Evaluation of the Usability and User Experience of a Digital Platform for Mental Health Assessment

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***Abstract*—This study evaluated the usability and user experience of a mental health digital platform among college students. Usability tests were conducted using quantitative measures, user feedback, and direct observations. User experience is also aimed at gaining insights of what works and what does not work in the system. A total of 3,396 second year students participated in the assessment with university guidance counselors serving as facilitators. Results from the usability test indicated an above- average score among students suggesting high satisfaction in terms of ease-of-use, well-integrated functions, and performance. Strengths of the platform generated from the users' feedback are effectiveness and efficiency, ease of use, innovation, organization and structure, and reliability and performance. Further enhancements in functionality, including loading time, usability, readability, language preference, and lengthy questionnaires, were identified as key concerns among respondents. These findings highlight the usability of the platform while also identifying areas for improvement to ensure continuous engagement and user-friendly experience for users.**

***Keywords*—Mental health; usability testing; user experience; mental health assessment; digital platform**

I. Introduction

Mental health is a pressing issue that encompasses emotional, psychological, and social well-being of an individual. It influences how a person handles stress, relates to others, makes choices and navigates daily life. Mental health is vital at every stage of life from childhood, adolescence through adulthood and that everyone should be aware of it. However, access to mental health support remains a challenge, particularly for students who may have faced academic pressure, social challenges, and personal struggles.

In the Philippines, while Mental Health Law or Republic Act 11036 was legislated to provide affordable and accessible mental services for all Filipinos [1], several individuals still have suffered from mental illnesses, contributing to an alarming incidence. More than 720,000 people die by suicide each year, making it the third leading cause of death among individuals aged 15 to 29 [2]. The National Statistics Office (NSO) reported that mental health illnesses rank as the third most common form of morbidity in the country [3]. Furthermore, the study in [4] highlighted the growing prevalence of mental health concerns among college students and adolescents, underscoring the critical need for mental health awareness and intervention in this demographic.

Usability evaluation is a key component of user-centered design, aimed at assessing the effectiveness, efficiency, and user satisfaction of a product or service. The study in [5] emphasize that usability evaluation extends beyond traditional task analysis by examining the systemic aspects of user interaction with complex systems. Its goal is to ensure that the system's information content and presentation effectively support user activities, particularly in process control contexts. Usability evaluation provides several advantages during the design and development process.

This study aimed to assess the usability and experience of a mental health assessment platform designed for college students. Different factors such as ease of navigation, need of technical assistance, system integration, and perceived usability were considered. With this, it would help encourage adoption and engagement of the mental health application. The result of this study will also help academics, stakeholders, and developers to improve the application for sustained use in supporting college students with mental health problems.

II. Overview of the Mental Health Assessment Digital Platform

Mental health assessment particularly in a university with thousands of students is crucial for identifying students who may be experiencing psychological distress. Early detection allows for prompt intervention to mitigate the risk of developing further mental health issues. Guidance counselors in universities in the Philippines conduct assessments for students, and the process of scoring and computing individual mental health assessment results for multiple instruments demands considerable work and time. At a particular university in the country, psychologists use Statistical Package for the Social Sciences (SPSS) by IBM for data analysis and visualization, MS Excel for data capture, and MS Word for representing psychosocial scales or assessment tools. While SPSS efficiently handles calculations and visualization, its graphical outputs are sometimes lacking in quality or customization. In such cases, they manually input SPSS-generated data into MS Excel for further analysis to meet their visualization needs. This process extends the time required for assessment and analysis. The inefficiencies in the existing system not only slow down the response time but also contribute to the growing challenge of addressing students' mental health concerns in a timely manner.

Thus the development of a mental health assessment platform to assess the process from assessment to generation of results. The platform is primarily developed for students to take scheduled assessments set by the Guidance and Counseling Center. Additionally, it automates score calculations and provides data visualizations for counselors or psychologists. The

development of the digital platform underwent three iterations each aimed to meet the primary needs of users in terms of functionality, usability, and experience. Guidance counselors, psychologists, and students were part of each iteration test. Major features of the platform are presented in Table I.

