

Development of a Psychosocial Support Management System: Leveraging Technology for Enhanced Mental Health Services

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Abstract

This study developed the Psychosocial Support Management System (PSMS) to strengthen accessibility, efficiency, and confidentiality in providing mental health services within a State University. Using a descriptive-developmental research design, the system was created through the Agile Software Development Life Cycle (SDLC) framework with PHP and MariaDB. It features secure online request forms, structured case management, analytics, and Advanced Encryption Standard (AES) encryption to ensure compliance with the Data Privacy Act of 2012 (RA 10173). Usability was evaluated through standardized instruments, which revealed that both system users and clients perceived the platform as highly usable, reliable, and easy to navigate. Findings indicated that the PSMS effectively streamlined psychosocial service processes, improved record-keeping, and facilitated evidence-based decision-making through its analytics dashboard. Moreover, the integration of encryption and access control mechanisms ensured the protection of sensitive information and promoted user trust in the system. Overall, the PSMS demonstrated its potential as a dependable digital platform for managing university-based mental health services. It is recommended that the system be adopted institution-wide and continuously improved through enhancements such as automated notifications and multilingual support to expand accessibility and promote sustainable implementation.

Keywords: Psychosocial Support System; Mental health; Data privacy; AES encryption; Usability; Digital counseling; Agile development

1. Introduction

Globally, mental health services have struggled to meet rising demand, creating a significant treatment gap, more than 70% of individuals with mental health conditions do not receive timely care [1]. This shortfall has been amplified by recent crises such as the COVID-19 pandemic, which disrupted traditional support structures [2]. In education, the shift to remote learning introduced new stressors and challenges for students' well-being. Many students found themselves isolated from in-person support, heightening the need for accessible online psychosocial services [3]. Schools and universities are increasingly recognized as critical venues for mental health intervention, as guidance and counseling not only help learners overcome personal challenges but also enhance their motivation and academic engagement [4]. Strengthening support systems within educational institutions has therefore become essential to promoting student well-being in tandem with academic achievement.

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In the Philippines, the mental health of young people has drawn urgent attention in the wake of one of the world's longest pandemic lockdowns, which intensified existing issues such as anxiety and depression. Universities in the Philippines have begun exploring technology-driven approaches to better support students' psychosocial needs. The use of technology in counseling and other guidance services underlines the potential of digital solutions in reaching students who might otherwise lack access to timely counseling. Moreover, it aligns with national efforts under the Philippine Mental Health Act to integrate mental health services into community and educational settings, despite resource constraints. Telemedicine and e-counseling initiatives have opened new avenues for service delivery, suggesting that leveraging technology can help bridge gaps in traditional counseling setups [5].

Despite growing awareness and some innovations, many institutions still face persistent challenges in managing psychosocial support services effectively. Existing systems are often fragmented or paper-based, lacking the integration and real-time capabilities needed to handle increasing caseloads. In the Philippines, the development of a comprehensive mental health information infrastructure remains a work in progress, meaning that schools and universities often rely on siloed records and manual processes. This fragmentation can lead to inefficiencies in case management and follow-up, as well as difficulties in monitoring outcomes. Data security and privacy are additional concerns, without proper safeguards, confidential counseling records could be at risk. Typical applications do not always adequately protect sensitive personal information, and breaches may expose student data [6]. These shortcomings underscore the need for a more secure, user-friendly, and unified system to administer psychosocial support, especially in the context of educational institutions handling sensitive student information.

To address these gaps, this study proposes the development of a Psychosocial Support Management System (PSMS) that leverages modern information technology to enhance mental health services within a university setting. The envisioned system will serve as an integrated platform for managing counseling and guidance services, from online intake of student counseling requests to secure record-keeping, communications, and analytics. By facilitating remote consultations and tele-counseling options, the PSMS can broaden student access to support, a benefit in line with findings that digital tools like teletherapy significantly improve service reach. The system also aims to streamline counselors' workflow through efficient case tracking and data management, enabling data-informed decision-making. Prior research indicates that electronic record systems and data-driven approaches can increase the efficiency and integration of healthcare services [1], which this platform will adapt to the context of campus mental health. Security features are paramount in the design, the system will incorporate Advanced Encryption Standard (AES) and authentication protocols to safeguard sensitive data, reflecting best practices for protecting personal information in digital systems [6,7]. By harnessing technology for accessibility, confidentiality, and analytics, the system offers a timely solution to strengthen psychosocial support services in a Philippine university, aligning with global trends in digital mental health innovation while catering to local needs.

