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ORIGINAL RESEARCH

Predictors of Mental Health Literacy and Information Seeking Behavior Toward Mental Health Among University Students in Resource-Limited Settings

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Background: This paper investigated mental health literacy level and information seeking behavior, and mental health-related information sources in limited-resource settings, in the case of Ethiopian university students.

Methods: A cross-sectional, self-administered web-based survey was conducted among Dilla University students, from 1 January to 29 February 2022, with a total of 780 respondents. We presented descriptive statistics using mean, standard deviations, and proportions. Bivariate and multivariate logistic regression were employed to identify factors associated with mental health literacy and information seeking behavior of students. Further, path analysis was also employed.

Results: The result showed 71 (9.1%) respondents had a diagnosed history of mental illness. Overall, 397 (50.9%) respondents were identified as having adequate mental health literacy and 420 (53.8%) sought mental health information. In multivariate analysis, mental health literacy was significantly associated with: being female (AOR = 2.8; 95% CI (1.5–5.4)), higher digital health literacy (AOR=2.8; 95% CI (1.5–5.4), seeking mental health-related information (AOR=1.6; 95% CI: (1.1–2.5)), having family with mental illness, and students in health-related programs (AOR = 2.1; 95% CI (1.0–4.2)). Furthermore, health-related programs, level of mental health literacy, exposure to mental health problems in the family, and were associated with information seeking behavior regarding mental health. Further, path analysis revealed significant positive associations of information seeking behavior and digital health literacy with mental health literacy.

Conclusion: The result indicated the status of university students' mental health literacy level and information seeking behavior were low and inadequate. This study suggests the need to improve students' digital health competencies by designing mental health literacy programs by collaboration of different stakeholders, and mental health literacy programs need to optimize access to internet and online resources in the university settings.

Keywords: mental health, mental health literacy, information seeking, information source, university students

Introduction

Mental health disorders are an increasing public health concern worldwide, especially among adults aged 15 to 44.[1,2] Literature is replete with evidence that shows the prevalence of mental health disorders is higher among university or college students than the general population.[3–6] Despite this, rates of mental health problems among college students are increasing.[3,7] These students encounter significant obstacles in getting help, including a lack of understanding and negative attitudes regarding mental diseases and their treatment, fear of stigma, and limited access to adequate care.[8–10]

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Furthermore, they may fear that admitting having mental health issues may affect their professional growth or rights, so they put-off obtaining help.[7,11,12]

In Ethiopia, the prevalence of mental health disorders in college students has been estimated to range between 22–49%.[6,13–17] Recent meta-analysis clearly showed that mental health problems were prevalent among 37.73% of college students in Ethiopia.[18] Despite this, medical services coverage for mental illness is less than 65% in Ethiopia. Therefore, it is essential for students to have access to information about mental health, as well as information on mental health related issues, through their preferred information sources.

Mental health literacy (MHL) and mental health information seeking behavior can play an effective role in promotion of individuals' mental health status and can shape their mental health awareness.[19–21] MHL is defined as the knowledge and attitude that help aid recognition, management, and prevention of mental health issues.[20,22] The use of information and communication technologies or e-mental health to deliver mental health information and assistance has been shown to be effective.[9,10,12,23–27] For example, in the United Kingdom, an evidence-based Mental Health First Aid e-learning course[25] and the Canadian Transitions program,[28] which were combined with an e-mental health resource, improved mental health knowledge, reduced stigma, improved positive attitudes toward seeking help, increased help-seeking behavior, and decreased stress. This suggests that, in terms of enhancing mental health literacy among university students, a digital means-based strategy is more effective than a direct program-based intervention.

Previous studies showed that MHL level of students was associated with socio-demographic characteristics such as, gender,[29,30] age,[29] education level[31,32] and faculty of study,[10,30,33] and previous history of mental illness and history of illness in the family were significantly associated with higher level of literacy about mental health.[31,32,34,35] Furthermore, digital or electronic health literacy, online searching behavior, mental health information seeking behavior, and help seeking behavior were significantly associated with MHL level.[10,23,33,36–38] Moreover, evidence indicates that infrastructure conditions, internet quality, poverty, and exposure to mental illness such as treatment exposure can drastically alter the literacy level toward mental health; in summary, demographic, technological, and behavioral deterrents for MHL level were evident in the previous research.[9,19,28–34,38–45] Furthermore, known predictors of information seeking behavior regarding mental health include, gender,[35] exposure to mental health problems,[10,31,35] awareness, technical skill,[31,32,35] availability of resources and support, online health information seeking behavior, credibility of the resources,[46] MHL,[31,32,37] and computer literacy, have been highlighted in the literature.[10,27,36,37,46–51]

In developing countries like Ethiopia, information seeking behavior and information use culture for improving the health of individuals and the communities are limited.[4,5,11,52] As a result, many students arrive at university with minimal knowledge of mental health issues. Hence, there is an urgent need to design appropriate interventions in order to address the reported magnitude of mental health disorders in the higher education setting.[26,53–55] However, these issues are not well-explored in resource-limited settings like Ethiopia. Thus, we set out to determine the level of mental health literacy and information seeking behavior, as well as the factors that influence these indicators. This research will be used to provide a baseline for understanding potential ways of interventions for supporting mental health knowledge advancement, information provision, and devising future interventions to improve them.

