Environment and Social Psychology (2026) Volume 11 Issue 1 ISSN: 2424-8975 (O)
doi: 10.59429/esp.v11i1.4323 2424-7979 (P)

RESEARCH ARTICLE

Impact of a mental health promotion initiative on university students: A non-randomized controlled pre-post study

Sanjida Khan[1,2,*], Sayema Rahman Rathi[1]

[1] *Department of Psychology, Jagannath University, 9-10 Chittaranjan Ave, Dhaka 1100, Bangladesh*

[2] *Monash University, Sunway campus, Sunway City, 47500, Malaysia*

*** Corresponding author:** Sanjida Khan, sanjida.khan@monash.edu; sanjidakhan@psy.jnu.ac.bd

ABSTRACT

The systematic evaluation of mental health promotion initiatives for university students in Bangladesh, a population vulnerable to psychological challenges, remains limited. This study examined the effectiveness of a student-focused program addressing mental health literacy, stigma, and help-seeking behaviors. Using a non-randomized, controlled pre-post design, 103 students (Mage = 18.40 ± 0.62 years) were allocated to experimental (n = 44) and control (n = 59) groups following open participation. Validated Bangla-translated scales measured outcomes at baseline, post-program, and follow-up. The experimental group received a brief, co-designed intervention involving students and professionals. Findings revealed significant post-program gains in literacy, help-seeking intentions, and attitudes, with reductions in stigma that persisted through the three-month follow-up. While positive attitudes toward help-seeking declined over time, experimental participants showed greater improvements across all outcomes compared to controls at follow-up. These results highlight the value of structured promotion initiatives and the need for strategies to sustain long-term benefits.

Keywords: mental health literacy; stigma; help-seeking; promotion program; university students; Bangladesh

1. Introduction

Mental health issues have become a pressing global concern, ranking among the leading causes of disease worldwide[1] and imposing severe health, social, and economic burdens on societies[2]. Recognizing its significance, mental health has been integrated into the Sustainable Development Goals 2030[3]. However, the burden of mental disorders is disproportionately high in the South Asian low- and middle-income countries (LMICs) such as Bangladesh[4]. Research has indicated a significant rise in mental health issues among young adults in Bangladesh from the pre-pandemic to the post-pandemic period. Before the pandemic, Mamun et al.[5] found that a substantial proportion of Bangladeshi university students experienced moderate to severe depression (52.2%), anxiety (58.1%), and stress (24.9%). These figures increased notably during the pandemic, with both depression and anxiety exceeding 63%, and stress reaching around 59%[6]. In the post-pandemic period, mental health disorders have remained prevalent, affecting more than 50% of university students[7], with alarmingly high rates of suicidal ideation reported at 18.4%[8]. Despite this crisis, the treatment gap remains significant, with 75% of affected individuals in LMICs not seeking support[9], and this figure reaches

ARTICLE INFO
Received: 10 November 2025 | Accepted: 12 January 2026 | Available online: 21 January 2026

CITATION
Khan S, Rathi SR. Impact of a mental health promotion initiative on university students: A non-randomized controlled pre-post study. *Environment and Social Psychology* 2026; 11(1): 4323. doi: 10.59429/esp.v11i1.4323

92.3% in Bangladesh[2]. Barriers such as stigma, poor mental health literacy (MHL), and societal prejudice hinder help-seeking behaviors[10], leading to severe consequences like poor academic performance[11] and diminished quality of life[12].

Help-seeking is an adaptive strategy to obtain external mental health support, including formal and informal sources[12]. Help-seeking intention means an individual's chance of seeking help from others for their distress, while a help-seeking attitude indicates one's feeling or opinion towards seeking help from different sources for mental health issues[13]. Gorczynski et al.[14] found that university students in the UK were more likely to seek support from friends and family, and occasionally use online counseling, rather than consult mental health professionals. A major reason for this preference may be the fear of being stigmatized or judged by peers and others.

Over the past few decades, research has extensively documented the stigma surrounding mental illness[15,16]. Mental illness stigma includes negative attitudes, stereotypes, and discriminatory behaviors toward individuals experiencing mental health conditions[17]. These biases shape social interactions[17] and discourage individuals from seeking help[15]. Personal stigma, referring to individual perceptions of mental illness, is often underestimated compared to public stigma but is strongly linked to reluctance to seek professional help[18]. In Bangladesh, stigma significantly affects help-seeking, particularly in rural communities where mental illness is often viewed as incurable, leading many to rely on local healers instead of professional care[19]. Stigma also leads to discrimination from family and society[20], though family members of individuals with mental illness tend to have better mental health knowledge[21]. Additionally, undergraduate students with stigmatized beliefs show weaker confidence in treatment and lower adherence to medication[21]. Addressing stigma requires improving MHL[22], which enhances recognition of symptoms and help-seeking[23]. In Bangladesh, studies report low MHL among university students[10] and rural populations[24], emphasizing the need for targeted interventions to bridge knowledge gaps and reduce stigma.

There is a growing need for regular mental health awareness programs on university campuses, particularly through peer-led initiatives[25,26]. Research suggests that such programs enhance MHL, reduce stigma, and build resilience[5]. Studies indicate that students who participate in awareness programs show better mental health knowledge, increased help-seeking tendencies, and reduced stigma compared to non-participants[25,26]. In Bangladesh, Mamun et al.[10] found that students attending depression-related seminars had greater depression literacy. However, mental health initiatives in Bangladeshi universities have not been systematically evaluated for their effectiveness in reducing stigma and improving MHL. While various promotion strategies, including educational curricula, peer-led programs, and campaigns, exist[27], studies on LMICs remain scarce[28]. This study aims to assess a tailored, evidence-based mental health promotion program for Bangladeshi university students.

Nair and Otaki[29] reviewed mental health promotion programs for university students and identified four key components (4M: mindfulness, movement, meaning, and moderator) for a holistic approach. Mindfulness, the first component, can reduce stigma and improve mental well-being but requires long-term practice[30]. Movement promotes physical activity, which enhances social cognition and behavioral attitudes[32]. Meaning focuses on psychoeducation to raise awareness and correct misconceptions about mental health[29,31]. The moderator component facilitates access to professional help and self-help resources, guiding students toward support[29]. We designed a brief mental health promotion initiative for university students, considering the 4M model[29] and cultural context to see if it minimized students' mental illness stigma and improved MHL and help-seeking significantly. This study aimed to co-design the program with both participants and educators, focusing on the program's length, content, and delivery methods to ensure it reflects a well-balanced

integration of scientific evidence, practical application, and the specific needs of the target population. Therefore, the specific objectives of this study were (1) to assess whether participants receiving the program reported improvement in MHL, help-seeking intention, and attitude as well as reducing mental health stigma at immediate post-program and follow-up assessment; and (2) to investigate if this promotion program would reduce mental health stigma and improve MHL, help-seeking attitude and intention among those who attended the program than those who did not.