1.1. Objectives of the Study

This paper aims to develop the development of a Psychosocial Support Management System (PSMS) to facilitate and manage psychosocial support services.

Specifically it aims to:

- Leverage the benefits of information technology for security through Advanced Encryption Standard (AES) encryption;
- Provide seamless access to services through online request form
- Ensure efficient case management through structured system for guidance counselors
- Aid decision-making process using insightful analytics
- Evaluate the level of usability of the develop system based on the criteria from Computer System Usability Questionnaire (CSUQ) and Usability Metric for User Experience (UMUX-Lite)

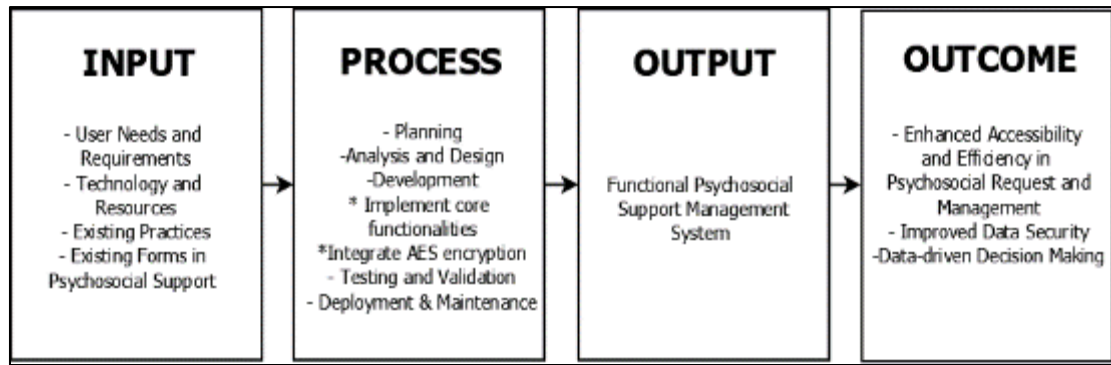


Figure 1 Conceptual Framework

This IPOO (Input–Process–Output–Outcome) framework illustrates the development of the Psychosocial Support Management System as a structured and systematic approach to improving mental health service delivery in an educational institution. The Input stage identifies foundational elements such as user needs, existing practices, and available technologies that guide the system’s design. The Process phase details the system’s development life cycle, from planning, analysis, and design to implementation, testing, and maintenance, with a specific focus on integrating AES encryption to ensure data confidentiality and compliance with data privacy standards. The Output represents the tangible result, a fully functional system designed to automate and streamline psychosocial support requests and case management. The Outcome captures the long-term impact, highlighting enhanced accessibility and efficiency of mental health services, improved data security, and the use of analytics for informed, data-driven decision-making that supports both counselors and administrators in providing timely, secure, and effective student support.

2. Materials and Methods

2.1. Research Design

The study adopted a descriptive-developmental research design to guide the creation and evaluation of the Psychosocial Support Management System (PSMS). The developmental phase focused on the systematic design of a functional web-based system for managing psychosocial support services, featuring online request submission, case management, AES-based data encryption, and analytics. The descriptive phase aimed to evaluate the system’s usability, functionality, and efficiency from the perspective of different user groups.

2.2. Research Instruments

System usability was assessed using two standardized tools: the Computer System Usability Questionnaire (CSUQ) for guidance counselors and administrators, and the Usability Metric for User Experience–Lite (UMUX-Lite) for students and employees. The CSUQ evaluated system usefulness, information quality, and interface quality, while the UMUX-Lite measured perceived ease of use and overall user experience [8,9]. Both instruments provided complementary insights into the system’s performance and user satisfaction.

2.3. Participants and Sampling

Participants were selected through purposive sampling, including guidance counselors, IT experts, students, and employees from the State University of Northern Negros. This sampling approach ensured that responses were gathered from users directly involved in or affected by psychosocial support services.