TABLE I MAJOR FEATURES OF THE MENTAL HEALTH ASSESSMENT DIGITAL PLATFORM

Features/Functionality	Description
User Profile	User health profiles and user registration details
Data Visualization and Reporting (see Appendix A)	Interactive dashboard for trends and patterns visible for system administrators, psychologists, and guidance counselors.
Risk Analysis Module (See Appendix B)	Automated scoring and interpretation of assessment results; Warning system for at-risk students
Mental Health Assessment Tools (See Appendix C)	Different standardized psychological assessment instruments that students must complete to evaluate their mental health

III. REVIEW OF RELATED LITERATURE

Mental health illness ranked as the third most common form of health issue in the Philippines according to the National Statistics Office [2, 3]. Mental health is considered as among the most important public health concerns [6, 7]. However, as of 2021, there are only five government hospitals that provide psychiatric care for children and 11 designated outpatient facilities for children and adolescents out of 46 [8]. Thus, promoting access to psychological support for students is crucial to preventing underlying conditions from worsening [9, 10]. Positive implications for students have been observed in Psychological interventions for treating anxiety, depression, and eating disorders [11]. Universities are well-equipped to implement either primary or secondary prevention approaches and facilitate access to mental health services [10].

Computerized mental health services have increasingly aimed to reach vulnerable groups who face barriers to timely care, such as immigrants, refugees, and low-income populations [12]. Mental health institutions now leverage technology and software to provide timely assessments. Studies indicate that computerized mental health tools offer patients greater comfort and ease in answering questions about their mental health compared to traditional face-to-face interviews or paper-and-pencil assessments [12]. The study in [13] further emphasized that computer-based assessments can provide accurate scores and results with reduced susceptibility to human error. However, [13] stressed that while online tests of clinical constructs hold great potential, they require rigorous validation and must be used with caution. The adoption of EHRs in mental health has been found to have lagged behind than in other health contexts [14-16].

For a mental health assessment system, high usability score can mean to streamline the process, reduce errors, and improve patient care. However, there has been little research conducted on EHRs usability in mental health and this may link to issues such as sensitivity of the data involved and standardization issues [17]. Moreover, [18] identified barriers to the adoption of EHRs in mental health, including low computer proficiency, complexities of system, alert fatigue, and resistance due to legacy systems [18]. Usability enhancements to Electronic Health Records in mental health settings can reduce form completion time, improve clinician experience, and increase usage [19]. Further, usability impacts productivity and the effectiveness of the overall system, and there are recent studies on mental health applications for students that highlight the importance of user-centered design and engagement. The user satisfaction is often influenced by system responsiveness, user-driven support features, and accessibility to mental health information [20]. A study on a gratitude app found that usability testing, incorporated with interviews and questionnaires, can help in identifying design and functionality issues while obtaining user experiences [21]. Accordingly, a usability test of a post-trauma symptom monitoring app validated its ease of use and speedy data transmission [22]. According to study [23], both optimization of user interface and experience are crucial to encourage individuals to engage in technology-driven intervention [22, 24].

Analysis of user feedback can uncover usability issues, with common problems such as bugs, poor user interface design, and lack of technical assistance [21]. While each usability method has its advantages and limitations, a combination of techniques is recommended for comprehensive evaluation [25]. Direct observation methods such as usability testing and think aloud protocols are effective to understand the engagement of users towards the application tested. These methods offer valuable insights into user interactions and reveal potential issues of the system [25].

IV. METHODOLOGY

A. Sampling Methods and Participants

Purposive sampling was utilized for this study to ensure that respondents meet specific criteria relevant to the objectives of the Mental Health Platform. The sampling method allows the researcher to intentionally identify students who are most likely to provide insights into the usability of the system. In this case, second year College students coming from the seven (7) colleges of a university were selected as the participants. These students represent digital-native users who frequently engage with online platforms, have already experienced various academic and personal stressors, and are likely to interact with tech-driven mental health resources, knowing that they still have at least two more years in the university, increasing the applicability of their feedback. The participants were either male or female with age group 17-22 years old and were bonafide students of the university.

B. Usability Testing Instrument and Procedure

The usability test was conducted in an identified and controlled laboratory environment inside the university. Inside the laboratory are twenty (20) desktop computers, all having internet access, and are connected to the mental health application system. A usability testing approach was conducted to evaluate user experience, ease of navigation, and system functionality, ensuring that the system meets the needs of its target users. Prior to the testing, participants were given a brief overview of the application, and the objectives of the project.

Confidentiality, voluntary participation, and ethical considerations were also explained during the briefing. In the course of the usability testing, participants use the digital platform to complete a mental health assessment, with the guidance counselors acting as facilitators.

After completing the assessment, participants were asked to evaluate the usability of the platform. A usability questionnaire with five key usability questions presented in Table II, was used as the primary data collection instrument. Participants rated each question using a 5-point Likert scale, ranging from Strongly Agree to Strongly Disagree. Participants were observed for task completion rate, efficiency of navigation and error/bug occurrence. Results from the test were analyzed using frequency distribution to analyze usability trends.