2. Methods

2.1. Design

We employed a non-randomized, pre-post design with a non-equivalent control group to compare participants who attended the program (experimental group) with those who did not (control group). Assessments were conducted at baseline, post-program, and three-month follow-up for the experimental group, while the control group was assessed at baseline and follow-up. The trial's design, implementation, and reporting comply with the Transparent Reporting of Evaluations with Non-Randomised Designs (TREND) statement (Supplementary file 1).

2.2. Participants

The study participants were first-year undergraduate students from a public university in Bangladesh. Recruitment was conducted through open announcements on social platforms and gathering spots on campus. A total of 250 students expressed interest, but 55 were excluded for not meeting eligibility criteria, such as being non-first-year students and attending a different institution. We excluded participants with a history of psychiatric symptoms, as they may possess prior knowledge or experience related to mental health, potentially introducing non-equivalence between the experimental and control groups. Such baseline differences could compromise the results and reduce the internal validity of the study. A total of 98 participants registered for the morning session (experimental group) and 97 for the afternoon session (control group). Of these, 44 in the experimental group and 59 in the control group completed all phases (**Figure 1**). The sample size ensured 80% statistical power with an effect size of 0.15 at a 0.05 significance level[33]. Among participants, 52.4% were male, and 47.6% were female, with an age range of 18-20 years (mean 18.40, SD = 0.62). Both groups were matched in age, gender, socio-economic status, and academic performance (**Table 1**).

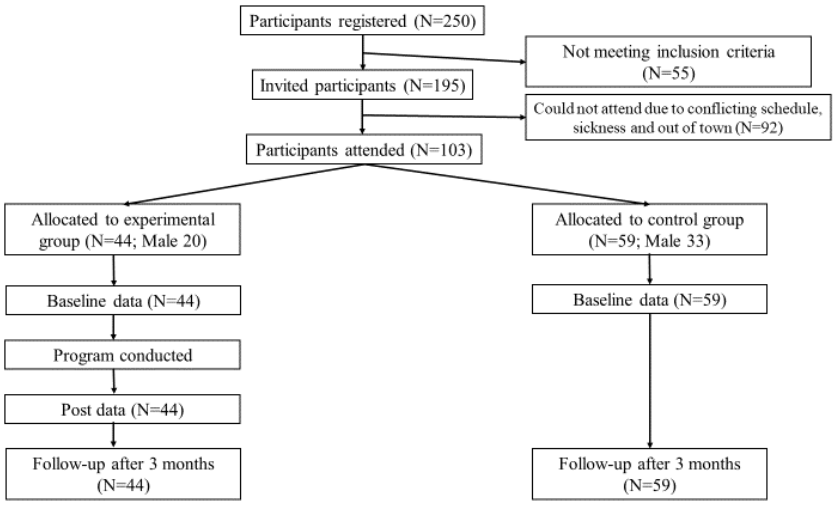

Figure 1. Flowchart of participants.

Table 1. Differences in the demographics and study variables (pre-program assessment) between the experimental and control group.

Criteria			M ± SD or N(%)		t or χ^2	P
			Experimental group	Control group		
Demographics	Age		18.34±.57	18.44±.65	-.812	.419
	Gender	Male	45.5%	57.6%	1.497	.238
		Female	54.5%	42.4%		
	GPA		4.88±.15	4.87±.18	.375	.709
	SES		34636.36±20821.60	35152.54±42566.30	-.074	.941
Study variables	MHSIS		5.22±1.05	5.02±.98	1.006	.317
	MHSAS		3.82±.36	3.99±.52	-1.815	.703
	MIS		131.32±18.39	137.10±15.05	-1.754	.082
	MHL		9.80±2.99	9.36±2.46	.817	.416

MHSIS=Mental help-seeking intention scale

MHSAS=Mental help-seeking attitudes scale

MIS=Mental illness stigma scale

MHL=Mental health literacy scale

Outcome measures

Socio-demographic information. Participants' socio-demographic details, such as age, gender, number of siblings, birth order, educational qualification, family monthly income, socio-economic status, father's occupation, mother's occupation, and mental illness history, were collected.

Mental illness stigma scale (MIS). We used the Bangla-translated version of the Mental Illness Stigma Scale, originally developed by Day et al.[34], to assess individuals' beliefs about mental illness. The 28-item scale measures seven factors: interpersonal anxiety, relationship disruption, poor hygiene, visibility, treatability, professional efficacy, and recovery. Responses were recorded on a 7-point Likert scale (1=strongly disagree to 7=strongly agree), with higher scores indicating greater stigma. Five negative items (8, 9, 11, 13, and 20) required reverse scoring. The scale demonstrated high reliability across its factors (α=0.71–0.9) and showed strong internal consistency in this study (α=0.86).

Mental help-seeking intention scale (MHSIS). Hammer and Spiker[35] developed the Mental Help-Seeking Intentions Scale (MHSIS) to assess individuals' intentions to seek psychological help. This brief, three-item scale uses a 7-point Likert-type response format (1=extremely unlikely to 7=extremely likely), with higher scores indicating stronger help-seeking intentions. The scale demonstrated high internal consistency (α=.94) in the original study and α=.95 in this study's Bangla-translated version.

Mental help-seeking attitudes scale (MHSAS). The nine-item Mental Help-Seeking Attitudes Scale (MHSAS), developed by Hammer et al.[36], assesses attitudes toward seeking professional mental health help. Using a 7-point semantic differential scale, participants rate statements (e.g., useless vs. useful). Higher scores indicate more favorable attitudes. The Bengali version demonstrated strong internal consistency (α=.92) in this study.

Mental health literacy questionnaire. A 35-question set was initially developed to assess participants' MHL, covering topics like common psychological disorders, stressors, stereotypes, self-care, and available services. Two experts reviewed them for accuracy (whether the questions effectively measured knowledge)

and adequacy (whether they were appropriately phrased), leading to a final selection of 20 questions with high interrater reliability (accuracy: κ=0.814; adequacy: κ=0.90).