2.4. Data Gathering Procedure

Data collection proceeded in two phases. During system development, requirements were gathered through consultations with the Guidance Services Office and users, followed by iterative prototyping under the Agile Software Development Life Cycle (SDLC). In the evaluation phase, ethical clearance was secured from the Institutional Research Ethics Review Committee (IRERC), and participants provided feedback through the CSUQ and UMUX-Lite instruments. Responses were treated with confidentiality and analyzed collectively to assess usability and performance.

2.5. Data Analysis

Collected data were analyzed using descriptive statistics, specifically mean and standard deviation, to determine the system's overall usability and user satisfaction levels. Interpretation was based on an adjectival rating scale that classified usability from poor to excellent. The results provided a clear indication of the system's effectiveness and areas for potential enhancement.

Table 1 Adjectival Rating Scale for Usability

Range of Mean	Adjectival Rating	Interpretation
6.00 – 7.00	Strongly Agree	Excellent Usability
5.00 – 5.99	Agree	Very Good Usability
4.00 – 4.99	Slightly Agree	Good Usability
3.00 – 3.99	Neutral	Moderate Usability
2.00 – 2.99	Slightly Disagree	Fair Usability
1.00 – 1.99	Strongly Disagree	Poor Usability

2.6. Software Development Method

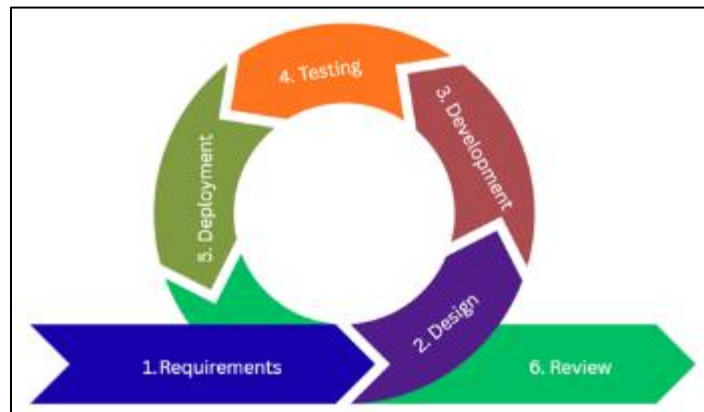


Figure 2 The Agile Software Development Model

The development of the Psychosocial Support Management System (PSMS) will follow the Agile Software Development Life Cycle (SDLC) methodology. Agile SDLC is chosen for its iterative nature, allowing for flexibility and continuous improvement through regular feedback [10]. The development process is divided into several phases: Requirements, Design, Development, Testing, Deployment, Review. Each phase includes multiple iterations (sprints), ensuring the system meets user needs effectively.

2.6.1. Requirements Phase

The requirements phase laid the groundwork for developing the Psychosocial Support Management System (PSMS) by identifying user needs, expectations, and system specifications through consultations with guidance counselors, faculty members, and selected students of the State University of Northern Negros. Using interviews, process observation, and document analysis, both functional and non-functional requirements were gathered, including those related to security, accessibility, and data management. User stories were then formulated and prioritized using the MoSCoW method to ensure that critical features were implemented first. Validation sessions with stakeholders helped refine and confirm the relevance of each requirement, ensuring that the system design aligned with institutional objectives and operational needs. The resulting requirements document served as the primary reference for the subsequent stages of system design, development, and testing under the Agile Software Development Life Cycle (SDLC).

2.6.2. Design Phase

The design phase translated the gathered requirements into a structured blueprint that guided the development of the Psychosocial Support Management System (PSMS). It focused on defining the system architecture, interface layout, and

database structure to ensure efficiency, usability, and security. Based on validated requirements, both high-level and detailed design models were created to visualize the interaction between the frontend, backend, and database components for seamless data flow. The design also integrated Advanced Encryption Standard (AES) technology to enhance data security and protect sensitive information handled by the Guidance Services Office, ensuring compliance with institutional and data privacy standards.