TABLE II SET OF QUESTIONS USED IN THE USABILITY TEST

Questions	Test Area/Relevance
I found it easy to control and navigate the system	Reflects the ease of navigation, which is a key aspect of usability, aligning with the user's overall sense of control with the system
I think that I need support to be able to use the system	The need for support of a technical person to be able to use the system
The test questionnaires were well organized	Test for the broader usability principle of coherence and structure
Each function in the system was well integrated.	Relates to how different components of the system work together
I don't find any bugs or malfunctions in the system	The user's perception of the system being usable

C. Feedback and Analysis

In addition to the quantitative usability testing, feedback and direct observations were also conducted to capture the real-time behaviors and challenges from the participants, both from the guidance counselors and students. Common feedback was reviewed, analyzed, and coded into themes. Themes were quantified by tallying how often each theme appeared in the feedback section of the participants. Results from the user interface and user experience testing contributes to the refinement and validation of the digital platform's features and functionality.

V. RESULTS

A. Distribution of Participants Across Colleges

The study involved a total of 3,396 second-year college students. The number of participants from each college is recorded in Table III to ensure broad representation across the institution.

TABLE III DISTRIBUTION OF PARTICIPANTS ACROSS COLLEGES

Colleges	Number of participants (%)
College of Computer Studies	408 (12%)
College Education	269 (7.5%)
College of Engineering and Technology	985 (29%)
College of Business Administration and Accountancy	332 (9.8%)
College of Science and Mathematics	516 (15.2%)
College of Nursing	262 (7.7%)
College of Arts and Social Sciences	624 (18.4%)
Total	3,396 (100%)

As there is a diverse distribution of participants depending on the number of enrollees, this underscores the reliability of the findings and highlights the potential of the platform to address the mental health assessment needs of a wide range of students.

B. Usability Testing

The usability testing results revealed that the digital platform performed well in terms of user experience. As shown in Fig. 1, 1,969 or 58% strongly agree or expressed satisfaction on the features of the digital platform in the aspects of ease of navigation, clarity of instructions, and responsiveness. While the majority expressed agreement of the ease of use of the system, there were still 8% who were neutral and 2.4% of the participants disagreed. The high level of satisfaction however, implies that users can efficiently interact with the system. This usability strength could enhance the digital platform's reputation among its target audience.

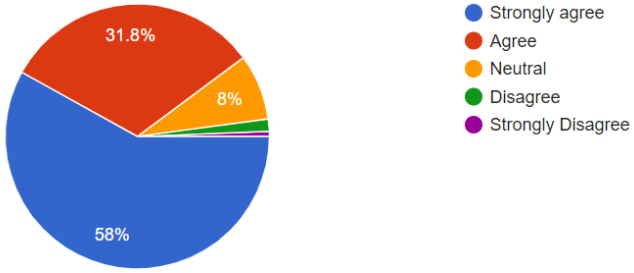

Fig. 1. Usability Testing (I).

As shown in Fig. 2, 20.3% and 26.4% of the respondents strongly disagree or disagree when asked if they need technical support to navigate the system. However, a substantial portion of the respondents 10.4% and 16.7% either strongly agreed or agreed that they needed assistance to be able to use the system. The remaining 26.1% expressed neutrality with the need of technical support.

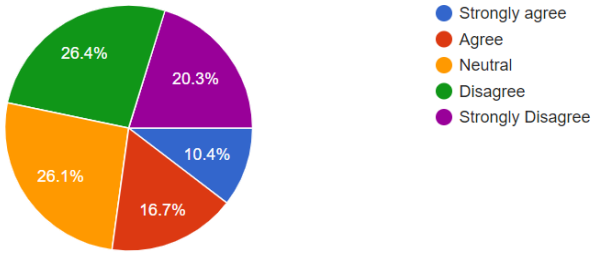

Fig. 2. Usability Testing (II).

As shown in Fig. 3, more than half of the number of participants, 52.6% expressed that the questionnaires are well organized, and only 2.4 % indicated that they disagree with the organization of the questions asked. This suggests that the content of the questionnaire in the platform is structured effectively and presented in a logical manner. While the majority finds the structure logical, users also expressed frustrations when completing the assessment as it takes time to finish the assessments.