2.3. Procedure

Prior to the data collection, the proposal achieved ethical clearance from a recognized Human Research Ethics Committee. For the co-design discussion, five university students participated—two postgraduate students specializing in clinical and counseling psychology, and three individuals with lived experience of severe depression, obsessive-compulsive disorder (OCD), and anxiety disorders. The postgraduate psychology students had completed over 30 counseling sessions with young adults and received at least 20 supervision sessions, ensuring a solid foundation in practical mental health support. To recruit students with lived experience, we advertised a call for volunteers and received 10 responses; however, only three were able to attend due to scheduling conflicts. Additionally, we invited two psychology academics and two mental health professionals, all with over five years of experience in teaching and providing mental health support to university students. The discussion was guided by an extensive review of relevant literature and enriched by the personal and professional insights of the participants. Drawing on the 4M model[29], the discussants finalized the session content with careful consideration of university students' context, emphasizing knowledge accessibility, relevance, the promotion of positive mental health, and available resources. The finalized content addressed four key areas: psychoeducation on common mental health issues, including understanding and reframing faulty cognitions (Meaning); stress management through mindfulness practices (Mindfulness); encouragement of physical activity and healthy lifestyle choices (Movement); and guidance on navigating and accessing support services (Moderator). After intensive discussion, it was agreed that the final program should be brief, a three-hour session divided into four segments, scheduled on weekdays to avoid information overload and minimize disruption to academic schedules. Based on the discussants' guidance, we developed a draft of the program content and shared it with them for review. They provided further feedback, particularly on the contextual examples, informational clarity, and interactive activities.

Two mental health experts facilitated four interactive 45-minute sessions using case scenarios, presentations, quizzes, and group activities. The morning session was assigned to the experimental group and the afternoon to the control group. Participants selected their preferred session without knowing the assignment criteria. The research team obtained informed consent and conducted baseline assessments before starting. Participants in the control group were informed that they would receive health-related information relevant to young adults, but no detailed procedural information was provided. They were told that a three-hour session would be delivered in a future follow-up meeting. If they were interested in attending the program, they were asked to complete a set of questionnaires as a baseline survey. Three months later, both groups completed follow-up assessments, after which the control group received the full program. Baseline data were collected on May 16, 2022, and follow-ups on August 17, 2022. Digital data will be available upon request.

2.4. Statistical analysis

We conducted descriptive statistics and a series of repeated measures ANOVA to see if the outcome variables varied within and between groups using IBM SPSS 26. In the first step, we performed descriptive statistics to describe demographics based on the baseline sample. Before performing ANOVA, the normality and homogeneity of variance for the outcome variables were examined. Though normality tests showed two variables (MHSIS and MHSAS) deviated from the normal distribution, the skewness and kurtosis values of outcome variables were found below 2 and 7, which could be considered a normally distributed sample[37]. Moreover, the sample size was large (n>30), and ANOVA is robust to the violation of normality[38]. In the second step, a one-way repeated ANOVA was administered to see the changes in the outcome variables from

baseline to post-program and 3-month follow-up assessments. In the final step, a series of 2*2 repeated measures ANOVA was used to examine whether the outcome variables varied across time (baseline vs. 3-month follow-up) and groups (experimental vs. control). Simple effect analyses were performed as post hoc analyses.

3. Results

3.1. Comparisons of baseline and post-program outcomes for the experimental group

We performed a one-way repeated-measure ANOVA to see the changes from baseline to post-program and 3-month follow-up assessment points. The results showed that participants improved significantly in terms of mental help-seeking intention, F(2, 42)=6.48, P<.05, partial eta=.236, observed power=.884; attitude, F(2, 42)=7.36, P<.05, ηp2 =.260, observed power=.922; and literacy, F(2, 42)=17.95, P<.05, ηp2=.461, observed power=1.00 (**Table 2**). It also indicates that participants' help-seeking intention and MHL have increased significantly from baseline to post-program and sustained after three months. Similarly, their help-seeking attitude improved significantly at the post-program than at baseline; however, the increased state did not continue after three months. Besides, mental health stigma has been reduced significantly across three assessment points, F(2, 42)=48.44, P<.05, ηp2=.698, observed power=1.00. Mean difference estimates indicate that mental health stigma significantly reduced after the program and at the follow-up assessment compared to baseline.

Table 2. Differences in outcome measures at baseline, post-training, and 3-month follow-up.

Outcome measures	Mean score (SE)			F	P	Observed power
	Baseline	Post-training	3-month follow-up			
Help-seeking intention	5.22 (.16)	5.74 (.15)↑	5.87 (.16)↑	6.48	.004	.884
Help-seeking attitude	3.82 (.05)	3.98 (.05)↑	3.96 (.05)	7.36	.002	.922
Mental illness stigma	131.32 (2.77)	119.05 (3.03)↓	116.57 (2.54)↓	48.44	.000	1.00
MHL	9.80 (4.51)	11.93 (.47)↑	11.27 (.28)↑	17.95	.000	1.00

SE=Standard error;

↑=mean score is significantly (p<.05) higher than baseline;

↓= mean score is significantly (p<.05) lower than baseline;

3.2. Comparisons of mental help-seeking intention between the experimental and control group

A two-way repeated ANOVA was administered to see if mental help-seeking intention varied across groups (experimental vs control) and time (baseline vs follow-up assessment). The results showed a significant main effect of time, F(1, 101)=5.37, P=.02, ηp^2=.05, observed power=.631. Likewise, a significant main effect of the group was found, F(1, 101)=10.59, P=.002, ηp^2=.09, observed power=.897. The interaction effect of time and group reached statistical significance, F(1, 101)=8.45, P=.004, ηp^2=.08, observed power=.821. Simple effect analyses revealed that the estimate of mental help-seeking intention at the baseline phase did not differ significantly across groups, t(101)= 1.01, P=.317. In contrast, the scores of mental help-seeking intention at 3-month follow-up significantly varied between the experimental and control group, t(101)= 4.12, P=.00, d=.83. **Figure 2** illustrated that the experimental group (M=5.87, SD=1.04) showed significantly increased mental help-seeking intention than the control group (M=4.94, SD=1.19).

