed a need for autonomy and choice, and most interview participants and some survey respondents commented that requiring students to complete the intervention could discourage meaningful and active engagement. This finding suggests a need to focus on implementation approaches that prioritise individual autonomy and empower students to actively participate in interventions by facilitating voluntary engagement and genuine interest, rather than relying on mandatory completion requirements. Additionally, it highlights the importance of prioritising the views of end users during the design and implementation of DMHIs to ensure ethical practice. Furthermore, participants emphasised the importance of encouraging uptake among first-year students and other groups who may be at heightened risk of developing mental health problems (e.g. international students, those in disciplines with high entry grades or expectations). These recommendations align with research on risk factors for mental health problems among tertiary students[43] and suggest that students favour an approach that is focused on preventing or mitigating the impact of mental health problems, while also being responsive to the changing needs of students throughout their university candidature.

Participants pointed to the importance of effectively disseminating the intervention to students to ensure adequate reach. Although most interview participants and nearly one-quarter of the survey respondents recognised the potential of using student counselling services for dissemination, participants in both groups also voiced concerns about excluding students who were unwilling or unable to engage with services. Additional methods of disseminating the intervention included through official university platforms, informal channels (e.g. on-campus advertising) and word-of-mouth. Increasing reach and engagement with mental health services is considered essential to achieve population-level impact,[17] particularly given evidence to suggest that this approach may be more effective than a commensurate increase in effectiveness.[44] However, the reach of previous university-based DMHIs aimed at large-scale implementation has typically been low,[17] and few studies have sought input from students during the implementation process.[17] The findings described in this study highlight the different ways students can obtain information associated with university services and resources. Furthermore, they provide an important opportunity to improve the reach of DMHIs by aligning methods of promotion with students' information-seeking habits and preferences.

Similar to previous research in the general population,[18,45] barriers to engagement identified by interview and survey participants included a lack of time, difficulties with motivation and accessing technology and the user's pre-existing beliefs about mental health, help-seeking and their need for support. Perceived lack of time is commonly cited as a barrier to engagement[46]; however, both participant groups also tended to highlight that the intervention was an appropriate length, and research suggests that actual time scarcity is not a direct barrier to the use of digital interventions.[47] Instead, concerns about lack of time may point to other barriers, such as lack of motivation or prioritisation.[47] University study places new pressures and demands on young people, as they are often required to juggle academic study alongside other responsibilities such as student jobs, social commitments and extracurricular activities. These demands may reduce students' motivation to participate in mental health interventions (even if they do not require a significant time commitment), particularly when the student is not experiencing significant distress or does not perceive an acute need for intervention, as observed in this study. Lack of motivation may be exacerbated by concerns about stigma, which has been found to be a common barrier to help-seeking among students.[7] However, given the potential of prevention and early intervention approaches in general,[15] and the perspective that the intervention be made available to all students, understanding how to improve engagement among those who might derive immediate benefit is an important goal.

The participants provided several recommendations to address barriers to engagement among students. This included timing the delivery of modules at specific times of the day, week and semester, as well as avoiding stigmatising language during promotion, offering reminders,

incorporating personalised feedback messages and incentives and highlighting the availability of free Wi-Fi on campus (where available). These findings are broadly consistent with an earlier study on the co-design of strategies to facilitate engagement with a digital intervention designed to help manage suicidal thoughts among young people,[48] suggesting that similar engagement strategies may be required across different mental health concerns and user groups. The findings also align with behaviour change theories and principles for intervention design.[49,50] These theories suggest that individuals are more likely to engage with a behaviour when the behaviour is made salient, incentivised and environmental barriers are reduced. Moreover, timely delivery of modules and reminders may help capitalise on moments when individuals are most receptive or likely to act.[49] However, very few studies have rigorously tested strategies to facilitate engagement with DMHIs among university students.[51] Moreover, evidence supporting the use of any particular strategy among adults in the general population remains inconclusive, and studies have reported mixed or no evidence to support the use of reminders, feedback messages and incentives.[37,51] Research on the use of inclusive, non-stigmatising language in promoting mental health interventions has similarly yielded mixed evidence,[52,53] although this research is generally limited to encouraging help-seeking among males. User-centred design processes that involve collaboration between intervention developers, end-users and other relevant stakeholders represent a promising approach to improve engagement and require further investigation among students.[51] However, the use of such methods does not always result in positive outcomes,[54,55] and ongoing work is needed to ensure that engagement strategies developed in collaboration with end users work as intended. Future work might consider using behavioural theories in conjunction with co-design methods to improve the likelihood that engagement strategies result in improvements in engagement.

