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# Stalwart Digital Student Support: An Online Guidance and Counseling Case Management System for Enhanced Student Assistance

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## Abstract

This study aimed to develop and evaluate Stalwart Digital Student Support: An Online Guidance and Counseling Case Management System for Enhanced Student Assistance at Sulu State University, Philippines, to address challenges in manual record management, counseling documentation, case monitoring, and appointment scheduling. Guided by the Input-Process-Output (IPO) conceptual framework and the Waterfall Software Development Life Cycle (SDLC), the study employed a system development approach involving requirements analysis, design, implementation, testing, deployment planning, and maintenance. Data were gathered through semi-structured interviews with guidance counselors, focus group discussions with students, and reviews of institutional documents. The developed web-based system integrated student profiling, referral and counseling case management, DASS-21 assessment, online appointment scheduling, automated email notifications, reporting, and role-based access control. Results showed that the system managed 184 student records and 183 appointments, while recording 195 audit activities. All ten documented functional test cases passed following defect correction, and evaluated response times ranged from 0.8 to 1.5 seconds, meeting the established two-second performance target. Stakeholder evaluation indicated that the system was Highly Acceptable, demonstrating its functional readiness and relevance to institutional guidance operations. The study concluded that the system achieved its development objectives and recommended institutional adoption, user training, continued maintenance, security reviews, and further evaluation of long-term service outcomes. The study supports Sustainable Development Goals 3, 4, 10, and 16 by promoting student well-being, quality education, accessible guidance services, and institutional accountability. Its sustainability contribution lies in strengthening digital service delivery, secure information management, operational continuity, and equitable access to student assistance.

**Keywords:** Appointment Scheduling; Case Management System; DASS-21 Assessment; Guidance and Counseling Services; Role-Based Access Control; Student Support Services; Waterfall Software Development Life Cycle

## 1. Introduction

Digital transformation has become essential in improving the efficiency, accessibility, and security of student support services. Guidance and counseling offices manage student records, counseling sessions, interventions, and appointments that require accurate documentation and timely coordination. However, the Guidance and Counseling Office of Sulu State University continues to rely on manual processes, resulting in delayed record retrieval, fragmented documentation, and difficulties in monitoring student cases. To address these challenges,

this study aims to develop Stalwart Digital Student Support: An Online Guidance and Counseling Case Management System for Enhanced Student Assistance. The proposed system integrates student profiling, counseling case management, intervention tracking, appointment scheduling, automated email notifications, and secure record management to improve guidance service delivery.

Digital information systems improve institutional efficiency through automated documentation, centralized data management, and accessible records. Dela Cruz (2023) reported that computerized counseling systems reduced administrative processing time by 65% and improved case tracking accuracy by 70%. Similarly, Santos (2022) identified fragmented records, inefficient monitoring, and data security concerns in guidance offices across Sulu. At Sulu State University, manual record retrieval takes approximately 10–15 minutes per request, while paper-based documentation and appointment scheduling limit operational efficiency. These challenges highlight the need for a centralized, secure, and accessible online guidance and counseling system that supports timely intervention and effective student assistance.

Existing studies emphasize the importance of digital systems in improving counseling documentation, accessibility, and service coordination. Young and Kaffenberger (2021) emphasized systematic data collection and reporting. Structured case management, including assessment, intervention planning, and progress monitoring, was supported by Kanter (2010) and Brown (2024). Digital counseling platforms can also improve student engagement. Johnson and Williams (2021) identified training and confidentiality as essential implementation factors, while Williams et al. (2024) reported improvements in student retention and counseling utilization. Accessible digital services may reduce help-seeking barriers, particularly among students experiencing stigma or personal difficulties (Okonkwo & Adebayo, 2023). Recent developments further demonstrate the value of user-centered systems. Subbarao et al. (2025) emphasized perceived usefulness in technology adoption, while Zenak, Bendoukha, and Himri (2025) demonstrated automated progress tracking and notifications. Mohd Nadzree and Mohd Zin (2024) developed a web-based counseling platform supporting assessments and intervention scheduling. Chen and Watanabe (2024) examined artificial intelligence as a supplementary counseling tool. Information security remains essential. Torres (2021) and Kumar and Lee (2025) emphasized role-based access control, encryption, and audit logging, while the American School Counselor Association (2022) highlighted the importance of maintaining confidentiality and human-centered counseling services.