Methods and Materials

Study Area

The study was conducted at Dilla University, Gedeo Zone, Southern Ethiopia. It is located on the main road from Addis Ababa to Kenya, 360 km south of Addis Ababa and 90 km south of Hawassa (capital of SNNPR). The university has three campuses, six colleges, three schools, and two institutes offering undergraduate and postgraduate programs, there are over 31,000 university students in these colleges of Dilla University. All students studying at Dilla University were eligible to participate in this survey.

Study Design and Study Subjects

A cross-sectional survey was used to assess the mental health literacy and information seeking behavior: Digital health literacy among university students in Ethiopia. The survey was conducted from 1 January to 29 February 2022, in

Ethiopia. The enrollees of this survey were from all colleges of Dilla University, in Dilla town, Ethiopia. Data were collected using an online self-reported questionnaire using Google Form. This survey protocol was approved by the Institutional Review Board (IRB) at Dilla University (duirb/004/2021). Furthermore, we performed the present study following the CHERRIES (Checklist for Reporting Results of Internet E-Surveys) guidelines.[56]

The study population comprised all students across all colleges of Dilla University, by using convenience sampling technique. The participants were informed that their participation was voluntary and no incentive was provided for their completion of the questionnaire. Different online media such as Google Classroom, Facebook, WhatsApp, Email services were used for this purpose. Thus, a total of 780 students who participated and completed the survey were included in the final analysis.

Measurements

The questionnaire was developed through literature searches of previously validated questionnaires.[7,10,23,31–34,37,39,46,57] The content of the tool was prepared to gather information about the respondents' socio-demographic and mental health status, mental health literacy, online information-seeking behaviors, and item-related digital competency.

The questionnaire was divided into 4 sections. The first section covered respondents' socio-demographic information, such as age, gender, level of study, mental health status, and mental health history. The second section examined respondents' mental health literacy,[29,38,45,58] consisting of 13 items used to assess the knowledge of where to seek information, knowledge of causes, knowledge of professional help availability, and attitudes that promote recognition or appropriate help-seeking behavior. Each item in this section had alternatives ranging from strongly disagree (1) to strongly agree (5) on a 5-point Likert Scale, a reverse score was done to all items negatively phrased with higher scores indicating higher mental health literacy. The total score was calculated by adding all items with a score ranging from 13 to 65. Finally, median splits were used to divide the overall mental health literacy score into two categories (high and low).

The second section, Mental Health Literacy (MHL), tapped into personal views about knowledge of where to seek information, knowledge of causes, knowledge of professional help availability, and attitudes that promote recognition or appropriate help-seeking behavior. The scale consists of 13 items with 5-point Likert response scale (strongly disagree – strongly agree). The third section covered items dealing with mental health information seeking and was examined in the third portion of the questionnaire with one item: "Have you looked for information about mental health related issues?" Finally, "seekers" were respondents who said "yes" to seeking mental health related information. Furthermore, a 5-point Likert scale response was used to analyze a question adapted from a prior study that indicates the frequency of respondents' mental health information-seeking habits in the previous 12 months. Following that, respondents' online mental health information-seeking activities were evaluated, with an emphasis on the sources used to obtain online information about mental health and mental health-related issues. The question "How long do you use the Internet per day?" was used to gauge internet usage in this section. In addition, respondents' use of internet sources for mental health was measured by two questions: "How often have you looked for mental health related information from the Internet in the last 12 months?" and "How often have you looked for mental health related information from the Internet in the last 1 month?". Following this question, respondents were given a 10-item list of different information sources (such as search engines, websites of public health bodies, government agencies, and social media providers) that focused on mental health and health-related topics, with the frequency of use rated on a 5-point scale (0, do not know; 4, frequently).[7,32,37]

The final section aimed to investigate the participants' digital health literacy level.[36] Digital health literacy was assessed using a 15-item questionnaire encompassing five of the seven subscale measures which was adopted from the validated Digital Health Literacy Instrument (DHLI): areas are: information searching, adding self-generated contents, evaluating reliability, determining relevance, and privacy. Each subscale included three items to be answered on a 4-point scale (eg, 1, very difficult; 4, very easy). Finally, median splits were used to dichotomize all DHLI subscales.