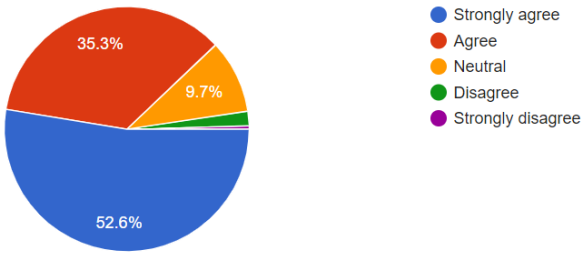

Fig. 3. Usability Testing (III).

There were 1,684 participants who strongly agreed that the functions were well integrated into the system (see Fig. 4). A meager number of the participants, 1.5%, either disagreed or strongly disagreed that necessary functions were well integrated into the system. Almost half of the participants were less emphatic in their agreement, this could reveal areas where integration can be improved, such as better linking of specific features or smoother transitions between tasks.

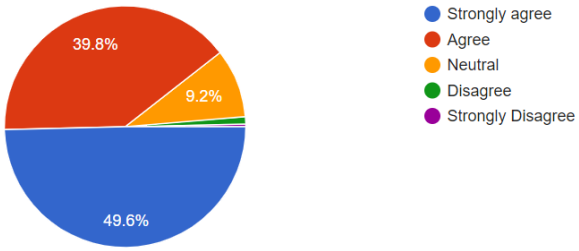

Fig. 4. Usability Testing (IV).

The participants were also asked if they had found bugs or experienced malfunctions in the system. In Fig. 5, results indicate that there were 1,701 students who strongly agreed that they did not experience any bugs or malfunctions. Less than 9.5% agreed that they did experience malfunctions in the system. This indicates that users are more likely to accept and adapt to future changes since the current system demonstrates reliability and stability.

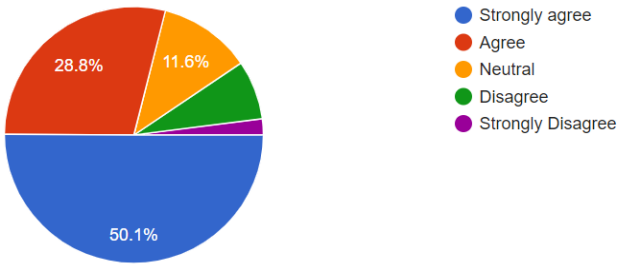

Fig. 5. Usability Testing (V).

VI. Discussion

A. User Satisfaction and Experience Feedback

User feedback highlighted several positive aspects of the platform.

1) Guidance counselors or facilitators: Many participants found the system intuitive and efficient, particularly on how it streamlined the assessment process and the automation of scores.

Facilitators, including guidance counselors, noted that the platform significantly reduced the time and effort required for administering mental health assessments compared to traditional methods. Based on the survey students finish answering the assessment for an average of 58 minutes to an hour (per student) which is significantly shorter compared to the conduct of assessment in manual process.

Guidance counselors emphasize how the system shortens the time required for generation of assessments results, a process that usually took months to complete. With the platform, results can be made directly available, allowing counselors to focus more on providing timely and personalized consultations to students. One of the feedback states:

“it used to take us months to just to administer the assessments and generate results, but with this platform, we can significantly reduce time and focus more on counseling”

With increasing demand and limited resources, optimizing assessment processes is crucial to ensure timely identification and intervention [26]. Further, counselors praised the system as user-friendly, which facilitates ease of use even for those with limited technical experience. Few of the feedback are: "generally good", “easy and simple”. The dashboard with charts and graphs were highlighted as “clear and intuitive”, enabling the counselors to quickly assess and analyze data. This positive feedback underscores the system’s potential to be an effective tool for its intended purpose while also leaving room for further enhancements. The study in [27] provide evidence that digital platforms, such as the EarlyDetect mobile app, offer a more user-friendly experience compared to traditional paper-based methods, highlighting the ease of use and improved usability of a digital platform for mental health assessment.

2) Students’ feedback: Observations during the usability test indicate that student participants were more engaged and inclined to complete the assessments using the digital platform. The constructive feedback collected during the test were categorized into eight key areas, including ease of use, organization and structure, effectiveness, mental health support, convenience and efficiency, innovation and technology, reliability and performance, and gratitude and appreciation. The results in Table IV highlight various strengths of the system.

a) Effectiveness and efficiency: Effectiveness is the most discussed strength emphasizing its impact among respondents in providing a tool for assessing their mental health. Students often describe the platform as useful, helpful, and beneficial. Few of the feedback were: "The activity is effective in assessing well-being and understanding students' situations", "The system is effective and helpful", and "A good way to assess students with mental illness or problems as not everyone wants to talk about their personal life." These imply that the system provides an alternative means for self-reflection and seeking help for those with mental health issues. Similarly, comments such as "The system is great and the questions are relevant in assessing oneself" and "The system is effective and helpful" illustrate the alignment between the digital platform and the needs of the students. These statements underscores the positive

impact of the system on self-assessment and stress management.