Implications

This study has implications both for future research and the implementation of digital interventions in university settings. The results of this study suggest that although students were generally in favour of providing a low-intensity mental health programme as a universal intervention, making such programmes compulsory may not be ideal or effective. Furthermore, given the stigma still associated with accessing formal counselling services, mental health resources should be made accessible outside of this setting. The effectiveness of the different pathways for disseminating digital interventions to students should be examined empirically through implementation trials with uptake and engagement as outcomes. Future research could also examine the effectiveness of tailoring in the provision of intervention content based on user need and

preferences. Many of the dissemination strategies recommended by participants, such as the use of web-based promotion and word-of-mouth, are likely to be cost-effective. However, real-world effectiveness studies are needed to determine the most effective and efficient combination of these strategies, taking into account each university's unique student population. This research should be guided by the preferences and behaviours of students to identify which pathways are likely to have the greatest impact.

Effective implementation of DMHIs is likely to require support from multiple stakeholders within a university, so further research is needed to investigate the views and perspectives of other relevant stakeholders, such as university policymakers, student services, counselling and health services and student organisations.[17] The results also highlight the importance of a responsive approach to implementation. Although participants favoured access for all students, they also emphasised the need for flexibility to cater to students who may be in greatest need or whose needs change over the course of their university degree. In practice, this might involve offering the intervention during the early stages of the student's university candidature, such as during orientation, at the start of each semester and during challenging times throughout the semester such as examination periods. However, longitudinal data are needed to elucidate the mental health trajectories of students throughout the course of their candidature and identify critical points for intervention. It may also be relevant to consider how the ongoing effects of the COVID-19 pandemic on mental health and learning environments may shape the future adoption and perceptions of DMHIs among students. The widespread shift towards remote learning and increased reliance on digital platforms during the pandemic may have influenced students' receptivity to and engagement with these interventions. While some students may have found digital interventions more accessible and convenient, others may have experienced digital fatigue or increased scepticism. These dynamics could potentially alter the effectiveness and acceptability of DMHIs in university settings.

In light of the recommendations above, it is worth noting that there are several practical steps that universities can take to implement DMHIs in their settings.[56] These include (1) developing supportive partnerships between service providers, academics and student organisations on campus; (2) securing and allocating sufficient resources to develop and maintain digital platforms and fund staff to manage, promote, implement and evaluate these interventions; (3) actively promoting available DMHIs to raise awareness and increase utilisation among students; (4) establishing ongoing evaluation and feedback mechanisms to monitor engagement and effectiveness; (5) providing training and support for staff involved in delivering and promoting DMHIs; and (6) integrating DMHIs into university policy and support frameworks.

Limitations

This study has several limitations. Interview data were collected from a relatively small number of participants who self-selected into the study. These participants were also recruited from a larger sample of trial participants, who may have different characteristics and motivations to those who do not participate in research. Although we supplemented the interviews with an examination of free-text survey responses, it is possible that certain views or perspectives may have been overrepresented, and others may not have been fully documented. For example, both participant groups in this study demonstrated much higher engagement with the programme compared with the full intervention group,[28] suggesting that our findings may be biased towards those who had predominantly positive views and experiences of the intervention. Additionally, participants might have provided responses they believed to be favourable or socially acceptable, rather than their true experiences or perspectives. Although we encouraged honest and open communication, some level of bias may be unavoidable due to the nature of self-reporting. Moreover, the study focused on experiences and perspectives among university students in Australia. Future research should explore how these experiences vary across different educational settings, such as vocational institutions or secondary schools, and cultural contexts.