In this study, the reliability of the questionnaire was obtained by estimating Cronbach's Alpha coefficients value for every single construct used in this research, as shown in Table 1. The Cronbach's Alpha co-efficient for the scale measuring Mental health literacy, Online information seeking behavior, and Digital Health Literacy was 0.87, 0.62, and 0.84 respectively.

Table 1 Results of Measurements' Reliability

Measurements	Items	Cronbach's Alpha (α)
Mental health literacy	13	0.876
Online mental health information seeking behavior	3	0.621
Digital Health Literacy	15	0.842

Data Collection Method

The introductory paragraph of the questionnaire explained the study's aim to assess the Mental health literacy and Information Seeking Behavior on Mental Health. Participants were assured of their rights to confidentiality and self-autonomy, and that results would only be used for research purposes. Then, using the Google survey tool (Google Forms), a semi-structured questionnaire was implemented and a shareable link was created and disseminated to gather data between January 1 and February 29, 2022. The questionnaire was disseminated to the students through the class social media platforms and was emailed to class representatives as well as student associations in the university. The class representatives were first taken through the questionnaire to ensure familiarity and ease of handling. The survey was widely promoted by relevant student organizations and clubs, with the questionnaire link being uploaded and publicized on their social media platforms. Furthermore, the link was sent to the investigators' and research assistants' personal contact lists, and a request was made to students who have completed the survey to disseminate the link to their contacts who are students across all the colleges of Dilla University, Ethiopia.

The questionnaire was filled anonymously, voluntarily, and with written consent given by all respondents. To avoid duplicate responses, all participants were required to log into their email accounts, but personal information like name, identification number, email address and digital signature was not collected to ensure the respondents' anonymity.

Data Processing and Analysis

The submitted responses were downloaded from Google Forms managed with the MS Excel data from and then transferred to STATA version 14.2 for analysis. Descriptive analysis was carried out, categorical data were presented as frequency and percentages, while continuous data as means or medians along with the appropriate measure of dispersion according to the normality of data distribution as tested with Kolmogorov–Smirnov tests. Then, bi-variable analysis was done to examine the association of outcome measures and independent variables, and variables having p-value ≤0.2 were entered into the multivariable logistic regression model for further analysis by controlling confounding factors. Analytical statistics were performed with 95% confidence intervals (CIs) and odds ratios (ORs), which were obtained using logistic regression.

Further, path analysis was used to examine the relationships between mental health literacy, online information-seeking behaviors, and digital competency, as well as the their relationships with previous history mental health status. Confirmatory factor analysis was used to identify the relationships between the variables and group them into a single factor that was derived from the ten survey questions. The model's goodness of fit was determined using four measures of fit: relative chi-square (x2/df), normed fit index (NFI), comparative fit index (CFI) and root-mean-squared error associated (RMSEA). All statistical analyses were conducted at 0.05 α level.

Ethics Statement

The survey procedure was approved and received ethical approval from the IRB of Dilla University (duirb/004/2021), and it was carried out following the Declaration of Helsinki guidelines. All the required information such as consent, confidentiality and objectives of the survey were described on the first page of the survey. Further, in order to maintain confidentiality, the collected data did not provide any personal information about the participants and were only used for research purposes.

Results

Characteristics of Study Participants

The survey link was distributed among Dilla University students between January 1 and February 29, 2022, and the analysis included a total of 780 students who agreed and completed the poll. As shown in Table 2, the participants' average age was 23.9 years, with a standard deviation of 4.5 years. The majority of the participants (482 (61.8)) were between the age of 21–23 years and 488 (62.6%) were men. 738 (94.6%) of the total responses were from undergraduate (Bachelor) students, while the rest were from post-graduate students. With reference to history of illness or exposure to mental illness, 71 (9.1%) respondents indicated they had been diagnosed with mental illness. 130 (16.7%) respondents revealed having immediate family member with a history of mental illness in this survey. (See Table 2 for detail).

Mental Health Literacy of Respondents

In terms of mental health literacy among university students, the median attitude score was 35, with a standard deviation of 11.4. As a result, 397 (50.9%) of the 780 respondents were recognized as having high mental health literacy or scores better than or equal to the median value. Furthermore, the maximum and minimum scores of respondents in the study were 13 and 58, respectively (Table 3).