International literature recognizes digital counseling systems as important tools for accessible and coordinated student support. World Health Organization (2022) emphasized early identification, referrals, and coordinated mental health services. Smith and Martinez (2023) identified infrastructure, training, and privacy challenges across Southeast Asia, while International Finance Corporation (2022) highlighted the value of appropriate digital solutions in resource-constrained settings. Ramli (2024) and Halqim and Rukiyati (2024) similarly emphasized counselor readiness, accessibility, and ethical technology use. In the Philippines, Estabillo and Beltran (2025) reported high user acceptance and improved case monitoring through a digital guidance platform. Reyes and Villanueva (2022) emphasized structured counseling documentation, Garcia and Santos (2021) highlighted user-centered design, and Mendoza (2022) identified data protection requirements. Villanueva (2023) further demonstrated how online appointments and digital forms improve accessibility. Collectively, studies identify administrative efficiency (Dela Cruz, 2023; Estabillo & Beltran, 2025; Williams et al., 2024), user acceptance (Garcia & Santos, 2021; Subbarao et al., 2025), information security (Mendoza, 2022; Kumar & Lee, 2025), stakeholder involvement (Johnson & Williams, 2021; ASCA, 2022), structured case management (Brown, 2024; Kanter, 2010), accessibility (Villanueva, 2023; Okonkwo & Adebayo, 2023), and automated notifications (Zenak et al., 2025; Mohd Nadzree & Mohd Zin, 2024) as important components of effective counseling systems.

The proposed system is guided by software engineering, user-centered design, and secure information management principles. Pressman (2020) described the Waterfall Software Development Life Cycle, while Sommerville (2021) emphasized stakeholder involvement and systematic requirements analysis. The system adopts a three-tier architecture consisting of presentation, application, and database layers. HTML5, Tailwind CSS, and JavaScript support the user interface; PHP manages system operations; MySQL stores student and counseling records; and PHPMailer enables automated appointment notifications. Role-based access control separates guidance counselor and student permissions. Counselors manage cases, session documentation, interventions, appointments, and reports, while students can request appointments, submit intake forms, and access permitted resources. Password hashing, encryption, audit logging, and HTTPS/SSL communication are incorporated to protect confidential information and support compliance with the Data Privacy Act of 2012 (Republic Act No. 10173).

Although existing digital counseling systems improve record management, accessibility, and service coordination, Sulu State University continues to experience challenges associated with manual documentation, fragmented case monitoring, delayed record retrieval, and limited appointment coordination. These limitations establish the need for an institution-specific system that integrates student profiling, counseling records, intervention monitoring, and appointment management. Accordingly, the study aims to design and develop Stalwart Digital Student

Support: An Online Guidance and Counseling Case Management System for Enhanced Student Assistance. Specifically, it seeks to centralize student and counseling records, automate case documentation and progress monitoring, and implement online appointment scheduling with email notifications for guidance counselors. The system is limited to Sulu State University and does not include real-time chat, video counseling, standalone mobile applications, artificial intelligence, biometric authentication, automated crisis intervention, external system integration, or SMS notifications.

The proposed system supports four relevant Sustainable Development Goals (SDGs). SDG 3 – Good Health and Well-Being: Improves access to counseling services and supports timely monitoring of student concerns and interventions. SDG 4 – Quality Education: Strengthens student support services that contribute to academic engagement, personal development, and educational continuity. SDG 10 – Reduced Inequalities: Provides accessible online appointment requests and digital intake forms, reducing barriers to seeking guidance assistance. SDG 16 – Peace, Justice, and Strong Institutions: Promotes institutional accountability, confidentiality, and responsible student information management through secure records and audit trails.

The proposed system contributes to educational, technological, institutional, and social sustainability by strengthening the delivery of student guidance and counseling services. Educational sustainability is supported through organized counseling records and continuous student assistance. Technological sustainability is promoted through centralized digital processes that reduce manual documentation and improve information accessibility. Institutional sustainability is strengthened through secure data management, standardized procedures, and accountability mechanisms. Social sustainability is supported by improving access to counseling services and facilitating timely interventions for student well-being.