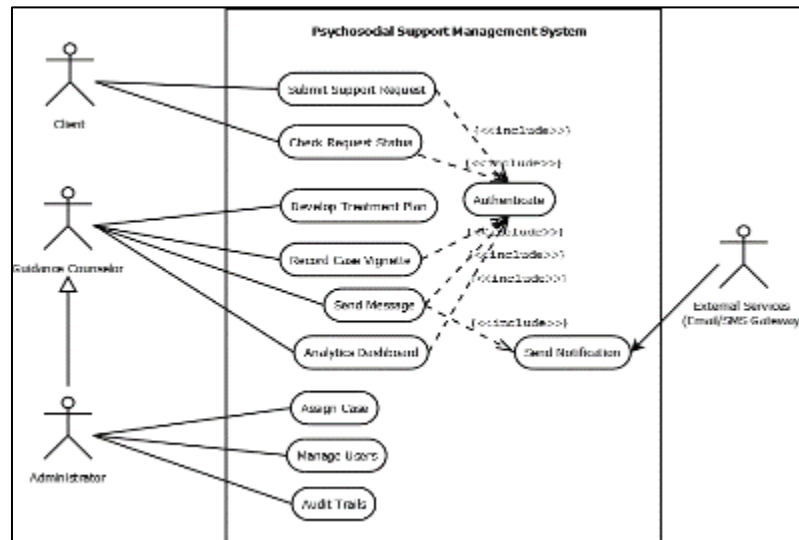


Figure 3 Use-Case Diagram

The use case design of the Psychosocial Support Management System (PSMS) illustrates the interactions among its primary users, namely students or employees, guidance counselors, administrators, and the system itself. Each user role is associated with specific functions that contribute to the efficient delivery of psychosocial support services. Students and employees can submit support requests, check request statuses, and receive notifications, enabling convenient access to assistance and timely updates on their cases. Guidance counselors manage psychosocial interventions through features that allow the development of treatment plans, recording of case vignettes, and systematic tracking of client interactions, which improve documentation and service quality. Administrators oversee system operations by assigning cases, managing user accounts, and monitoring performance through an analytics dashboard that provides data-driven insights for institutional decision-making. The system component functions autonomously by ensuring data protection through encryption and secure data management using the Advanced Encryption Standard (AES), in compliance with the Data Privacy Act of 2012, thereby maintaining confidentiality and integrity of sensitive information.