Male, gender-diverse and international students were underrepresented in the sample, suggesting that our results may not have captured the unique challenges and perspectives of these specific student groups. Rates of participation among these groups in this study were similar to those for the larger RCT[28] and reflect demographic differences in mental health help-seeking and participation in mental health research more generally.[57–59] Future studies should prioritise targeting these groups, as they may be at increased risk for mental health issues and other adverse outcomes,[60–62] as well as those who report negative user experiences or challenges with engagement. Targeted outreach initiatives, offering incentives for participation,[63] and flexible participation options such as offering interviews using email or instant messaging platforms may help engage students whose views are underrepresented or who may otherwise be reticent to participate.[34] In addition, while useful for providing rich, detailed data on participant experiences, the use of semi-structured interviews may limit comparability across participant accounts due to varying interview dynamics and participant responsiveness. Future research may consider combining interviews with other data sources, such as questionnaires, to explore the generalisability of findings.

In addition, the qualitative data were collected as part of an RCT. Trial procedures such as the use of incentives and explicit follow-up procedures are known to impact adherence and engagement with DMHIs, with some estimates indicating that programme usage is up to four times higher in research settings than in the real-world.[64] Although recruitment procedures for the UVC-Lite trial reflected a similar process for real-world promotion of internet-based programmes to students, it is nevertheless possible that those who use the intervention outside of a research setting may experience different barriers to uptake and engagement. Moreover, our study was limited to capturing the experiences of students with mild or moderate levels of psychological distress. Although the trial originally aimed to recruit students with at least moderate levels of distress, inclusion criteria were revised to exclude those with high distress due to ethical concerns about the suitability of a low-intensity digital intervention for this group. Engagement with digital interventions among those with more severe need or symptoms is complex, and evidence suggests this group tends to have low levels of programme engagement despite high levels of initial interest.[18] Further studies are needed to explore experiences and perspectives of low-intensity digital interventions among these students. Additionally, future studies should seek input from participants on study results to ensure that their unique perspectives are reflected and not limited by the researchers' own knowledge or goals. Finally, the survey questions analysed in this study were not validated, which may affect the reliability of the data collected. Although we note the same questions have worked well at capturing a range of student responses in a previous trial.

Conclusions

Our results indicated that UVC-Lite, a transdiagnostic low-intensity video-based intervention, was received positively by Australian university students with mild to moderate levels of distress. Students favoured a universal approach to implementation, and multiple dissemination pathways were recommended to ensure adequate reach of the intervention, particularly among students at heightened risk of developing mental health problems. Theoretically informed research, user-centred approaches and real-world implementation studies are needed to address issues of insufficient reach and engagement with DMHIs among university students.

Consent to participate: All participants provided written informed consent prior to participating in this study.

Contributorship: AG, PH, LL, PJB, ALC and LMF conceived the study and obtained project funding. HMJ and LMF were involved

in data collection and recruitment. HMJ analysed and interpreted the data with supervision from LMF. HMJ drafted the manuscript. All authors provided critical revisions to and approved of the final manuscript.

ORCID iDs: Hayley M Jackson [ID] https://orcid.org/0000-0002-8216-0336
Amelia Gulliver [ID] https://orcid.org/0000-0001-6351-9844
Philip J Batterham [ID] https://orcid.org/0000-0002-4547-6876

References

1. Auerbach RP, Alonso J, Axinn WG, et al. Mental disorders among college students in the World Health Organization World Mental Health Surveys. *Psychol Med* 2016; 46: 2955–2970.
2. Auerbach RP, Mortier P, Bruffaerts R, et al. WHO World Mental Health Surveys International College Student Project: prevalence and distribution of mental disorders. *J Abnorm Psychol* 2018; 127: 623–638.
3. Cvetkovski S, Reavley NJ and Jorm AF. The prevalence and correlates of psychological distress in Australian tertiary students compared to their community peers. *Aust N Z J Psychiatry* 2012; 46: 457–467.
4. Larcombe W, Finch S, Sore R, et al. Prevalence and socio-demographic correlates of psychological distress among students at an Australian university. *Stud High Educ* 2016; 41: 1074–1091.
5. Buizza C, Bazzoli L and Ghilardi A. Changes in college students mental health and lifestyle during the COVID-19 pandemic: a systematic review of longitudinal studies. *Adolesc Res Rev* 2022; 7: 1–14.
6. Bruffaerts R, Mortier P, Auerbach RP, et al. Lifetime and 12-month treatment for mental disorders and suicidal thoughts