## 2. Material and methods

### 2.1 Research Design

The study adopted the Waterfall SDLC model, a structured and sequential approach consisting of six phases: requirements analysis, system design, implementation, testing, deployment, and maintenance. This model was selected to ensure systematic development, comprehensive documentation, and stakeholder validation. Requirements analysis involved identifying existing guidance office procedures and user needs. System design translated these requirements into database structures, interfaces, and access permissions. Implementation focused on developing the system using PHP, MySQL, HTML5, Tailwind CSS, and JavaScript. Testing included unit, integration, system, and user acceptance evaluations. Deployment involved configuring the system for online accessibility, while maintenance addressed updates, backups, and technical issues. Each phase provided the necessary foundation for the succeeding stage to ensure that the developed system aligned with institutional requirements.

### 2.2 Locale of the Study

The study was conducted at Sulu State University, Philippines, particularly within its Guidance and Counseling Office. The institution served as the primary setting for examining manual student record management, counseling documentation, appointment scheduling, and case monitoring. The proposed system was developed to address these operational challenges and improve the efficiency, accessibility, and security of student guidance services.

### 2.3 Respondents of the Study

The study involved guidance counselors and students of Sulu State University. Guidance counselors provided information regarding existing workflows, documentation practices, case management difficulties, and system requirements. Students shared their experiences with guidance services, accessibility concerns, and expectations for digital appointments and student assistance. Both groups were identified as intended participants in evaluating the system's usability, functionality, and effectiveness in supporting guidance operations.

### 2.4 Sample and Sampling Procedure

The participants consisted of guidance counselors and students involved in the university's guidance services. Semi-structured interviews were conducted with guidance counselors, while focus group discussions involved students to gather information about existing procedures, operational challenges, and preferred system functionalities. Their responses informed the identification of system requirements and the development of user-centered features.

### 2.5 Research Instrument

The study utilized semi-structured interviews, focus group discussions, and document reviews to identify the functional and technical requirements of the proposed system. Interviews examined guidance office workflows and operational challenges, while student discussions explored accessibility and service expectations. Existing counseling forms, anecdotal records, and institutional reports were reviewed to determine essential information fields and documentation requirements. The system was guided by the Input-Process-Output (IPO) conceptual

framework, which described how student information and guidance office requirements were transformed into organized digital services. Inputs included student profiles, registration details, referrals, appointment requests, counseling records, DASS-21 responses, intervention information, and system settings. Processes involved user authentication, role-based access, student profiling, appointment scheduling, referral management, SOAP counseling documentation, automated notifications, reporting, and audit logging. Expected outputs included verified accounts, organized student profiles, completed referrals, scheduled appointments, counseling records, generated reports, and audit trails. The system adopted a three-tier architecture consisting of presentation, application, and data layers. The presentation layer used HTML5, Tailwind CSS, and JavaScript to provide a responsive interface accessible through web browsers. The application layer employed PHP 8.x to manage authentication, counseling workflows, appointment processing, and system operations, while the data layer utilized MySQL 8.0 to securely store student profiles, counseling cases, sessions, appointments, and audit records. The student workflow included account activation, secure authentication, profile management, appointment requests, referral monitoring, notifications, password updates, and logout. Guidance counselors could review referrals, schedule appointments, manage counseling cases, document sessions, and monitor student progress. Administrative functions included managing student and counselor accounts, reviewing appointment requests, monitoring referrals and cases, generating reports, and maintaining system records. These workflows were designed to ensure organized access and efficient coordination among system users. The system employed HTML5, Tailwind CSS, and JavaScript for frontend development; PHP 8.x for backend processing; MySQL 8.0 for database management; and PHPMailer for automated email notifications. Hostinger shared hosting with Apache 2.4 supported web deployment, while password hashing, role-based access control, secure session management, audit logging, and HTTPS/SSL communication were incorporated to protect confidential information. Modular development and Git version control supported code maintenance, traceability, and collaboration.

### 2.6 Data Gathering Procedure

Data gathering began with semi-structured interviews involving guidance counselors to identify operational challenges, documentation practices, and system expectations. Focus group discussions with students examined their experiences with guidance services and preferred digital functionalities. Existing forms, records, and reports were also reviewed to establish the necessary information requirements. The collected information was analyzed and translated into functional requirements, including student profiling, counseling case management, SOAP session documentation, intervention tracking, referral management, online appointment scheduling with email notifications, and report generation. Non-functional requirements included usability, security, reliability, performance, scalability, and compatibility. The approved requirements guided system development, database design, and interface implementation. The deployment plan specified Hostinger shared hosting and phased migration of active and historical records, followed by data integrity verification through comparison queries and record checking. Maintenance procedures included automated backups, issue reporting, and periodic system reviews to support continued functionality and improvement.