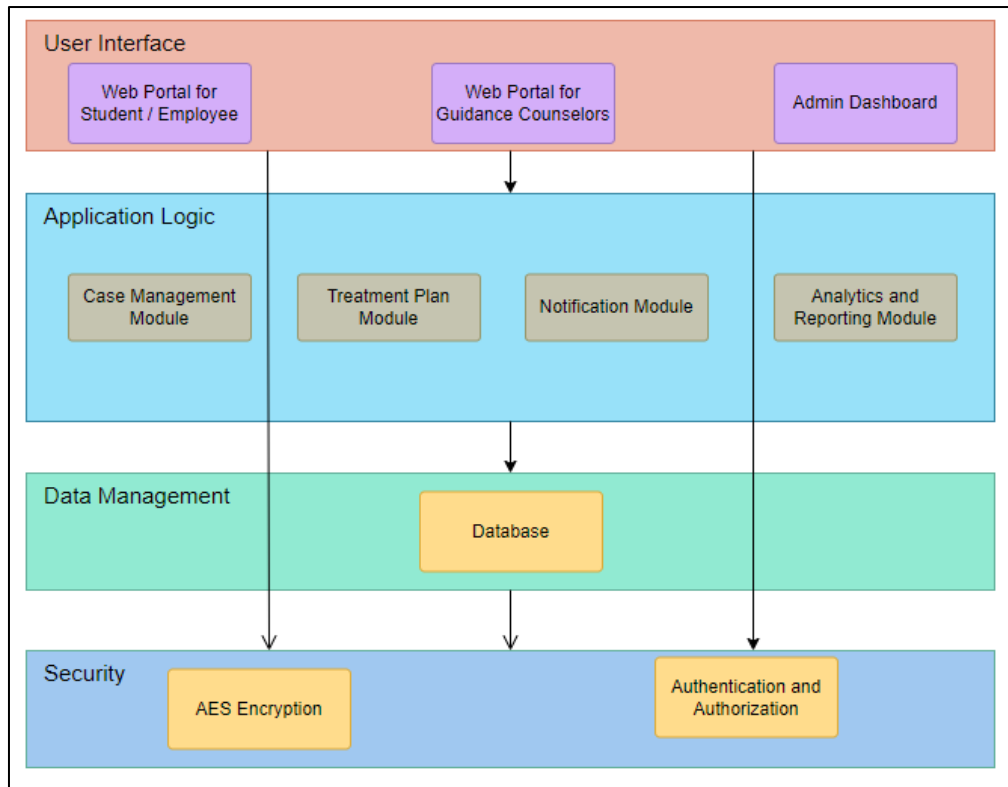


Figure 4 System Architecture

The system architecture of the Psychosocial Support Management System (PSMS) outlines the structural and logical organization of its core components based on a four-layer model: User Interface, Application Logic, Data Management, and Security. The User Interface Layer serves as the primary access point through three portals, the Student/Employee portal for submitting and tracking support requests, the Guidance Counselor portal for case management and treatment planning, and the Admin Dashboard for user management and analytics. The Application Logic Layer encompasses modules for case management, treatment planning, notifications, and analytics, ensuring a streamlined and responsive workflow for psychosocial services. The Data Management Layer maintains user accounts, case histories, and logs, ensuring data consistency, accuracy, and availability for analysis and reporting. The Security Layer safeguards all transactions and records through Advanced Encryption Standard (AES) encryption and strict authentication and authorization mechanisms, aligning with the Data Privacy Act of 2012 and institutional data protection standards. Together, these layers create a secure, efficient, and user-friendly platform that supports the university's psychosocial service operations.

2.6.3. Development Phase

The development phase involved transforming validated requirements into a fully functional Psychosocial Support Management System (PSMS) using PHP and a MariaDB relational database. The process adopted the Agile Software Development Life Cycle (SDLC), employing iterative sprints that allowed continuous integration of stakeholder feedback from the Guidance Services Office. Development was carried out on a XAMPP environment with separate development and production setups to maintain configuration integrity. The database design followed an entity-relationship model with normalized tables for users, requests, assignments, treatment plans, and notifications, all secured through AES encryption and hashed authentication credentials. The backend was developed using a modular structure that included case management, treatment planning, notification, and analytics modules, ensuring organized functionality and system scalability. Responsive web interfaces were created using HTML5, CSS, and Bootstrap to provide role-specific portals for students or employees, guidance counselors, and administrators. Security was prioritized through multiple layers, including HTTPS/TLS encryption, session management with secure cookies, role-based access control, and encrypted database backups. This phase ensured that the PSMS operated efficiently, securely, and reliably, meeting institutional standards for functionality and data protection.

2.6.4. Testing Phase

The testing phase verified the functionality, reliability, usability, and security of the Psychosocial Support Management System (PSMS) to ensure compliance with institutional standards for efficiency and data protection. Testing followed the Agile Software Development Life Cycle (SDLC), where each sprint concluded with review and quality assurance before integration. Unit testing validated individual modules such as case management, treatment planning, and analytics, while integration testing ensured seamless interaction among the PHP backend, MariaDB database, and user interface. System testing evaluated the overall functionality and performance of the platform based on defined requirements. Security testing focused on the effectiveness of AES encryption, authentication, and role-based access control, as well as the prevention of vulnerabilities like SQL injection and cross-site scripting. Usability testing involved clients, guidance counselors, and IT experts to assess interface quality, ease of use, and overall satisfaction using standardized tools. Identified issues were documented, fixed, and revalidated to ensure system stability and dependability. The process confirmed that the PSMS met its design goals as a secure, user-friendly, and efficient platform for managing psychosocial support services, ready for institutional deployment and continuous improvement.

2.6.5. Deployment Phase

The Deployment Phase marked the implementation of the finalized Psychosocial Support Management System (PSMS) in its operational environment. After successful system and usability testing, the application, developed using PHP and MariaDB was deployed on a secured web server within the university network. The database was configured, and user accounts were created for administrators, guidance counselors, and staff. Basic training and orientation were conducted to familiarize end-users with the system's functions. The deployment also included verification of data connectivity, encryption setup, and user access controls. Continuous monitoring was carried out to ensure system stability, address minor issues, and validate overall functionality before full institutional adoption.

3. Results and Discussion

The development of the Psychosocial Support Management System resulted in a functional and secure platform designed to enhance the delivery of psychosocial support services within the university. The discussion focuses on key findings from the system implementation, including the successful encryption of personally identifiable information using the Advanced Encryption Standard (AES) and the evaluation of system usability through the Computer System Usability Questionnaire (CSUQ) and Usability Metric for User Experience-Lite (UMUX-Lite). Results highlight how the integration of security features and user-centered design contributed to improved data protection, accessibility, and overall user satisfaction, aligning with the objectives of creating an efficient and privacy-compliant support management system.