Table 2 Socio-Demographic Characteristic of the Respondents

Variable	Characteristics	Frequency
Age	≤20 years	71(9.1)
	21–23 years	482(61.8)
	>24 years	227(29.1)
Gender	Male	488 (62.6%)
	Female	292(37.4)
Program	Bachelor's	738 (94.6%)
	Master's or higher	42 (5.4)
	Art and Social Science	160(20.5)
Field of study	Agriculture	125(16.1)
	Engineering	250(32)
	Medical/Health science	245(31.4)
Year of study	≤Second year	261(33.4)
	≥Third year	519(66.6)
Ever diagnosed with a mental illness	Yes	71(9.1)
	No	709(90.9)
Received treatment for a mental health concern	Yes	71(9.1)
	No	709(90.9)
Have an immediate family member with a mental illness	Yes	130(16.7)
	No	650(83.3)
Health Club participation	Yes	130(22.7)
	No	650(83.3)

Table 3 Distribution of Mental Health Literacy Measurements

Items	Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
I am confident that I know where to seek information about mental illness	14(1.85)	101(13)	115(14.8)	404(51.8)	144(18.5)
I am confident using the computer or telephone to seek information about mental illness	29(3.7)	73(9.3)	73(9.3)	405(51.9)	202(25.9)
I am confident attending face to face appointments to seek information about mental illness (eg, seeing a general practitioner).	14(1.85)	101(13)	115(14.8)	405(51.9)	144(18.5)
I am confident I have access to resources (eg, general practitioner, internet, friends) that I can use to seek information about mental illness	0(0)	59(7.55)	176(22.6)	412(52.8)	132(16.9)
People with a mental illness could snap out of it if they wanted	101(13)	217(27.8)	173(22.2)	217(27.8)	73(9.3)
A mental illness is a sign of personal weakness	309(39.6)	339(43.4)	44(5.7)	29(3.7)	59(7.6)
A mental illness is not a real medical issue	390(50.0)	21(29.6)	101(13)	29(3.7)	29(3.7)
People with a mental illness are dangerous	130(16.7)	260(33.3)	159(20.4)	188(24.1)	44(5.6)
It is best to avoid people with a mental illness so that you do not develop this problem	361(46.3)	260(33.3)	73(9.3)	73(9.3)	15(1.9)
If I had a mental illness I would not tell anyone	280(35.9)	368(47.2)	73(9.4)	44(5.7)	15(1.9)
Seeing a mental health professional means you are not strong enough to manage your own difficulties	339(43.4)	264(33.9)	88(11.3)	59(7.6)	30(3.8)
If I had a mental illness, I would not seek help from a mental health professional	376(48.2)	288(37.0)	58(7.4)	44(5.6)	14(1.85)
I believe treatment for a mental illness, provided by a mental health professional, would not be effective	255(32.7)	355(45.5)	85(10.9)	71(9.1)	14(1.85)

Overall mental health literacy level	Categories	Frequency	Percentage
	High (score:≥35)	n=397	50.9%
	Low (score:<35)	n=383	49.1%

Path Analysis

In this study, path analysis was used to examine the relationships between mental health literacy, online mental health information-seeking behaviors, digital competency, and previous history mental health status (Figure 1). Results of this analysis revealed a significant positive relationship between online mental health information-seeking behaviors and mental health literacy ($\beta = 0.24$, $p < 0.001$). The results also showed digital competency has a significant positive relationship with mental health literacy ($\beta = 0.12$, $p < 0.001$). Furthermore, previous history of mental illness also had significant positive relationships with mental health literacy ($\beta = 0.12$, $p < 0.001$).

However, the impact of digital competency and previous history of mental illness was not significant on online mental health information-seeking behaviors and vice versa. The final model fit indices showed RMSEA= 0.020, CIF=0.952, NFI = 0.677, CMIN/df, = 1.022, indicating a relatively satisfactory model fit to data.

Information-seeking Behavior Regarding Mental Health Among Dilla University Students

According to Table 4, all students utilized the internet on a daily basis; of the total respondents, 424 (54.4%) spent more than 3 and a half hours each day on the internet. Only 420 (53.8%) students sought mental health information out of the total respondents. In terms of mental health information seeking, 14.5% and 30.9% of students revealed that they had engaged in mental health-related information searching in the previous twelve months. On the other hand, 39.3% of them said they had never looked for mental health information on the internet in the previous year.