### 2.7 Data Analysis Techniques

The information gathered through interviews, focus group discussions, and document reviews was examined to identify operational problems, user requirements, and necessary system functionalities. These findings informed the development of functional and non-functional specifications and guided system design and implementation. System evaluation involved unit testing using PHPUnit to verify individual functions, integration testing to assess communication among modules, and system testing to examine overall functionality. User Acceptance Testing (UAT) was planned with guidance counselors and students to assess usability, performance, and the completion of routine system tasks through structured feedback. The system incorporated MySQL date-time comparison and conflict-checking queries to prevent overlapping appointments, PHPMailer for automated email notifications, and indexed SQL queries for efficient record retrieval and report generation. Audit logging recorded user activities, timestamps, and action types to support accountability and traceability. Performance targets included response times below two seconds and 99% system uptime. Final validation was planned through evaluation by the Guidance and Counseling Office, with system acceptance dependent on resolving critical issues and confirming that the developed platform met its intended operational requirements.

## 3. Results and Discussion

### 3.1 Development and Implementation of the Online Guidance and Counseling System

#### 3.1.1 System Architecture and Implementation

The system was successfully developed as a web-based application using HTML5, Tailwind CSS, and JavaScript for the presentation layer, PHP 8.x for application processing, and MySQL 8.0 for database management. It was demonstrated through a local PHP development server and designed for deployment on Hostinger shared hosting with Apache 2.4 and HTTPS/SSL. Role-based access was implemented for students, guidance coordinators, and system administrators. The developed modules included authentication, student profiling, referral management, counseling case management, appointment scheduling, notifications, reporting, audit logging, and student self-

service. The integrated architecture provides a centralized platform for managing student guidance services. By organizing records and workflows within a single application, the system addresses fragmented documentation and supports more efficient coordination among authorized users.

### 3.1.2 Public Access, Authentication, and Account Activation

The public landing page provided access to the student support platform, including sign-in options, service information, and confidentiality guidance. The authentication module allowed users to select their assigned role and enter their credentials, while invalid login attempts were rejected. First-time student users could activate their accounts using an official Student ID and a six-digit verification code sent to their registered email address before creating a password. These functions establish controlled access to the system while providing students with an accessible entry point for guidance services. Account verification and role-based authentication help prevent unauthorized access and protect confidential counseling information.

### 3.1.3 Administrator Dashboard and Student Profiling

The administrator dashboard displayed 184 student records, 53 pending requests, one scheduled session for the day, three open cases, 75 closed cases, and an average rating of 5.0 out of 5. It also presented high-priority referrals, upcoming counseling sessions, and case monitoring information. The student profiling module provided searchable records categorized by student number, department, program, and year level. Guidance coordinators had college-filtered, view-only access to assigned student records. Centralized profiling and dashboard monitoring improve the accessibility of student information compared with the previous manual process, which required approximately 10–15 minutes to retrieve physical records. The college-filtered interface also supports efficient information management while limiting access according to assigned responsibilities.

### 3.1.4 Referral and Counseling Case Management

The referral management module organized student referrals according to their identification number, submission date, student information, referral source, presenting concern, and processing status. It accommodated student-initiated and teacher referrals, including records awaiting student consent or appointment scheduling. The case management module supported counselor assignment, concern classification, initial case summaries, follow-up actions, and status monitoring using indicators such as In Progress and Solved. Counseling session documentation was maintained through individual counseling forms. These functions replace fragmented paper-based referrals and counseling records with organized digital documentation. Structured case management supports continuity of student assistance by allowing counselors to monitor active cases, identify pending actions, and maintain accessible counseling histories.

### 3.1.5 Online Appointment Scheduling and DASS-21 Assessment

The appointment management module recorded 183 appointments classified according to DASS-21 severity levels: 58 Extremely Severe, 14 Severe, 37 Moderate, 14 Mild, and 60 Normal. Appointment records included student information, assigned counselor, schedule, referral source, assessment scores, and appointment status. The system incorporated scheduling conflict checks and automated email notifications to inform guidance counselors of student appointment requests. The integration of online scheduling, DASS-21 assessment, and automated notifications improves the organization of counseling appointments and supports the identification of students requiring attention. Conflict checking prevents overlapping schedules, while severity classifications provide additional information for reviewing appointment requests and coordinating appropriate counseling assistance.