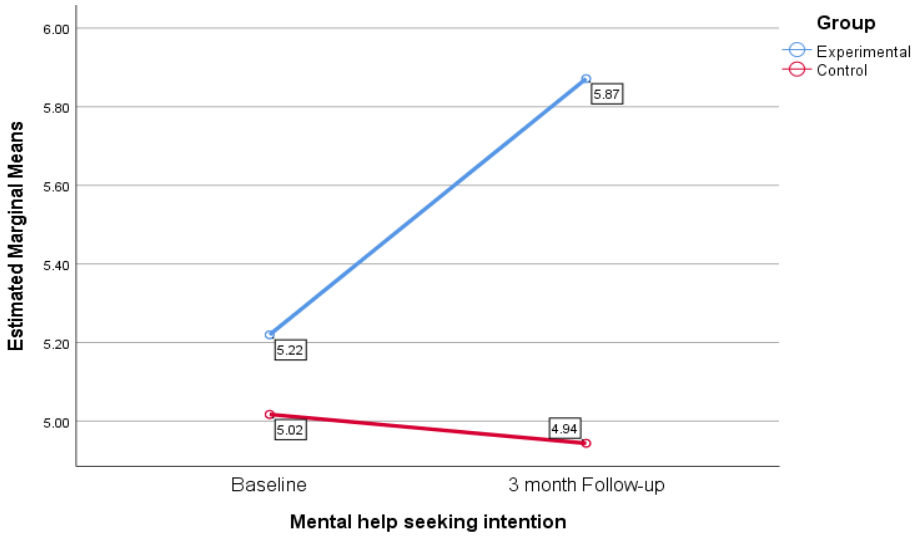

Figure 2. Interaction effect of time and group on mental help-seeking intention.

3.3. Comparisons of mental help-seeking attitudes between the experimental and control groups

A similar analysis investigated mental help-seeking attitudes across different time points (baseline vs. follow-up assessment) and groups (experimental vs. control). Significant main effects of time points, F(1, 101)=147.73, P=.00, ηp2=.59, observed power=1.00 and groups F(1, 101)=10.13, P=.002, ηp2=.09, observed power=.883 was observed. The interaction effect of time and group was also significant, F(1, 101)=19.56, P=.00, ηp2=.16, observed power=.99. Simple effect analyses indicate that mental help-seeking attitude at 3-month follow-up varied significantly across groups, t(101)= 3.05, P=.003, d=.60 albeit it did not vary at baseline point across groups significantly, t(101)= -1.82, P=.07. The scores of mental help-seeking attitude among experimental participants (M=3.96, SD= .36) increased significantly than their counterpart (M=3.74, SD=.36) (**Figure 3**).

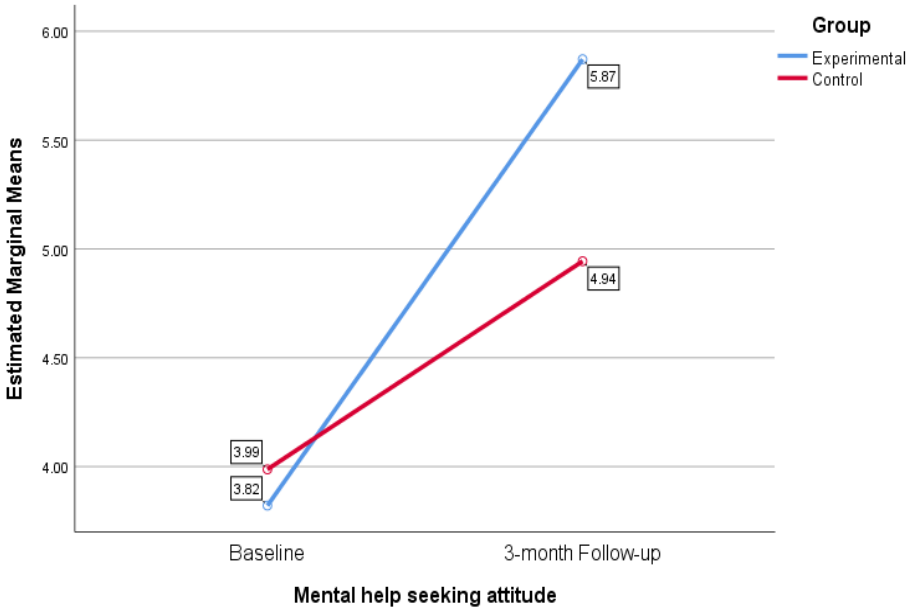

Figure 3. Interaction effect of time and group on mental help seeking attitude.

3.4. Comparisons of mental health stigma between the experimental and control groups

We investigate the effects of time points (baseline vs. 3-month follow-up) and groups (experimental vs. control) on mental health stigma using a 2*2 repeated ANOVA. The main effects time, F(1, 101)=32.39, P=.000, ηp2=.243, observed power=1.00 and groups F(1, 101)=24.71, P=.000, ηp2=.99, observed power=1.00 were significant. Also, the interaction effect of time and group reached the threshold of significance level, F(1, 101)=123.01, P=.000, ηp2=.19, observed power=.998. Simple effect analyses revealed that mental health stigma at baseline time point significantly did not vary between experimental and control groups, t(101)= -1.75, P=.082, while it significantly varied after a 3-month time interval across groups, t(101)= -7.92, P=.000, d=1.55. **Figure 4** shows that the mental health-related stigma reduced significantly among experimental participants (M=116.56, SD=16.83) compared to the control participants (M=141.85, SD=15.41).