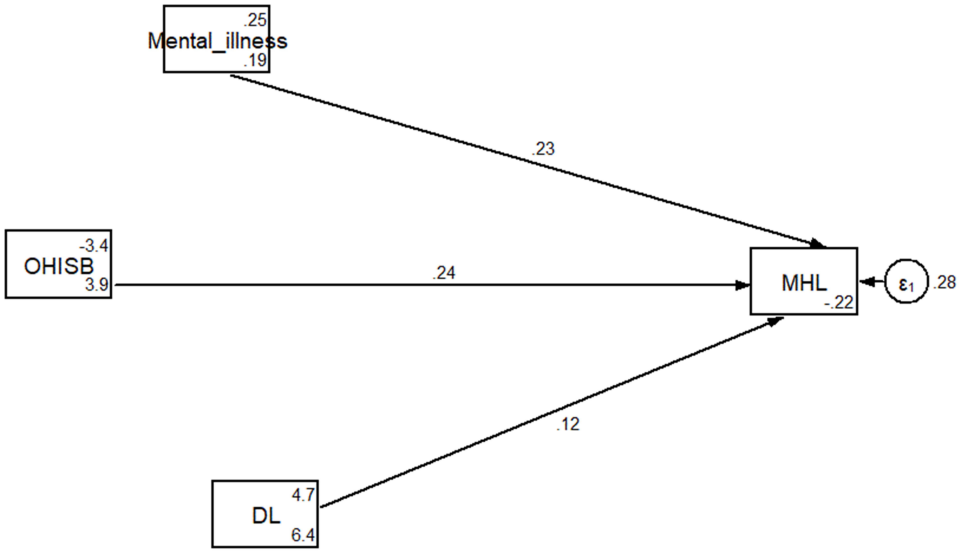

Figure 1 Path diagram of mental health literacy.

Assessment of Utilization and Sources of Health Information Among Study Participants

As shown in Figure 2, in this poll, 175 (41.8%), 69 (16.4%), and 109 (24.9%) respondents said they frequently used search engines, websites, and other web-based sources for mental health information, respectively. In addition, 183 (43.6%), 206 (49.5%), and 107 (25.5%) students said they got health information from social media, YouTube, and blogs, respectively. When asked about the practice of getting mental health information from support communities, only 85 (20.4%) said they have done so. Websites of physicians, family or friends, and news portals were among the other mental health-related information sources used by respondents.

Table 4 Status of Information Seeking Behavior Regarding Mental Health

Measurements	Total n	Percentage %
In the past 12 months, how often have you looked for mental health related information		
Almost always	61	14.5
To a considerable degree	130	30.9
Occasionally	99	23.6
Seldom	107	25.5
Don´t know	23	5.5
In the past 12 months, how often have you looked for mental health related information from the Internet		
Often	62	14.8
Sometimes	163	38.9
Rarely	92	22.2
Never	39	9.3
Don´t know	62	14.8

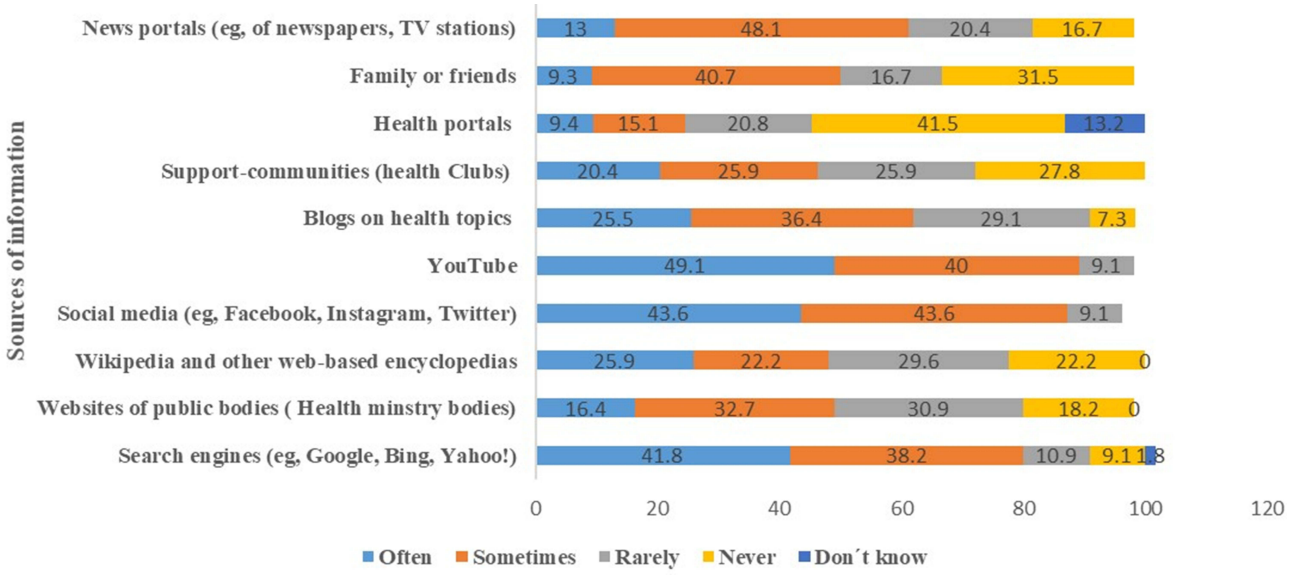

Figure 2 Frequently used sources for mental health information by Dilla University students, 2022.