Table 2 Encryption of Sample Personally Identifiable Information using AES

Full Name	Electronic Mail	Contact No.
zxX56veS7huCFZvF4+2VKCUj5N9Yvbk =	5hxx8vqf80bON2X8pMGaL2lZ8t5R	pUF5sq7MtheVYD6N9A= =
3B/v6ruq3UKCGXPfotWflw==	/B/v6vac50bb02vFp8nLc0UQ/NBVsPBXhS w=	Vk5+vqjNsRabajM=
wxLn6fKToHSDNm3Vrc2VZkQa895P	7xro50iQ1UvAajj8pMGaL2lZ8t5R	pZG5sq7NthCVYT2J8g==

Table 2 shows the encryption of sample personally identifiable information (PII), including names, email addresses, and contact numbers, using the Advanced Encryption Standard (AES) algorithm. The process converted readable data into encrypted ciphertext, rendering it inaccessible to unauthorized users. The AES algorithm produced random alphanumeric strings that concealed the original information, ensuring that no identifying attributes remained visible or traceable. This encryption method strengthens the data security of the Psychosocial Support Management System (PSMS) by protecting stored information in compliance with the Data Privacy Act of 2012 (RA 10173). Even in the event of unauthorized access, encrypted data remains indecipherable and unusable, upholding confidentiality and integrity within the system.

Figure 5 Online Psychosocial Support Request Form

The online psychosocial support request form in the Psychosocial Support Management System (PSMS) serves as a digital platform where students and employees can request assistance from the Guidance Services Office. It collects essential information such as student ID, name, course, contact details, and specific concerns, allowing the system to organize and categorize requests efficiently. The form is designed for simplicity and accessibility, enabling users to submit requests through any internet-connected device. To maintain confidentiality, all submitted data are encrypted using the Advanced Encryption Standard (AES) before being stored in the database. This ensures that sensitive information remains protected while requests are processed quickly and securely within the system.

Case Code	Name	Course/Yr	Problem	Referred By	Timestamp	Action
[REDACTED]	[REDACTED]	[REDACTED]	Excessive worry/nervousness; Feeling down/Sad; Feeling alone/isolated;	School Guidance	2024-03-04 00:00:00	<button>Assign</button> <button>Decline</button>
[REDACTED]	[REDACTED]	[REDACTED]	Excessive worry/nervousness; Other;	Self-referral	2024-03-04 00:00:00	<button>Assign</button> <button>Decline</button>
[REDACTED]	[REDACTED]	[REDACTED]	Feeling down/Sad; Feeling alone/isolated; Concentration Problem; Physical Symptoms (eg. headache, stomachache, etc.);	Self-referral	2024-03-04 00:00:00	<button>Assign</button> <button>Decline</button>

Figure 6 Case Management for Admin / Head Guidance Services Office

The unassigned cases interface in the Psychosocial Support Management System (PSMS) provides administrators and guidance counselors with a clear overview of pending support requests awaiting assignment. Each entry includes key details such as case code, name, course or department, stated concern, referral source, and submission time, allowing users to quickly assess and allocate cases to available counselors. Action buttons enable prompt case assignment or declination, while search, filter, and export options improve data organization and monitoring. Designed for clarity and

usability, the interface presents information in a structured tabular format that supports transparency, timely intervention, and efficient coordination among counselors in managing psychosocial support cases.