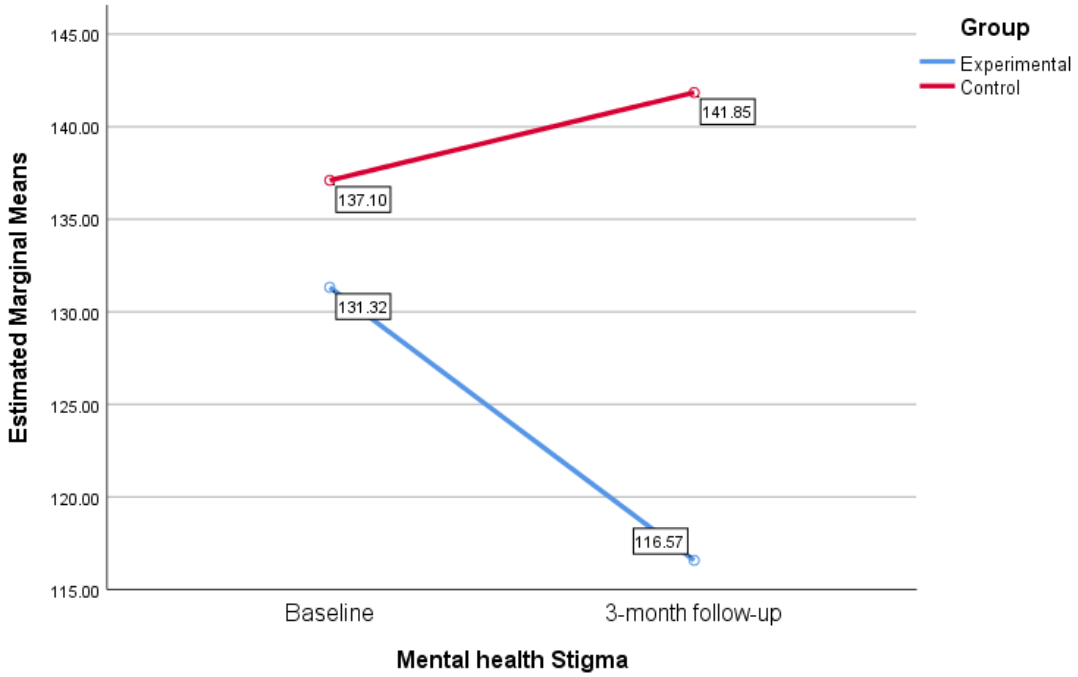

Figure 4. Interaction effect of time and group on mental health stigma.

3.5. Comparisons of MHL between the experimental and control groups

Another round of a mixed repeated ANOVA revealed the significant main effects of time (baseline vs follow-up), F(1, 101)=8.15, P=.005, ηp2=.08, observed power=.807 and group (experimental vs. control), F(1, 101)=8.15, P=.005, ηp2=.08, observed power=.81 on mental health stigma was found. The interaction effect of time and group was significant, F(1, 101)=7.09, P=.009, ηp2=.08, observed power=.807. The simple effect analyses revealed that scores of mental health stigma at different time points differ across groups. At baseline assessment, the MHL did not differ significantly across groups, t(101)= .82, P=.42, while at the follow-up, it varied significantly, t(101)= 4.51, P=.000, d=.92. According to **Figure 5**, the participants from experimental group (M=11.27, SD=1.83) reported better mental health-related knowledge than the participants from control group (M=9.41, SD=2.24).

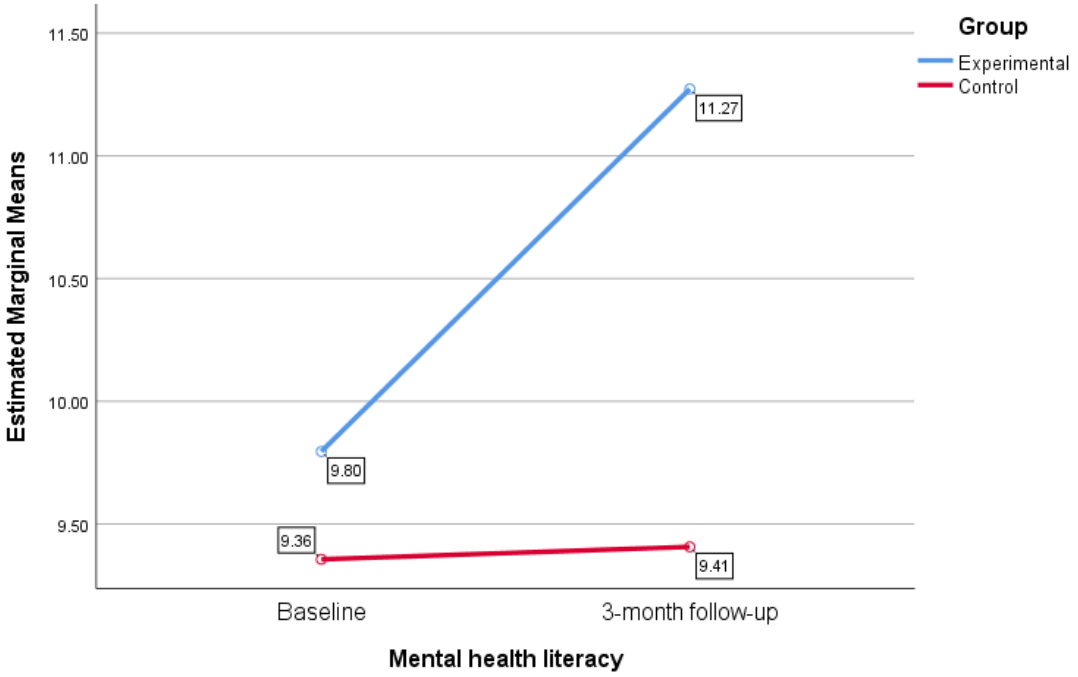

Figure 5. Interaction effect of time and group on mental health literacy.

4. Discussion

To our knowledge, this study is among the first to evaluate a mental health promotion initiative aimed at reducing mental illness stigma and enhancing MHL, help-seeking intentions, and attitudes among university students in Bangladesh. The study had four specific objectives and yielded notable findings. Students demonstrated improved help-seeking intentions and more positive attitudes immediately after the program. However, while their intentions remained high after three months, attitude positivity did not sustain. Additionally, mental illness stigma decreased, and MHL significantly improved both immediately and after three months. Similar trends have been observed in prior pre-post design studies[13].

Shahwan et al.[39] conducted a pre-post study on university students in Singapore, finding that help-seeking attitudes improved immediately after intervention but declined after three months. Reduced mental illness stigma and improved MHL were significantly associated with positive help-seeking intentions and attitudes[13]. However, some researchers[40] argue that these are not the only critical factors influencing help-seeking behaviors. Individual traits, such as openness to experience[41], may also play a role[39]. Additionally, individuals with lower openness may struggle with sharing distress, leading to less favorable attitudes and intentions toward seeking help[42]. This program's duration (e.g., three hours) might not be sufficient to create lasting changes in attitudes[13]. Regular, motivation-enhanced programs, preferably peer- and teacher-led, may be more effective in sustaining cognitive and behavioral changes over time[43].