Digital Health Literacy Level of Dilla University Students

As shown in Figure 3, from the total participants, 454 (58.2%) respondents had high digital health literacy level. 245 (58.2%) respondents had adequate digital literacy level, of which 285 (62.8%) showed adequate or high mental health literacy.

Factors Associated with the Mental Health Literacy of Respondents

In univariate analysis, the following variables were found to have a significant association with mental health literacy: age, gender, year of study, field of study, history of mental illness, frequently searching for mental health-related information, having a family member with a mental illness, and digital literacy of students at Dilla University, Ethiopia, 2022 (Table 5).

Furthermore, the results of multivariable analysis are shown in the last column of Table 5, findings revealed strong positive correlation between having high mental health literacy and students' digital competency (adequate digital

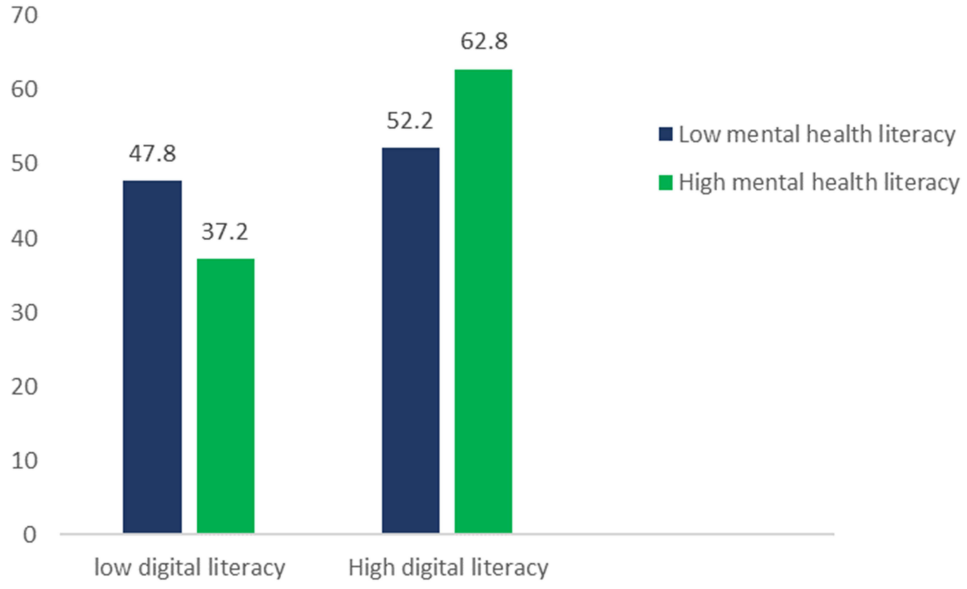

Figure 3 Digital health literacy level of Dilla University students, Ethiopia, 2022.

Table 5 Bi-Variable and Multivariate Analysis of Factors Associated with Level of Mental Health Literacy Among Dilla University Students (n=780)

Factors	COR	95% CI	p-value	AOR	95% CI	p-value
Age (years)						
≤20 years	1	1	1	1	1	1
21–23 years	1.4	1.1–2.2	0.002	1	0.9–1.3	0.6
> 24 years	1.3	0.8–2.5	0.264	1	0.4–2.9	0.8
Gender						
Female	2.5	1.4–4.5	0.003*	2.8	1.5–5.4	0.002*
Male	1	1	1	1	1	1
Year of study						
≤Second year	1	1	1	1	1	1
≥Third year	1.5	0.7–3.3	0.269	1.4	0.6–3.2	0.457
Field of study						
Health-related	1.9	1.0–3.6	0.050*	2.1	1.0–4.2	0.037*
Non-health-related	1	1	1	1	1	1
Digital health literacy						
High	2.1	1.4–3.1*	0.015	1.9	1.2–3.3**	0.000
Low	1	1	1	1	1	1
Searched for mental health information through the internet						
Frequently	2.7	1.7–8.2	0.013*	1.6	1.1–2.5	0.023
Occasionally	3.0	1.1–7.7	0.022*	2.3	0.9–5.8	0.056
Not at all	1	1	1	1	1	1
History of mental illness						
No	1	1	1	1	1	1
Yes	1.6	0.7–3.9	0.288	1.6	0.6–4.1	0.314
Have an immediate family member with a mental illness						
No	1	1	1	1	1	1
Yes	1.8	1.5–4.9	0.022*	3.6	1.1–11.4	0.031*