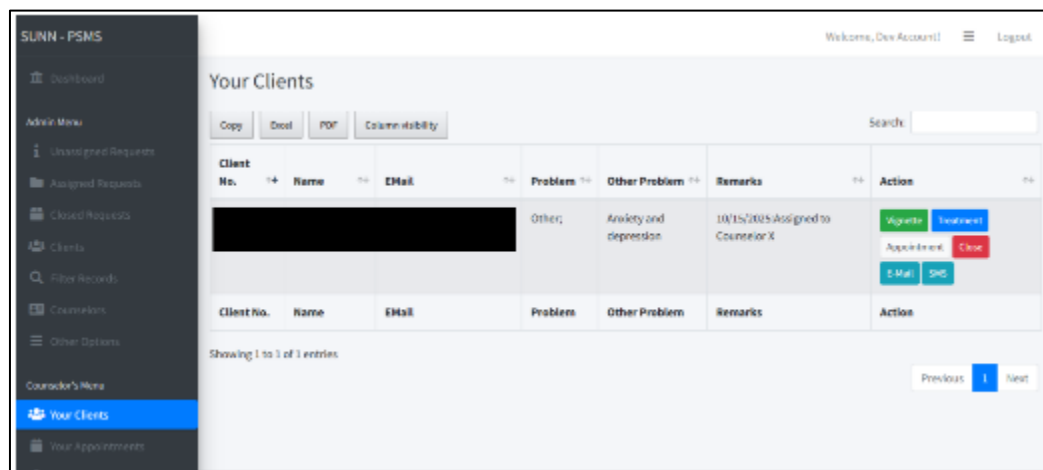


Figure 7 Case Management for Guidance Counselors

The *Your Clients* interface of the Psychosocial Support Management System (PSMS) is designed for guidance counselors to manage and monitor assigned cases. It provides a comprehensive list of clients with details such as names, contact information, concerns, and remarks, enabling efficient case tracking and documentation. The interface integrates essential tools for recording case vignettes, creating treatment plans, scheduling appointments, sending communications, and closing cases. Its intuitive layout promotes ease of use, organization, and accountability, allowing counselors to manage their workflows efficiently while ensuring that every client receives appropriate and timely support.

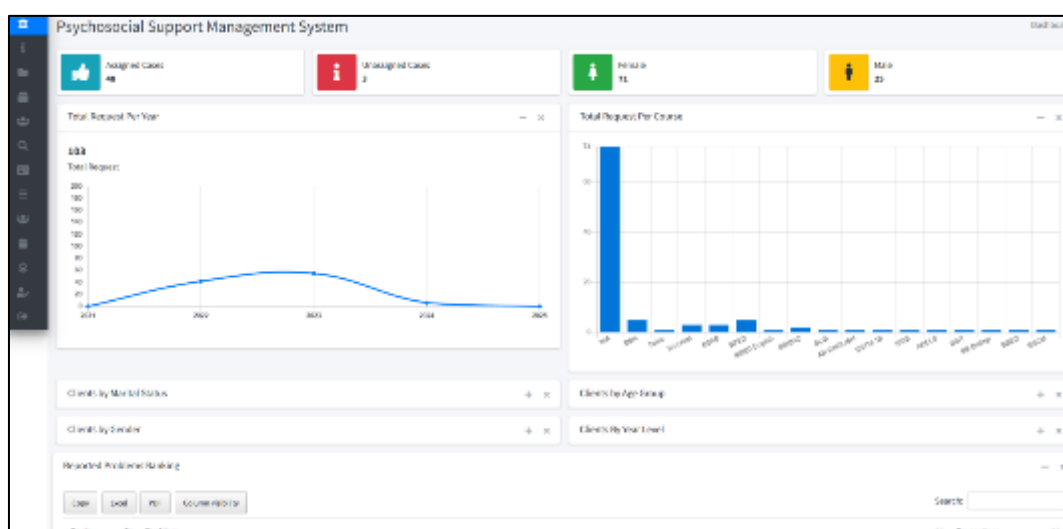


Figure 8 Insightful Descriptive Analytics

The dashboard interface of the Psychosocial Support Management System (PSMS) serves as the system's analytics hub, offering a visual summary of essential data such as case distribution, client demographics, and yearly service requests. Through interactive charts, users can identify trends in psychosocial support utilization across academic programs, enabling quick interpretation and data-driven assessment of service demand. Additional panels summarize information by gender, marital status, age group, and year level, along with a list of the most frequently reported concerns. By transforming collected data into visual insights, the dashboard supports planning, evaluation, and resource allocation. This analytics-driven feature enhances transparency and fosters evidence-based decision-making, improving the overall efficiency and responsiveness of psychosocial support services.