TABLE IV STRENGTHS GENERATED FROM THE STUDENTS' FEEDBACK OF THE DIGITAL PLATFORM

Themes	Sample terms for tagging	Frequency
Effectiveness	effective, useful, helpful, beneficial, works well, functional	23
Ease of use	easy to use, user-friendly, simple, smooth, intuitive, accessible	15
Innovation and technology	high-tech, modern, innovative, digital, online, automated	13
Organization and structure	well-organized, structured, systematic, arranged, interface, layout	13
Convenience and efficiency	fast, quick, time-saving, hassle-free, convenient, accessible	12
Gratitude or appreciation	thank you, appreciate, grateful, good job, well done, congratulations	12
Reliability and performance	stable, no malfunctions, bug-free, reliable, smooth operation	11
Mental health support	stress management, emotional support, self-assessment, guidance, mental well-being	10

On the other hand, comments such as "It is easy and convenient to use" and "The process was smooth" reflect the system's ability to save time and reduce hassle.

b) Ease of use: A platform can be effective if users can navigate it effortlessly. Words like "user-friendly", "intuitive", and "accessible" suggest that students value a cohesive and straightforward experience. Simplicity and clarity of instructions, straightforward process of answering questions, and simple UI are highlighted by respondents. Ease of use was emphasized through comments such as "The questionnaires in the system are comprehensible" and "Answering in the computer is easier". The application's user-friendly design enhanced participant's comfort, with most stating that it made the process smoother compared to traditional pen-and-paper. If a platform is too complex or confusing, users may abandon it, regardless of the quality of its content [28].

c) Innovation and technology: This reflects the students' expectation for a tech-driven solution, in this case, assessing their mental health. With terms like "automated", "online", and "innovative," users seemed to express a preference for technological advancement. Statements like "It is high-tech and it's comfortable to answer" and "The tool is innovative, easy, and convenient" highlight how the system's technological advancements make it a forward-thinking solution for digital assessments of which users appreciate. An innovative approach can enhance tailored experiences making interventions relevant and effective.

d) Organization and structure: Participants appreciate that the application has a well-organized, systematic, and structured layout which helps them navigate through the system. Phrases like "The system is well-organized" and "The questions are well-organized" were common. Student participants also noted that the system allowed for quick and efficient responses, particularly due to its clear layout, ensuring that participants could easily navigate through the assessment.

e) Gratitude or appreciation: Interestingly, expressions like "thank you", "good job", and "appreciate" indicate high user satisfaction. Some participants expressed their gratitude for the system, acknowledging its positive impact on their ability to assess their health and well-being. Expressions such as "I am thankful for this assessment" and "Thank you for making this assessment" illustrate the appreciation of the tool's contribution to improving the student experience. This suggests that when a platform meets users' needs, they are more likely to acknowledge its positive impact.

The feedback collected from both the counselors and students provides a strong indication that the digital platform for assessing mental health is effective, efficient, easy to use, innovative, organized, and appreciated.

B. Areas for Improvement

Despite the system's strengths mentioned, counselors have identified areas for improvement to further enhance its effectiveness.

1) Guidance Counselors/Facilitators: Counselors have highlighted two major areas for improvement in the system: loading time and individualized data interpretations.

One major concern of counselors is the loading speed of the application with recommendations to optimize performance and minimize delays during use. A slow system can cause frustration, and reduce engagement, especially when counselors or students need immediate access to mental health resources.

Another key recommendation of them was to provide individualized interpretations of the data, ensuring that insights are tailored to each user or unit. [29] emphasize that incorporating user feedback and engaging in a co-design process are essential for developing digital mental health tools that align with the needs and preference of target users. This will somehow ensure effectiveness and usability of the digital platform.