A greater reduction in mental illness stigma was observed among program participants compared to non-receivers after three months. Anti-stigma intervention programs have been implemented across diverse populations, including school, college, and university students, with evidence supporting reduced stigma among participants[39]. However, debates persist regarding the most effective delivery methods and the sustainability of these benefits[44]. After reviewing 89 studies, Thornicroft et al.[28] found that adults benefited more from direct social contact (e.g., case presentations and factual discussions) than from purely educational programs, though long-term effects were inconsistent. Some researchers caution against overly biological

explanations of mental illness, as they may inadvertently reinforce stigma[45]. In this study, carefully curated content, including prevalence data, culturally relevant case scenarios, and interactive group activities, likely contributed to stigma reduction. However, further research is needed to identify strategies for long-term stigma reduction.

Students' help-seeking intentions significantly differed between program attendees and non-attendees. Participants who completed the program showed greater improvements in their help-seeking intentions than their inactive counterparts, with these improvements remaining stable at follow-up. Consistent with this, most studies indicate that mental health interventions significantly enhance both formal and informal help-seeking intentions compared to control groups, though some studies[40,46] report mixed findings. Additionally, ineffective interactive methods, such as online feedback platforms for individuals with social anxiety, may negatively impact help-seeking intentions[13]. Similarly, help-seeking attitudes were more positive among program attendees than non-attendees after three months. It has been found to be the most responsive to awareness programs, followed by intentions and behaviors[13]. While many studies report significant improvements in attitudes[43], others show minimal or no change[47,48]. The reason would be that attitudes toward help-seeking are more strongly affected by internalized stigma, past experiences, and perceived social norms, which may become more negative or entrenched over time[49,50]. However, help-seeking intention is influenced more by problem recognition and mental health literacy, which can improve with time or intervention[51,52]. This distinction can lead to a scenario where individuals cognitively intend to seek help but emotionally or socially feel less positive about doing so, creating a gap between intention and attitude. This pattern highlights the importance of addressing both informational and emotional factors in mental health interventions. Without reducing stigma or improving service experiences, greater awareness alone may not foster more favorable attitudes.

This study has several limitations. First, we did not exclude participants with prior exposure to mental health promotion programs through online platforms or external organizations, which may have influenced their baseline knowledge and affected the results. Second, although the program was open to a large student population, only a small fraction registered, and even fewer completed all assessments. These participants may have had a stronger personal interest in mental health, introducing potential selection bias. Third, the assessment tools were not specifically adapted for this population, potentially affecting validity. For example, the MHL questionnaire has not undergone rigorous psychometric validation for the target population; therefore, this limitation underscores the need to replicate the study using a standardized and well-validated instrument, such as the Mental Health Literacy Questionnaire[53]. Nonetheless, we express concern regarding the measures of the attitude assessment scale, a 7-point semantic differential scale, which may present challenges related to the appropriateness of adjective pairs, susceptibility to response bias, and the cognitive demands it places on respondents[54]. Therefore, future researchers are encouraged to apply culturally adapted or newly developed scales to better capture and understand the scenario. Fourth, the experimental and control groups had different assessment points, which may have impacted result robustness. Lastly, informal help-seeking behaviors, such as seeking support from family or friends, were not examined but remain crucial for mental health care[55]. Future research should explore peer-led promotion programs and their impact on help-seeking behaviors in Bangladesh.

Implications for Practice: The temporary nature of the improvements in help-seeking attitudes suggests that one-time initiatives may not lead to lasting change. This highlights the need for a more structured and sustained approach to mental health promotion within university settings. Universities should integrate mental health promotion into their ongoing support systems, offering regular workshops, follow-up sessions, and accessible counseling services. Collaboration with mental health professionals and student organizations could

also help create a more open and supportive environment. Additionally, embedding mental health literacy into the academic curriculum could reinforce positive attitudes and encourage long-term behavioral change. Nonetheless, this study underscores the importance of extending and adapting the mental health literacy program to other professional and non-professional groups, such as educators and parents, given the generally low levels of mental health literacy in Bangladesh. Establishing a consistent, supportive environment will help sustain positive changes in students' mental health attitudes and behaviors over time.

Implications for Policy: These findings suggest important policy implications for promoting student mental health in Bangladeshi universities. Policymakers should prioritize integrating mental health education into university curricula to enhance mental health literacy and reduce stigma. Given the temporary improvements in help-seeking attitudes, policies should support ongoing mental health programs with periodic follow-ups to sustain long-term behavioral change. Institutions should establish accessible counseling services and awareness campaigns to encourage help-seeking. Additionally, allocating resources for training staff and peer counselors can create a supportive environment. A comprehensive, policy-driven approach can ensure enduring positive impacts on students' mental health and well-being.

Conflict of interest

The authors declare no conflict of interest.

References

1. GBD 2019 Mental Disorders Collaborators. (2022). Global, regional, and national burden of 12 mental disorders in 204 countries and territories, 1990–2019: a systematic analysis for the Global Burden of Disease Study 2019. The Lancet Psychiatry, 9(2), 137-150.
2. World Health Organization. (2021). Bangladesh WHO Special Initiative for Mental Health Situational Assessment. World Health Organization. Retrived from https://www.who.int/initiatives/who-special-initiative-for-mental-health/bangladesh
3. United Nations. (2023). Sustainable Development. The 17 Goals. Department of Economic and Social Affairs, United Nations. Retrived from https://sdgs.un.org/goals
4. Knipe, D., John, A., Padmanathan, P., Eyles, E., Dekel, D., Higgins, J. P., ... & Gunnell, D. (2022). Suicide and self-harm in low-and middle-income countries during the COVID-19 pandemic: A systematic review. PLOS global public health, 2(6), e0000282.
5. Mamun, M. A., Hossain, M., & Griffiths, M. D. (2019). Mental health problems and associated predictors among Bangladeshi students. International Journal of Mental Health and Addiction, 1-15.
6. Islam, M. S., Sujan, M. S. H., Tasnim, R., Sikder, M. T., Potenza, M. N., & Van Os, J. (2020). Psychological responses during the COVID-19 outbreak among university students in Bangladesh. PloS one, 15(12), e0245083.
Hossain M.J, Ahmmed F, Khandokar L, Rahman SMA, Hridoy A, Ripa FA, et al. (2022).
Status of psychological health of students following the extended university closure in
7. Bangladesh: Results from a web-based cross-sectional study. PLOS Glob Public Health 2(3): e0000315. https://doi.org/10.1371/journal.pgph.0000315
8. Himel, M. R., Siyam, S. A., Tanni, J., Rafiquzzaman, S. K., Alam, M. J., Hassan, M. B., & Uddin, M. J. (2024). Unveiling Student Suicides in the Post-Pandemic Period: A Retrospective Analysis of Online News Portals in Bangladesh. Health Science Reports, 7(12), e70203.
9. World Health Organization. (2023). mhGAP intervention guide for mental, neurological and substance use disorders in non-specialized health settings: mental health Gap Action Programme (mhGAP). World Health Organization. https://www.who.int/publications/i/item/9789240084278
10. Mamun, M. A., Naher, S., Moonajilin, M. S., Jobayar, A. M., Rayhan, I., Kircaburun, K., & Griffiths, M. D. (2020). Depression literacy and awareness programs among Bangladeshi students: an online survey. Heliyon, 6(9), e04901.
11. Eisenberg, D., Downs, M. F., & Golberstein, E. (2012). Effects of contact with treatment users on mental illness stigma: Evidence from university roommate assignments. Social science & medicine, 75(6), 1122-1127.
12. Ribeiro, Í. J., Pereira, R., Freire, I. V., de Oliveira, B. G., Casotti, C. A., & Boery, E. N. (2018). Stress and quality of life among university students: A systematic literature review. Health Professions Education, 4(2), 70-77.