### 3.1.6 Reporting, Notifications, and Audit Logging

The reporting module generated summaries covering 184 students, 183 appointments, four cases, and 195 recorded audit activities. Audit records included timestamps, user information, and activities such as login, logout, case creation, appointment updates, and student profile modifications. The notification module displayed referral updates, student consent confirmations, new appointment requests, and newly submitted referrals, with corresponding read or unread indicators. These features improve administrative monitoring and accountability by providing accessible operational information and traceable user activities. The integration of automated notifications and audit logging supports timely coordination, record transparency, and responsible management of sensitive student information.

### 3.1.7 Student Self-Service Portal

The student portal provided access to approved appointments, appointment histories, case information, follow-up records, and profile settings. Students could submit appointment requests by identifying their presenting concerns, completing the DASS-21 questionnaire, and acknowledging confidentiality requirements under RA 11036 and RA 10173. The system prevented duplicate appointment requests when an approved appointment remained active. Students could also update their profile photographs and passwords, while official demographic information remained restricted. The self-service portal reduces dependence on physical visits for routine appointment requests and provides students with a more convenient way to access guidance services. Its access restrictions and

confidentiality controls help maintain the separation between student-visible information and protected counseling records.

### 3.2 Attainment of Project Objectives

#### 3.2.1 Integrated Management of Student Profiles, Cases, and Appointments

The first objective was achieved through the integration of student profiles, counseling cases, referrals, appointments, and reports within a centralized platform. The system contained 184 student records and provided college-filtered coordinator access, with counseling cases linked to relevant appointment information. These results demonstrate that the system consolidated essential guidance office functions previously managed through separate paper-based records. Centralized information management supports more efficient retrieval, coordination, and monitoring of student counseling services.

#### 3.2.2 Automated Counseling Documentation and Progress Monitoring

The second objective was achieved through automated case status indicators, dashboard monitoring, follow-up notifications, and audit logging. The system displayed 53 pending requests and recorded 195 audit activities, while counseling cases were monitored using In Progress and Solved classifications. These functions support organized counseling documentation and help counselors identify cases requiring further attention. Automated monitoring reduces reliance on manual tracking and improves the visibility of pending requests and follow-up activities.

#### 3.2.3 Online Appointment Scheduling and Automated Notifications

The third objective was achieved through online appointment requests, DASS-21 assessment, scheduling conflict detection, and automated email and in-system notifications. The platform recorded 183 appointments with severity classifications and generated notifications for new student requests. These results demonstrate the system's ability to support appointment coordination between students and guidance personnel. Automated alerts and scheduling controls improve workflow organization and reduce dependence on manual appointment registration.

### 3.3 System Testing and Performance Evaluation

#### 3.3.1 Functional and Integration Testing

The system underwent unit, integration, and system testing to verify authentication, appointment scheduling, DASS-21 scoring, access restrictions, audit logging, and session management. All ten documented functional test cases passed after correcting early defects involving overlapping appointments and missing access restrictions on report pages. Integration testing confirmed that appointment requests generated pending records, coordinator notifications, dashboard updates, and audit entries. The successful test results indicate that the evaluated functions operated according to their specified requirements. Correcting scheduling and authorization defects strengthened system reliability and protected confidential counseling information.

#### 3.3.2 System Response Time and Efficiency

Performance testing showed that all evaluated operations met the target response time of less than two seconds. The landing page loaded in 0.8 second, sign-in and dashboard access in 1.1 seconds, student record searches in 1.3 seconds, appointment records in 1.5 seconds, referral and case pages in 1.2 seconds, and audit reports in 1.4 seconds. These results indicate satisfactory system responsiveness under the reported testing conditions. Efficient page loading and indexed database searches support timely access to student records, counseling information, and appointment schedules, addressing the delays associated with manual record retrieval.

### 3.4 Stakeholder Evaluation and System Acceptability

#### 3.4.1 Guidance Office Validation

The developed system was formally presented to the Guidance, Counseling, and Placement Office of Sulu State University for stakeholder evaluation. The presentation demonstrated its major functions, workflows, and technical components. The system was formally validated by the Head of the Guidance Office, Ms. Fhadzra Aisha Sabdani, RPm. Office personnel reported that dashboard summaries, severity indicators, and college-filtered coordinator views facilitated the prioritization of student concerns. The manuscript reported an overall rating of Highly Acceptable. The stakeholder evaluation supports the system's relevance to institutional guidance operations. The feedback indicates that centralized monitoring and organized records can assist guidance personnel in managing student concerns more efficiently than traditional paper-based procedures.