2) Students

a) Usability and readability: The most common concern of the students is Usability & Readability with fifty-five (55) mentions. Recurring issues were the font size and readability indicating that the text appears too small. Similarly students also pointed out the alignment issues with checkboxes and answer choices that somehow caused confusion during the test taking. Poor readability of an application has been proven to negatively impact application adoption and utilization [30].

b) User experience and engagement: Among the issues raised was the lengthy and time consuming test. Some respondents were overwhelmed and exhausted, occasionally expressing desire to discontinue the assessment. This is a crucial issue though beyond the developers control as the instruments were standard instruments for mental health assessment. However, it can be addressed by breaking the test into sections, adding progress indicators, or an option to save or continue the assessment.

c) Accessibility and system performance: Some students experienced technical difficulties, bugs, and system errors. These were infrequent and maybe due to connectivity or technical issues, and number of users accessing the platform simultaneously. [31] found that technical factors significantly

influenced student satisfaction from both instructor and student perspectives.

d) Language preference was another point of discussion, with a number of students suggesting alternative test language alternatives such as the Bisaya version or a verbal format for those who struggle with reading comprehension. Adaptive and personalize content based on user behavior and preferences can enhance user engagement in web applications [32].

Overall, students' feedback provides valuable insights for future improvements, ensuring a more accessible and user-friendly platform.

VII. Conclusion

This study aimed to evaluate the usability and user experience of a digital platform for assessing mental health conditions among higher education students, designed to support psychologists and counselors in monitoring and providing interventions.

When compared to traditional paper-based methods, the platform offered several advantages. It enhanced efficiency by reducing the time needed to administer and process assessments and minimized errors in score calculations and reporting. These improvements not only benefited the facilitators but also provided students with quicker feedback on their mental health assessments. Such features make the platform a valuable tool for institutions aiming to improve mental health monitoring and interventions.

The results of the usability assessment indicate that students find the platform's usability above average, with most participants expressing satisfaction with its implementation. Traditional face-to-face assessments or paper-based methods often pose challenges for students who may feel hesitant to express their struggles in person. The online nature of the system ensures that students can engage with the assessment in a familiar and comfortable environment, reducing stigma and encouraging participation. The platform's ease of use makes the student assessment process more engaging rather than stressful - reducing cognitive load. Students have also expressed the effectiveness of the digital platform in taking the mental health assessment tools.

Despite its strengths, some challenges and limitations were observed during the study. Technical issues such as occasional system lags and connectivity problems were reported. Technical difficulty remains a concern, as some students may require guidance in navigating the system. Font size, alignment, and other aesthetic concerns were raised to improve readability and design of the user interface.

Findings from the evaluation have provided best practices for designing digital health interventions that improve user engagement and support. Analyzing the usability and overall user experience supports the study to identify gaps in user interface design and recommend evidence-based improvements for the digital platform for mental health assessment.

Future recommendations should focus on addressing the current limitations of the digital platform and exploring new avenues for improvement. One key area is mobile accessibility - that the platform may be accessible across various devices. Another is the optimization of the platform's performance by improving response times, enhancing data security, and ensuring a smooth user experience. Future studies could compare the effectiveness and user experience of the web-based system versus a mobile application. Further assessment on the user experience could offer qualitative insights into the system's strengths and areas of improvement through a combination of user feedback surveys, usability testing, and focus group discussions. Additionally, the platform shows potential for broader application in government and private organizations, particularly educational institutions, by enabling mental health practitioners to effectively monitor individuals' mental health conditions.

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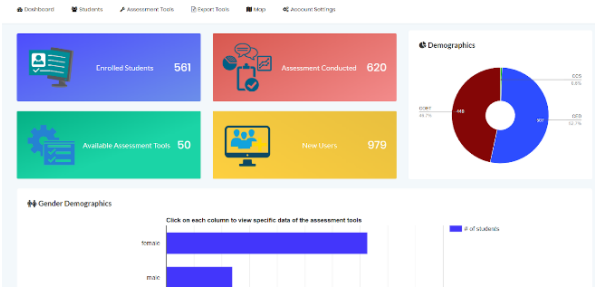
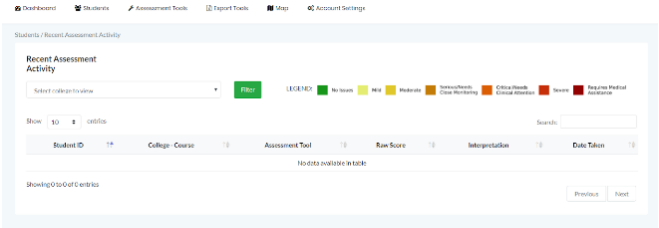
APPENDICES

A. *Dashboard of the Digital Platform for Mental Health Assessment*



B. *Risk Analysis Module of the Digital Platform for Mental Health Assessment*



C. *Mental Health Assessment Tools*