13. Johnson, J. A., Sanghvi, P., & Mehrotra, S. (2021). Technology-Based Interventions to Improve Help-Seeking for Mental Health Concerns: A Systematic Review. Indian Journal of Psychological Medicine, 44(4), 332-340. doi:10.1177/02537176211034578
14. Gorczynski, P., Sims-Schouten, W., Hill, D., & Wilson, J. C. (2017). Examining mental health literacy, help seeking behaviours, and mental health outcomes in UK university students. The Journal of Mental Health Training, Education and Practice.
15. Zolezzi, M., Bensmail, N., Zahrah, F., Khaled, S. M., & El-Gaili, T. (2017). Stigma associated with mental illness: perspectives of university students in Qatar. Neuropsychiatric disease and treatment, 13, 1221.
16. Pompeo-Fargnoli, A. (2022). Mental health stigma among college students: misperceptions of perceived and personal stigmas. Journal of American college health, 70(4), 1030-1039.
17. Byrne, P. (2000). Stigma of mental illness and ways of diminishing it. Advances in Psychiatric treatment, 6(1), 65-72.
18. Pedersen, E. R., & Paves, A. P. (2014). Comparing perceived public stigma and personal stigma of mental health treatment seeking in a young adult sample. Psychiatry research, 219(1), 143-150.
19. Selim, N., & Satalkar, P. (2008). Perceptions of mental illness in a Bangladesh village. BRAC University Journal, V, 47–57.
20. Davey, G., & Keya, M. (2009). Stigmatisation of people with mental illness in Bangladesh. Mental Health Practice, 13(3).
21. Hossain, A., Rehena, J., & Razia, M. S. (2018). Mental health disorders status in Bangladesh: a systematic review. JOJ Nursing & Health Care, 7(2), 664-667.
22. Moss, R. A., Gorczynski, P., Sims-Schouten, W., Heard-Laureote, K., & Creaton, J. (2022). Mental health and wellbeing of postgraduate researchers: exploring the relationship between mental health literacy, help-seeking behaviour, psychological distress, and wellbeing. Higher Education Research & Development, 41(4), 1168-1183.
23. Jorm, A. F. (2000). Mental health literacy: Public knowledge and beliefs about mental disorders. The British Journal of Psychiatry, 177(5), 396-401.
24. Uddin, M. N., Bhar, S., & Islam, F. M. A. (2019). An assessment of awareness of mental health conditions and its association with socio-demographic characteristics: a cross-sectional study in a rural district in Bangladesh. BMC Health Services Research, 19(1), 562. doi:10.1186/s12913-019-4385-6
25. Ahorsu, D. K., Sánchez Vidaña, D. I., Lipardo, D., Shah, P. B., Cruz González, P., Shende, S., . . . Ansari, T. Q. (2021). Effect of a peer-led intervention combining mental health promotion with coping-strategy-based workshops on mental health awareness, help-seeking behavior, and wellbeing among university students in Hong Kong. International journal of mental health systems, 15(1), 1-10.
26. Sontag-Padilla, L., Dunbar, M. S., Ye, F., Kase, C., Fein, R., Abelson, S., . . . Stein, B. D. (2018). Strengthening college students' mental health knowledge, awareness, and helping behaviors: the impact of active minds, a peer mental health organization. Journal of the American Academy of Child & Adolescent Psychiatry, 57(7), 500-507.
27. Griffiths, K. M., Carron-Arthur, B., Parsons, A., & Reid, R. (2014). Effectiveness of programs for reducing the stigma associated with mental disorders. A meta-analysis of randomized controlled trials. World psychiatry : official journal of the World Psychiatric Association (WPA), 13(2), 161–175. https://doi.org/10.1002/wps.20129
28. Thornicroft, G., Mehta, N., Clement, S., Evans-Lacko, S., Doherty, M., Rose, D., . . . Henderson, C. (2016). Evidence for effective interventions to reduce mental-health related stigma and discrimination. The Lancet, 387(10023), 1123-1132. doi:https://doi.org/10.1016/S0140-6736(15)00298-6
29. Nair, B., & Otaki, F. (2021). Promoting University Students' Mental Health: A Systematic Literature Review Introducing the 4M-Model of Individual-Level Interventions. Frontiers in Public Health, 9. doi:10.3389/fpubh.2021.699030
30. Baminiwatta, A., Alahakoon, H., Herath, N. C., Kodithuwakku, K. M., & Nanayakkara, T. (2023). Trait Mindfulness, Compassion, and Stigma Towards Patients with Mental Illness: A Study Among Nurses in Sri Lanka. Mindfulness, 14(4), 979–991. https://doi.org/10.1007/s12671-023-02108-5
31. Sampaio, F., Gonçalves, P., & Sequeira, C. (2022). Mental Health Literacy: It Is Now Time to Put Knowledge into Practice. International journal of environmental research and public health, 19(12), 7030. https://doi.org/10.3390/ijerph19127030
32. Li, L., Wang, L., Duan, Y., Xiao, P., Zhou, Y., Luo, X., ... & Cheng, A. S. (2023). Intelligent physical activity versus modified behavioral activation in adolescent and young adult cancer patients with psychological distress: A randomized, controlled pilot trial. Cancer Medicine, 12(2), 1935-1948.
33. Faul, F., Erdfelder, E., Buchner, A., & Lang, A.-G. (2009). Statistical power analyses using G* Power 3.1: Tests for correlation and regression analyses. Behavior research methods, 41(4), 1149-1160.
34. Day, E. N., Edgren, K., & Eshleman, A. (2007). Measuring stigma toward mental illness: Development and application of the mental illness stigma scale 1. Journal of applied social psychology, 37(10), 2191-2219.
35. Hammer, J. H., & Spiker, D. A. (2018). Dimensionality, reliability, and predictive evidence of validity for three help-seeking intention instruments: ISCI, GHSQ, and MHSIS. Journal of counseling psychology, 65(3), 394.