and behaviors among first year college students. *Int J Methods Psychiatr Res* 2019; 28: e1764.
7. Lui JC, Sagar-Ouriaghli I and Brown JSL. Barriers and facilitators to help-seeking for common mental disorders among university students: a systematic review. *J Am Coll Health* 2022.
8. Stallman HM. University counselling services in Australia and New Zealand: activities, changes, and challenges. *Aust Psychol* 2011; 47: 249–253.
9. Bolinski F, Boumparis N, Kleiboer A, et al. The effect of e-mental health interventions on academic performance in university and college students: a meta-analysis of randomized controlled trials. *Internet Interv* 2020; 20: 1–10.
10. Harrer M, Adam SH, Baumeister H, et al. Internet interventions for mental health in university students: a systematic review and meta-analysis. *Int J Methods Psychiatr Res* 2019; 28: e1759.
11. Lattie EG, Adkins EC, Winquist N, et al. Digital mental health interventions for depression, anxiety, and enhancement of psychological well-being among college students: systematic review. *J Med Internet Res* 2019; 21: e12869.
12. Conley CS, Durlak JA, Shapiro JB, et al. A meta-analysis of the impact of universal and indicated preventive technology-delivered interventions for higher education students. *Prev Sci* 2016; 17: 659–678.
13. Farrer L, Gulliver A, Chan JKY, et al. Technology-based interventions for mental health in tertiary students: systematic review. *J Med Internet Res* 2013; 15: e101.
14. Le LK-D, Esturas AC, Mihalopoulos C, et al. Cost-effectiveness evidence of mental health prevention and promotion interventions: a systematic review of economic evaluations. *PLOS Med* 2021; 18: e1003606.
15. Reavley N and Jorm AF. Prevention and early intervention to improve mental health in higher education students: a review. *Early Interv Psychiatry* 2010; 4: 132–142.
16. Becker TD and Torous JB. Recent developments in digital mental health interventions for college and university students. *Curr Treat Options Psychiatry* 2019; 6: 210–220.
17. D'Adamo L, Paraboschi L, Grammer AC, et al. Reach and uptake of digital mental health interventions based on cognitive-behavioral therapy for college students: a systematic review. *J Behav Cogn Ther* 2023; 33: 97–117.
18. Borghouts J, Eikey E, Mark G, et al. Barriers to and facilitators of user engagement with digital mental health interventions: systematic review. *J Med Internet Res* 2021; 23: e24387.
19. Oti O and Pitt I. Online mental health interventions designed for students in higher education: a user-centered perspective. *Internet Interv* 2021; 26: 100468–100468.
20. Gulliver A, Bennett K, Bennett A, et al. Privacy issues in the development of a virtual mental health clinic for university students: a qualitative study. *JMIR Ment Health* 2015; 2: e9.
21. Farrer L, Gulliver A, Chan JKY, et al. A virtual mental health clinic for university students: a qualitative study of End-user service needs and priorities. *JMIR Ment Health* 2015; 2: e2.
22. Chan JKY, Farrer LM, Gulliver A, et al. University students' views on the perceived benefits and drawbacks of seeking help for mental health problems on the internet: a qualitative study. *JMIR Human Factors* 2016; 3: e3.
23. El Morr C, Maule C, Ashfaq I, et al. A student-centered mental health virtual community needs and features: a focus group study. *Stud Health Technol Inform* 2017; 234: 104–108.