Note: *Indicates significant association with the dependent variable (P<0.05).

literacy; AOR=1.9, CI:1.2–3.3), and (frequently searching; AOR=1.6, CI: 1.1–2.5) mental health-related information. Similarly, regarding gender of respondents, the odds of having high mental health literacy were 2.8 times higher among female respondents [AOR = 2.8; 95% CI (1.5–5.4)], compared to their male counterparts. In terms of field of study, health related fields were found to have significant influence on mental health literacy level, compared to non-health students, health science students had 2.1 times higher odds of having high mental health literacy [AOR = 1.8; 95% CI (1.0–4.2)]. Respondents' exposure to mental illness was also found to have significant influence on mental health literacy

level. Furthermore, our findings revealed that having an immediate family member with a mental illness was associated with higher mental health literacy, conversely, previous history of mental illness was found to be insignificant.

Factors Associated with Mental Health Information Seeking Behavior of Respondents

Age, gender, year of study, field of study, digital literacy, history of mental illness, having a family member with a mental illness, internet uptake, and health club involvement of respondents were variables affecting mental health information seeking during bi-variable analysis. In a multi-variable analysis, however, only mental health literacy, field of study, and having a family member with a mental illness were found to be substantially linked with respondents seeking internet health information. For more information, see Table 6.

In our survey, respondents who had adequate mental health literacy were 1.7 times more likely to seek mental health information compared to those with limited mental health literacy (AOR=1.7 95% CI[1.1–2.8]). Regarding field of study, students in health-related programs were 1.95 times more likely to seek mental health information compared to non-health related program students (AOR=1.9, 95% CI[1.2–3.3]). Similarly, those who have family member with a mental illness were 1.71 times more likely to seek mental health information compared to those who do not have immediate

Table 6 Univariate and Multivariate Logistic Regression Model for Mental Health Information Seeking Behavior Among Dilla University Students, Ethiopia, 2022

Variables	Category	COR (95% CI)	AOR (95% CI)
Field of study	Health-related	2.1(1.4_3.1)*	1.9(1.2_3.3)**
	Non-health-related	1	1
Gender	Male	1	1
	Female	1.4(0.9_2.1)*	0.8(0.5_1.4)
Age	≤20 years	1	1
	21–23 years	1.2(0.8_1.9)	1.1(0.6_1.9)
	> 24 years	1.0(0.5_1.9)	0.8(0.3_1.7)
Year of study	≤Second year	1	1
	≥Third year	1.5(1.0_2.3)*	1.7(1.1_2.8)**
Digital health literacy	High	1	1
	Low	2.2(1.5_3.4)*	1.1(0.6_1.9)
Mental health literacy	High	1.5(1.0_2.3)*	1.7(1.1_2.8)**
History of mental illness	Low	1	1
	No	1	1
	Yes	1.9(1.1_3.2)*	1.6(0.8_2.9)
Have an immediate family member with a mental illness	No	1	1
	Yes	3.2(2.1_4.8)*	2.2(1.1_4.2)**
Daily internet utilization	3and half below hour	1	1
	Above 3and half hour	1.3(0.9_1.9)*	1.2(0.7_1.9)
Health Club participation	No	1	1
	Yes	1.6(0.8_3.1)*	1.2(0.5 2.7)

Note: *p<0.2,**p<0.05,1=reference, Hosmer and Lemeshow test p=0.49.

family member with a mental illness (AOR=2.2 95% CI[1.1–4.2]), and also positive associations were observed between digital competency and respondents' mental health information seeking (Table 6).

Discussion

There has been considerable evidence that shows mental health literacy (MHL) and mental health information seeking behavior can play an effective role in promotion of mental health status and shape mental health awareness. As part of a mental health response and promotion to increase mental health disorder awareness levels at the university level and youth, the MHL level and other factors associated with it are considered important indicators of mental health promotion. This study evaluated mental health literacy and information seeking behaviors among university students in Ethiopia, in the period between 1 January and 29 February 2022. The result from this study was used to pick out the feasible mental health and health-related information sources preferred by the university students.

In the present study, 71 (9.1%) respondents had been diagnosed with mental illness prior to the survey. Overall, given the mental health-related problems among university students in our study, the results highlighted the fact that only 50.9% of respondents had adequate literacy about mental health. These findings show the mental health literacy level of students in Dilla University was lower than the 70% in the survey conducted in Australia,[29] and also Saudi Arabia.[58] This was comparable to the 50% in a Turkish survey,[59] Nigeria,[30] and United Kingdom (UK) survey.[35] This is also slightly higher than some findings.[38] This implies the need of various interventions including continuous implementations of mental health literacy programs in the university settings is crucial.