36. Hammer, J. H., Parent, M. C., & Spiker, D. A. (2018). Mental Help Seeking Attitudes Scale (MHSAS): Development, reliability, validity, and comparison with the ATSPPH-SF and IASMHS-PO. Journal of counseling psychology, 65(1), 74.
37. Kim H. Y. (2013). Statistical notes for clinical researchers: assessing normal distribution (2) using skewness and kurtosis. Restorative dentistry & endodontics, 38(1), 52–54. https://doi.org/10.5395/rde.2013.38.1.52
38. Field, A. (2013). Discovering statistics using IBM SPSS statistics. Sage publications limited.
39. Shahwan, S., Lau, J. H., Goh, C. M. J., Ong, W. J., Tan, G. T. H., Kwok, K. W., . . . Subramaniam, M. (2020). The potential impact of an anti-stigma intervention on mental health help-seeking attitudes among university students. BMC Psychiatry, 20(1), 562. doi:10.1186/s12888-020-02960-y
40. Howard, K. A., Griffiths, K. M., McKetin, R., & Ma, J. (2018). Can a brief biologically-based psychoeducational intervention reduce stigma and increase help-seeking intentions for depression in young people? A randomised controlled trial. Journal of Child & Adolescent Mental Health, 30(1), 27-39.
41. Park, S., Jeon, M., Lee, Y., Ko, Y.-M., & Kim, C. E. (2018). Influencing factors of attitudes toward seeking professional help for mental illness among Korean adults. International Journal of Social Psychiatry, 64(3), 286-292. doi:10.1177/0020764018760952
42. Berwick, A. C. (2013). Relationships between education, personality, change in personality traits, and the use of mental health services among middle-aged women over a 10-year time span (Doctoral dissertation, The University of North Carolina at Charlotte).
43. Xu, Z., Huang, F., Kösters, M., Staiger, T., Becker, T., Thornicroft, G., & Rüsch, N. (2018). Effectiveness of interventions to promote help-seeking for mental health problems: systematic review and meta-analysis. Psychological Medicine, 48(16), 2658-2667. doi:10.1017/S0033291718001265
44. Morgan, A. J., Reavley, N. J., Ross, A., San Too, L., & Jorm, A. F. (2018). Interventions to reduce stigma towards people with severe mental illness: Systematic review and meta-analysis. Journal of psychiatric research, 103, 120-133.
45. Baek, C. H., Kim, H. J., Park, H. Y., Seo, H. Y., Yoo, H., & Park, J. E. (2023). Influence of biogenetic explanations of mental disorders on stigma and help-seeking behavior: a systematic review and meta-analysis. Journal of Korean Medical Science, 38(3).
46. Clough, B. A., Nazareth, S. M., & Casey, L. M. (2020). Making the grade: a pilot investigation of an e-intervention to increase mental health literacy and help-seeking intentions among international university students. British Journal of Guidance & Counselling, 48(3), 347-359. doi:10.1080/03069885.2019.1673312
47. Hui, A., Wong, P. W.-C., & Fu, K.-W. (2015). Evaluation of an Online Campaign for Promoting Help-Seeking Attitudes for Depression Using a Facebook Advertisement: An Online Randomized Controlled Experiment. JMIR Mental Health, 2(1), e5. doi:10.2196/mental.3649
48. Livingston, J. D., Tugwell, A., Korf-Uzan, K., Cianfrone, M., & Coniglio, C. (2013). Evaluation of a campaign to improve awareness and attitudes of young people towards mental health issues. Social psychiatry and psychiatric epidemiology, 48(6), 965-973.
49. Corrigan, P. W. (2004). How stigma interferes with mental health care. American Psychologist, 59(7), 614–625. https://doi.org/10.1037/0003-066X.59.7.614
50. Vogel, D. L., Wade, N. G., & Hackler, A. H. (2007). Perceived public stigma and the willingness to seek counseling: The mediating roles of self-stigma and attitudes toward counseling. Journal of Counseling Psychology, 54(1), 40–50. https://doi.org/10.1037/0022-0167.54.1.40
51. Rickwood, D., Deane, F. P., Wilson, C. J., & Ciarrochi, J. (2005). Young people's help-seeking for mental health problems. Australian e-Journal for the Advancement of Mental Health, 4(3), 218–251. https://doi.org/10.5172/jamh.4.3.218
52. Gulliver, A., Griffiths, K. M., & Christensen, H. (2010). Perceived barriers and facilitators to mental health help-seeking in young people: A systematic review. BMC Psychiatry, 10, 113. https://doi.org/10.1186/1471-244X-10-113
53. Dias, P., Campos, L., Almeida, H., & Palha, F. (2018). Mental Health Literacy in Young Adults: Adaptation and Psychometric Properties of the Mental Health Literacy Questionnaire. International journal of environmental research and public health, 15(7), 1318. https://doi.org/10.3390/ijerph15071318
54. Albert, B., & Tullis, T. (2022). Measuring the User Experience: Collecting, Analyzing, and Presenting UX Metrics, Third Edition (Third Edition). Elsevier Science and Technology Books, Inc. https://www.sciencedirect.com/science/article/abs/pii/B9780128180808000054?via%3Dihub
55. Heerde, J. A., & Hemphill, S. A. (2018). Examination of associations between informal help-seeking behavior, social support, and adolescent psychosocial outcomes: A meta-analysis. Developmental Review, 47, 44-62.