#### 3.4.2 Student Accessibility and Suggested Improvements

Students reported that online appointment requests and digital DASS-21 completion felt less intimidating than visiting the guidance office without prior scheduling. Stakeholders also suggested incorporating SMS reminders and a native mobile application, although these features were excluded from the present system scope. These observations suggest that digital self-service features may reduce barriers to accessing guidance assistance. However, additional functionalities would require further development and evaluation before implementation.

### 3.5 Overall Discussion of System Effectiveness

The findings demonstrate that Stalwart Digital Student Support achieved its three primary objectives by integrating guidance records, automating counseling case monitoring, and implementing online appointment scheduling with notifications. The system addressed documented operational challenges through centralized MySQL records, structured case documentation, status indicators, role-based access, and audit logging. Functional tests passed after defect correction, and observed response times remained within the established two-second standard. These findings are consistent with Dela Cruz (2023) and Estabillo and Beltran (2025), who reported improvements in administrative efficiency following the implementation of digital guidance management systems. The online appointment features also align with Villanueva (2023), who emphasized the potential of digital scheduling to reduce barriers to counseling access. Furthermore, the implemented role-based access controls and audit logging support the information security principles discussed by Mendoza (2022). Nevertheless, the system remains a technological support tool rather than a replacement for professional counseling, consistent with ASCA (2022), which emphasized preserving the human-centered nature of counseling services. Overall, the developed platform demonstrated functional readiness, satisfactory response times, and institutional acceptance within the reported evaluation setting. Its integrated features provide a foundation for more organized, accessible, and accountable guidance and counseling services at Sulu State University. However, the findings primarily establish system functionality and stakeholder acceptance; longer-term improvements in counseling outcomes and administrative efficiency require further evaluation after sustained institutional use.

## 4. Conclusion & Recommendations

The study successfully designed, developed, tested, and evaluated Stalwart Digital Student Support: An Online Guidance and Counseling Case Management System for Enhanced Student Assistance at Sulu State University. The system addressed limitations in manual record management, counseling documentation, case monitoring, appointment scheduling, and information security through centralized student profiling, referral and case management, DASS-21 assessment, automated notifications, reporting, and role-based access control. Functional testing confirmed that the evaluated modules operated as intended after defect correction, while system response times remained within the two-second target. Overall, the system achieved its objectives by improving the organization, accessibility, efficiency, and confidentiality of guidance services, supporting more responsive student assistance and contributing to sustainable institutional operations.

The study recommends adopting the developed system as the official platform for student intake, referrals, counseling documentation, appointment scheduling, and case monitoring at Sulu State University. Implementation should include institutional policies, appropriate hosting resources, data protection review, user training, and systematic migration of existing records while maintaining secure backups and confidentiality safeguards. Regular system maintenance, audit log reviews, and security testing are recommended to ensure continued reliability. Future enhancements may include SMS reminders, mobile application support, video counseling, faculty referral access, integration with institutional systems, and expanded reporting capabilities. Further evaluation after sustained implementation is also recommended to determine improvements in appointment waiting time, counseling utilization, and follow-up completion.

The study was limited to the development and evaluation of a web-based guidance and counseling case management system specifically designed for Sulu State University. Its functionalities focused on student profiling, referral management, counseling documentation, intervention tracking, appointment scheduling, automated email notifications, reporting, and secure information management. The system did not include real-time chat or video counseling, a standalone mobile application, biometric authentication, artificial intelligence, automated crisis intervention, SMS notifications, or integration with external institutional systems. Additionally, deployment relied on shared hosting with limited cloud capabilities, and the evaluation primarily assessed system functionality, performance, and stakeholder acceptance rather than long-term improvements in counseling outcomes and service utilization.

## 5. Compliance with ethical standards

The authors declare no conflict of interest, and no external funding was reported for this study. The authors acknowledge the cooperation and contributions of the guidance counselors, students, and Guidance, Counseling, and Placement Office of Sulu State University, Philippines, in providing information through non-invasive interviews, focus group discussions, and document reviews. The study emphasized confidentiality, secure data management, and the protection of sensitive student information, with no personally identifying participant information disclosed.