24. Dederichs M, Weber J, Pischke CR, et al. Exploring medical students' views on digital mental health interventions: a qualitative study. *Internet Interv* 2021; 25: 100398.

25. Salamanca-Sanabria A, Jabir AI, Lin X, et al. Exploring the perceptions of mHealth interventions for the prevention of common mental disorders in university students in Singapore: qualitative study. *J Med Internet Res* 2023; 25: e44542.

26. Hanley T and Wyatt C. A systematic review of higher education students' experiences of engaging with online therapy. *Couns Psychother Res* 2021; 21: 522–534.

27. Gericke F, Ebert DD, Breet E, et al. A qualitative study of university students' experience of internet-based CBT for depression. *Couns Psychother Res* 2021; 21: 792–804.

28. Farrer LM, Jackson HM, Gulliver A, et al. A transdiagnostic video-based internet intervention to improve the mental health of university students: randomised controlled trial of the Uni Virtual Clinic-Lite. *J Med Internet Res* 2024; 26: e53598.

29. O'Mahoney J. Archetypes of translation: recommendations for dialogue. *Int J Manag Rev* 2016; 18: 333–350.

30. O'Brien BC, Harris IB, Beckman TJ, et al. Standards for reporting qualitative research: a synthesis of recommendations. *Acad Med* 2014; 89: 1245–1251.

31. Tong A, Sainsbury P and Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care* 2007; 19: 349–357.

32. Batterham PJ, Sunderland M, Carragher N, et al. The distress questionnaire-5: population screener for psychological distress was more accurate than the K6/K10. *J Clin Epidemiol* 2016; 71: 35–42.

33. Farrer LM, Gulliver A, Katruss N, et al. A novel multi-component online intervention to improve the mental health of university students: randomised controlled trial of the Uni Virtual Clinic. *Internet Interv* 2019; 18: 100276–100276.

34. Heath J, Williamson H, Williams L, et al. It's just more personal": using multiple methods of qualitative data collection to facilitate participation in research focusing on sensitive subjects. *Appl Nurs Res* 2018; 43: 30–35.

35. Vears DF and Gillam L. Inductive content analysis: a guide for beginning qualitative researchers. *Focus Health Prof Educ* 2022; 23: 111–127.

36. Hsieh H-F and Shannon SE. Three approaches to qualitative content analysis. *Qual Health Res* 2005; 15: 1277–1288.

37. Milward J, Drummond C, Fincham-Campbell S, et al. What makes online substance-use interventions engaging? A systematic review and narrative synthesis. *Digit Health* 2018; 4: 2055207617743354.

38. *Pew Research Center*. Teens, Social Media and Technology 2022. 2022.

39. Lim MSC, Molenaar A, Brennan L, et al. Young Adults' use of different social Media platforms for health information: insights from web-based conversations. *J Med Internet Res* 2022; 24: e23656.

40. Linardon J, Broadbent J, Shatte A, et al. The role of pre-existing knowledge and knowledge acquisition in internet-based cognitive-behavioural therapy for eating disorders. *Comput Hum Behav* 2022; 134: 107332.

41. Hornstein S, Zantvoort K, Lueken U, et al. Personalization strategies in digital mental health interventions: a systematic review and conceptual framework for depressive symptoms. *Front Digit Health* 2023; 5: 1170002.

42. Rith-Najarian L, Sun W, Chen A, et al. What's in a name? Branding of online mental health programming for university students. *J Consult Clin Psychol* 2019; 87: 380–391.

43. Sheldon E, Simmonds-Buckley M, Bone C, et al. Prevalence and risk factors for mental health problems in university undergraduate students: a systematic review with meta-analysis. *J Affect Disord* 2021; 287: 282–292.

44. Moessner M and Bauer S. Maximizing the public health impact of eating disorder services: a simulation study. *Int J Eat Disord* 2017; 50: 1378–1384.

45. Eccles H, Nannarone M, Lashewicz B, et al. Barriers to the use of web-based mental health programs for preventing depression: qualitative study. *JMIR Form Res* 2021; 5: e16949.