Table 3 The Level of Usability of the System based on CSUQ

Dimension	Mean	SD	Interpretation
System Usefulness (SU)	4.72	0.80	Good Usability
Information Quality (IQ)	6.18	0.55	Excellent Usability
Interface Quality (INTQ)	5.53	0.69	Very Good Usability
Overall Mean	5.48	0.68	Very Good Usability

The usability of the Psychosocial Support Management System (PSMS) was evaluated by guidance counselors and administrators using the Computer System Usability Questionnaire (CSUQ). The results showed an overall mean of 5.48 (SD = 0.68), interpreted as Very Good Usability, indicating that the system met user expectations in performance, clarity of information, and interface design. Among the three dimensions, Information Quality (M = 6.18, SD = 0.55) received the highest rating, followed by Interface Quality (M = 5.53, SD = 0.69) and System Usefulness (M = 4.72, SD = 0.80). These findings suggest that the PSMS is functional, user-friendly, and informative, with room for improvement in system feedback and error assistance to further optimize usability.

Table 4 The Level of Usability of the System based on UMUX-LITE

Statement	Mean	SD	Interpretation
The system helps me accomplish what I need to do	6.12	0.52	Excellent Usability
The system is easy to use	5.80	0.60	Very Good Usability
Overall Mean	5.96	0.56	Very Good Usability

The usability of the client-side functions of the Psychosocial Support Management System (PSMS) was assessed using the Usability Metric for User Experience–Lite (UMUX-Lite). Results showed an overall mean score of 5.96 (SD = 0.56), interpreted as Very Good Usability, indicating that students and employees were satisfied with the system's functionality and ease of use. The statement "The system helps me accomplish what I need to do" obtained a mean of 6.12 (SD = 0.52), rated Excellent Usability, reflecting users' ability to efficiently complete tasks such as submitting and checking support requests. The statement "The system is easy to use" scored 5.80 (SD = 0.60), also rated Very Good Usability, showing that users found the interface intuitive and straightforward. Overall, the PSMS effectively provided a convenient, accessible, and user-friendly platform for requesting psychosocial support services.

4. Conclusions and Recommendations

The Psychosocial Support Management System (PSMS) successfully met the objectives of the study. The system effectively leveraged information technology for data security through the implementation of the Advanced Encryption Standard (AES) algorithm, ensuring that personally identifiable information is securely stored and protected in compliance with the Data Privacy Act of 2012 (RA 10173).

The system also provided seamless access to psychosocial support services through the online request and request-status forms, enabling students and employees to easily submit and monitor their requests. For guidance counselors, the PSMS ensured efficient case management through its structured modules for client assignment, case documentation, and progress tracking. Furthermore, the integrated analytics dashboard aided in the decision-making process, presenting summarized data on client demographics, case categories, and service trends that help administrators and counselors assess utilization and performance.

Usability testing results from both the Computer System Usability Questionnaire (CSUQ) and the Usability Metric for User Experience–Lite (UMUX-Lite) revealed that the system attained a high level of usability and user satisfaction. Users found the system effective, and easy to navigate, demonstrating that the PSMS fulfills its purpose as a reliable digital platform that enhances accessibility, confidentiality, and efficiency in managing psychosocial support services.

Based on the findings of this study, it is recommended that the Psychosocial Support Management System be further refined and institutionalized as a standard digital platform for managing mental health services within the university.

Enhancements may focus on improving system feedback and support features to address areas identified with lower usability scores. Additionally, expanding its capabilities, such as automated reminders, multilingual support, SMS support can increase engagement and inclusivity. The successful implementation of the system highlights the potential of technology to improve access, efficiency, and confidentiality in psychosocial service delivery, offering a scalable model that other higher education institutions may adopt to strengthen their own mental health support systems.

Compliance with ethical standards

Disclosure of conflict of interest

No conflict of interest to be disclosed.

Statement of ethical approval

The study on the Development of a Psychosocial Support Management System adhered to established ethical research standards to ensure participant privacy, protection, and welfare. It focused on the design, development, and usability evaluation of the system and did not involve the collection of psychosocial or personally identifiable data. Participation was voluntary, with respondents fully informed about the study's purpose and procedures, and consent obtained prior to data collection. In compliance with the Data Privacy Act of 2012 (RA 10173), responses were treated confidentially, handled anonymously, and stored securely in password-protected files. As no sensitive information or interventions were involved, the study posed no foreseeable risks to participants. The researchers maintained honesty, transparency, and integrity throughout all processes, and the research protocol was reviewed and cleared by the Institutional Research Ethics Review Committee of the University to ensure conformity with institutional and national ethical guidelines.

Statement of informed consent

Informed consent was obtained from all individual participants included in the study.

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