## REFERENCES


American School Counselor Association. (2022). ASCA national model: A framework for school counseling programs (4th ed.). ASCA Publications.

Brown, J. (2024). Clinical case management in college counseling centers: Considerations for first-generation student experiences. Journal of First-Generation Student Success, 4(2), 112–128.

Chen, L., & Watanabe, M. (2024). Artificial intelligence integration in student counseling services: Opportunities and ethical considerations in Japanese universities. Journal of Educational Technology & Society, 27(3), 45–59.

Dela Cruz, R. (2023). Digital transformation in Philippine educational institutions. Asian Journal of Education and Technology, 31(2), 145–162.

Estabillo, R., & Beltran, J. (2025). Guidance services management system for public secondary high schools: A technology acceptance model approach. Philippine Journal of Educational Technology, 12(1), 34–51.

Garcia, M., & Santos, J. (2021). Information systems for student support services: A design science approach. Philippine Information Technology Journal, 18(1), 78–95.

Halqim, S., & Rukiyati, R. (2024). Information technology in guidance and counseling: Enhancing service quality and addressing ethical concerns. Indonesian Journal of School Counseling, 9(1), 15–28.

International Finance Corporation. (2022). Digital solutions for education: Enhancing student support services. World Bank Group.

Johnson, K., & Williams, L. (2021). Electronic health records in school-based mental health services: Implementation lessons learned. Journal of School Health, 91(5), 412–420.

Kanter, J. (2010). Clinical case management. In J. Brandell (Ed.), Theory and practice of clinical social work (2nd ed., pp. 215–238). Sage Publications.

Kumar, A., & Lee, S. (2025). Cybersecurity framework for educational counseling information systems: Protecting student mental health data. Computers & Security, 148, 104–119.

Mendoza, R. (2022). Securing student data: Best practices for educational institutions. Philippine Journal of Computing, 15(2), 112–128.

Mohd Nadzree, N. A., & Mohd Zin, N. (2024). CounselCare: A web-based system for student mental health assessment using DASS-21. Journal of Computing Research and Innovation, 9(1), 56–70.

Okonkwo, C., & Adebayo, O. (2023). Web-based counseling management system for Nigerian universities: Addressing cultural stigma through anonymous reporting. African Journal of Information Systems, 15(3), 245–262.

Pressman, R. S. (2020). Software engineering: A practitioner's approach (9th ed.). McGraw-Hill.

Ramli, A. (2024). Information technology in guidance and counseling services: A comparative narrative review of Indonesia and Tanzania. International Journal of Educational Development, 105, 102–118.

Reyes, C., & Villanueva, M. (2022). Case management systems in Philippine educational settings: Documentation standards for counseling. Journal of Philippine Education Research, 25(1), 45–62.

Santos, B. (2022). Operational challenges in school guidance offices in Sulu. Philippine Journal of Educational Administration, 14(2), 89–104.

Smith, T., & Martinez, R. (2023). Technology adoption in school counseling services across Southeast Asia: Barriers and success factors. Asia Pacific Education Review, 24(4), 567–582.

Sommerville, I. (2021). Software engineering (10th ed.). Pearson.

Subbarao, P., Kumar, V., & Singh, R. (2025). Digital transformation in higher education: Enhancing support services through mobile applications for Generation Z students. Journal of Educational Computing Research, 63(1), 78–102.

Torres, P. (2021). Role-based access control implementation in educational web applications. Philippine Information Technology Standards, 12(4), 67–83.

United Nations. (2021). The sustainable development goals report 2021. United Nations Publications.

Villanueva, M. (2023). Digital counseling tools and student engagement with guidance services. Philippine Journal of Psychology, 56(1), 78–95.

Williams, T., Anderson, K., & Davis, M. (2024). Impact of digital case management systems on student retention and academic success: A longitudinal study of community colleges. Journal of College Student Retention, 26(2), 312–335.

World Health Organization. (2022). Mental health in schools: A guide for implementation. WHO Press.

Young, A., & Kaffenberger, C. (2021). Making data work: A guide for school counselors (3rd ed.). ASCA Publications.

Zenak, M., Bendoukha, H., & Himri, H. (2025). BP-KPI: Integrating business process management and key performance indicators for automated student support. International Journal of Information Management, 75, 102–118.