With regards to mental health information seeking, findings in this study indicated that 53.8 (CI = 50.3, 58.9) of the university students sought mental health related information. This is lower than previous findings.[29,38] With regards to the frequency of mental health information seeking from different information sources in the past 12 months, this highlights the need for additional efforts to improve mental health promotion in the university settings.

Multivariate analysis findings indicated that gender, digital health literacy, field of study, and exposure to mental illness such as having an immediate family member with a mental illness were significantly associated with mental health literacy level of students. Our findings indicated that mental health literacy was higher among respondents who had adequate digital health literacy. This finding is in line with other research studies which indicated digital competency could result in increased mental health literacy level.[7,33,39] Respondents' field of study was also found to have a significant influence on the mental health literacy status. This finding is in line with other studies which indicate a positive correlation between students' category of health science and mental health literacy level.[7,34] Furthermore, students' exposure to mental illness in the family showed a positive correlation with their mental health literacy, this is in line with previous findings.[29,31–33] On the other hand, in others findings, males showed better mental health literacy level,[29] which is contrary to our and others' findings.[33,59]

Regarding mental health information seeking, this survey showed that mental health information seeking behavior was significantly associated with respondents: who are in health-related programs, had high mental health literacy, and those who had encountered mental health problems in family members. Previous findings also indicated a positive correlation between students in health-related programs and their mental health information seeking behavior, this could be due to the fact that this same group of respondents was associated with having more training regarding mental health illness prevention and treatment.[7,32,33] Furthermore, consistent with other studies,[19,31–33,43] high mental health literacy level shows a positive association with respondents' mental health information seeking. This finding might also be explained by the fact that students are not aware of the availability of sources so they seek other help such as religious healing applications.[33] This implies that interventions and programs in the provision of a mental health service could have been improved through effective public health interventions such as training and awareness creation.

Based on the findings of path analysis, this study showed that online mental health information-seeking behaviors and digital competency positively influenced students' mental health literacy. This was in line with earlier MHL frameworks that suggested a connection between information-seeking behaviors and digital competency,[21,26,32,35,46] which discovered that improved or higher level of digital competency and information seeking could result in better level of mental health literacy. Additionally, the results of this study demonstrate a strong positive correlation of mental health literacy with previous history of mental illness.

Overall, this study has the following strengths. First, despite the magnitude of mental health problems among university students, limited evidence is available regarding mental health literacy and mental health information seeking behavior. These results will be useful to understand the status of students' mental health literacy and their information seeking behavior, to develop communication and intervention strategies with respect to students' context and preference. Thus, this survey provided insight and valuable data for policy makers in resource-limited areas which could be used to address current challenges and for effective planning of similar mental health-related programs in the future. Although we believe this study will greatly contribute to our understanding of mental health literacy and information seeking behavior among university students, particularly in resource-limited settings, some of the study's limitations must be considered when interpreting the findings. Because the poll was done using Google Forms and the link was circulated via email and other media platforms, university students with limited digital skills or who use the internet infrequently may have been less likely to participate. Also, the nature of observational data makes it difficult to discern causation between the independent and dependent variables.

Conclusion

This study tried to discover university students' mental health literacy status and their information seeking behaviors and uptake and utilization of digital or online resources for mental health and health related issues in limited-resource settings, in the case of Ethiopia. Mental health is a significant health issue, hence understanding mental health literacy and information seeking behaviors are considered as a key component to enhance mental health service provision and awareness creation by further employing digital technologies.

The result indicated the status of students' mental health literacy level and information seeking behaviors was low and inadequate. In the regression analysis, we saw that good digital health competencies, previous history of mental illness, being female and senior student were found to be the most significant factors for mental health literacy level; and their mental information seeking behaviors were influenced by mental health literacy status, having exposure to mental illness due to family, student background of health-related programs. Therefore, in order to protect students continuously, implementation of mental health literacy programs need to be continued and established by collaboration of different stakeholders. Likewise, factors which hinder mental health information seeking behavior could be used in the future to tailor strategies in low-income countries.

Data Sharing Statement

The datasets used and analyzed during the current study are available from the corresponding author on reasonable request.

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Author Contributions

All authors made substantial contributions to conception and design, acquisition of data, or analysis and interpretation of data; took part in drafting the article or revising it critically for important intellectual content; agreed to submit to the current journal; gave final approval of the version to be published; and agree to be accountable for all aspects of the work.

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