46. Renfrew ME, Morton DP, Northcote M, et al. Participant perceptions of facilitators and barriers to adherence in a digital mental health intervention for a nonclinical cohort: content analysis. *J Med Internet Res* 2021; 23: e25358.

47. Busby Grant J, Gulliver A, Calear AL, et al. I don't have time": an exploration of the role of time pressures in acceptance of internet interventions for mental health. *J Ment Health* 2023; ahead-of-print: –8.

48. Gan DZQ, McGillivray L, Larsen ME, et al. Promoting engagement with smartphone apps for suicidal ideation in young people: development of an adjunctive strategy using a lived experience participatory design approach. *JMIR Form Res* 2023; 7: e45234.

49. Michie S, Richardson M, Johnston M, et al. The behavior change technique taxonomy (v1) of 93 hierarchically clustered techniques: building an international consensus for the reporting of behavior change interventions. *Ann Behav Med* 2013; 46: 81–95.

50. Atkins L, Francis J, Islam R, et al. A guide to using the theoretical domains framework of behaviour change to investigate implementation problems. *Implement Sci* 2017; 12: 77.

51. Gan DZQ, McGillivray L, Larsen ME, et al. Technology-supported strategies for promoting user engagement with digital mental health interventions: a systematic review. *Digital Health* 2022; 8: 20552076221098268.

52. Hammer JH and Vogel DL. Men's help seeking for depression: the efficacy of a male-sensitive brochure about counseling. *Couns Psychol* 2010; 38: 296–313.

53. Wahto R and Swift JK. Labels, gender-role conflict, stigma, and attitudes toward seeking psychological help in men. *Am J Men's Health* 2016; 10: 181–191.

54. Titov N, Andrews G, Choi I, et al. Randomized controlled trial of web-based treatment of social phobia without clinician guidance. *Aust N Z J Psychiatry* 2009; 43: 913–919.

55. Batterham PJ, Calear AL, Sunderland M, et al. A brief intervention to increase uptake and adherence of an internet-based program for depression and anxiety (enhancing engagement with psychosocial interventions): randomized controlled trial. *J Med Internet Res* 2021; 23: e23029.

56. Zeiler M, Kuso S, Nitsch M, et al. Online interventions to prevent mental health problems implemented in school

settings: the perspectives from key stakeholders in Austria and Spain. *Eur J Public Health* 2021; 31: i71–i79.

57. Batterham PJ, Neil AL, Bennett K, et al. Predictors of adherence among community users of a cognitive behavior therapy website. *Patient Prefer Adherence* 2008; 2: 97–105.

58. LaMontagne AD, Shann C, Lolicato E, et al. Mental health-related knowledge, attitudes and behaviours in a cross-sectional sample of Australian university students: a comparison of domestic and international students. *BMC Public Health* 2023; 23: 170–170.

59. Woodall A, Morgan C, Sloan C, et al. Barriers to participation in mental health research: are there specific gender, ethnicity and age related barriers? *BMC Psychiatry* 2010; 10: 03.

60. Russell MA, Reavley N, Williams I, et al. Changes in mental health across the COVID-19 pandemic for local and international university students in Australia: a cohort study. *BMC Psychol* 2023; 11: 55–55.

61. Campbell F, Blank L, Cantrell A, et al. Factors that influence mental health of university and college students in the UK: a systematic review. *BMC Public Health* 2022; 22: 1778–1778.

62. Uchida C and Uchida M. Characteristics and risk factors for suicide and deaths among college students: a 23-year serial prevalence study of data from 8.2 million Japanese college students. *J Clin Psychiatry* 2017; 78: e404–e412.

63. Kelly B, Margolis M, McCormack L, et al. What affects people's willingness to participate in qualitative research? An experimental comparison of five incentives. *Field Methods* 2017; 29: 333–350.

64. Baumel A, Edan S and Kane JM. Is there a trial bias impacting user engagement with unguided e-mental health interventions? A systematic comparison of published reports and real-world usage of the same programs. *Transl Behav Med* 2019; 9: 1020–1033.