NSIEX+RS 2025
NEGERI SEMBILAN INTERNATIONAL EXPOSITION

HARMONY IN PROGRESS:

INTEGRATING SCIENCE, TECHNOLOGY, AND SOCIAL INNOVATION FOR SUSTAINABLE DEVELOPMENT GOALS

e-Book of Extended Abstract
Negeri Sembilan International (NSIEx) & Research Symposium
2025

PST019 - SERENITYSENIOR:AN ELDERLY CENTERED DIGITAL MENTAL HEALTH PLATFORM

Nahreen Zannat

Kulliyah of Information and Communication Technology,IIUM,Gombak,Selangor,53100,Malaysia

Corresponding author: Zannat.nahreen@gmail.com

ABSTRACT

This study introduces SerenitySenior, a mobile app that fulfills older persons' mental health needs. Accessible and personalized mental health support tools for older adults are needed due to the global demographic change toward an aging population. SerenitySenior is a user-friendly, culturally sensitive digital resource to improve seniors' mental health. Following a comprehensive literature analysis and digital health intervention best practices for older individuals, the study created a high-fidelity SerenitySenior prototype. Users with varying technological skills and physical constraints are accommodated by user-centric features like large, clear text, fast navigation, voice-activated instructions, and intuitive interaction techniques. Data collection has not yet occurred, but the app's features were built after a comprehensive examination of mental health solution studies to ensure relevance and accessibility. Guided meditation, mood-tracking tools, cognitive exercises, and educational materials on common mental health difficulties among older persons are available from SerenitySenior. Improve offline capabilities and add culturally varied material to better tailor the app to user needs. The study prioritized design concepts based on older folks' needs to make digital health interventions accessible and usable. This study shows that a user-centered, evidence-based approach can promote engagement and mental well-being in older adults using digital mental health care. Age-appropriate technology can help older populations with mental health difficulties, as SerenitySenior may be a valuable and accessible resource

Keywords – Mental health, Elderly people, user centered design, mobile app

INTRODUCTION

The world's aging population makes older mental health issues more significant. This generation faces social isolation, cognitive decline, depression, and anxiety, which lowers their quality of life. Depression, anxiety, cognitive decline, and social isolation can impair elderly quality of life. Depression in older persons is linked to women, social isolation, and pre-existing health concerns. A COVID-19 pandemic study of elderly Indians indicated that concomitant health concerns, social isolation, and financial suffering predicted depression (Ray, 2023). Depression affects health and social security in China, where 34.1% of seniors are depressed (Shao, Chen, & Ma, 2022). Despite increased demand, older adults have limited specialized mental health alternatives. Low digital literacy, stigma, and transportation constraints generate this shortage. Fewer digital mental health therapies are for older persons than younger ones. Current technologies may not be accessible to

elders' physical and cognitive limitations. This gap highlights the need for user-centered, innovative mental health support for seniors.

SerenitySenior, a senior digital platform, is introduced in this study. One of its primary innovations is its high-fidelity prototype, created after researching digital design and mental health intervention literature and best practices. This software encourages cultural awareness, accessibility, and usability using voice commands, simplified navigation, large print, and engaging mental health resources. This project will create and test a high-quality SerenitySenior prototype for older digital mental health. This method may improve seniors' mental health. This study prepares for implementation and testing with user-centric design. We seek to create more accessible and effective geriatric digital mental health solutions. The study introduces SerenitySenior, a cutting-edge mobile program that meets senior adults' mental health needs through a digital platform. Seniors require accessible and specialized mental health help as the population matures. SerenitySenior is a culturally appropriate, user-friendly online resource for senior mental health. A literature review and current aging digital health interventions informed this study's high-fidelity SerenitySenior prototype. Voice-activated commands, intuitive interaction modalities, simpler navigation, and large, easy-to-read text are user-centric features for all technological abilities and physical constraints. Even before data collection began, a thorough review of mental health solution research guaranteed the app's relevance and accessibility. These issues necessitate diverse methods. Studies show that wisdom and positive views about aging can reduce the implications of poor physical and mental health. Wisdom buffers and positive aging attitudes improve mental health (Zadworna & Ardelt, 2025). SerenitySenior provides cognitive activities, mood-tracking tools, guided meditation, and information on prevalent mental health issues in older adults. The app will be customized by providing culturally diverse content and offline features. Telepsychiatry, popular during the epidemic, must be used in geriatric care. Telepsychiatry can help older persons with poor computer skills access mental health care (Sivakumar et al., 2020). This study prioritizes older adult-centered design to improve senior digital health care accessibility and efficacy. This study reveals that user-centered, evidence-based approaches improve senior mental health and participation. Age-appropriate technology like SerenitySenior could aid seniors with mental health difficulties. In conclusion, older persons' mental health difficulties are complicated and require a profound understanding of their social, cognitive, and emotional requirements. These issues require healthcare, community support, and innovative mental health interventions (Rangarajan et al., 2021).

OBJECTIVE

i. To conduct a thorough assessment and analysis of current digital mental health therapies for older individuals, pinpointing essential characteristics and identifying existing deficiencies.
ii. To create a high-fidelity prototype of SerenitySenior, a digital platform designed to meet the mental health requirements of aged consumers.
iii. To integrate functionalities beneficial for senior users, like streamlined navigation, accessible information, and voice interaction, to improve usability.
iv. To evaluate the usability, accessibility, and user satisfaction of the SerenitySenior prototype by conducting tests with older adult volunteers.
v. To create a basis for subsequent research aimed at evaluating the deployment and efficacy of the platform in enhancing mental health outcomes for seniors.

DESCRIPTION OF THE PROJECT

An Elderly Mental Health Application, a digital platform, will be developed to support older adults' mental health. It will offer accessible features, including professional counseling, appointments with specialists, medication reminders, health tracking (blood pressure, glucose, activity, sleep, mood), and family notifications for missed appointments. The app prioritizes user-friendliness with a rich color palette and large buttons. Research emphasizes the need for senior-friendly digital health devices with features like contrasting colors, skeuomorphic design, icon-based navigation, and voice notifications. Complex interfaces hinder adoption. User-centered design, motivation, assistance, and training are crucial for increasing user experience and promoting connectivity. Wearable sensors for sleep monitoring can aid in mental health evaluation and communal caregiving. Effective digital interventions require simplified interfaces, easy navigation, and comprehensive support to enhance usefulness and socialization for older individuals.

NOVELTY

Our unique digital health app for seniors combines mental wellness, health monitoring, and social connection. It offers psychological support, biometric tracking, and family communication. Key features include senior-focused design (larger buttons, brighter colors), integrated social support with family notifications, on-call counselors and consultations, and secure fingerprint authentication. The app tracks vital signs, mental state, sleep, and physical activity for personalized health and early diagnosis. This platform improves geriatric mental health, especially for those with mobility issues, by improving self-monitoring, community support, and reducing loneliness. It’s a scalable, adaptive gerontechnology solution that enhances seniors' quality of life.

CONCLUSION

To conclude, creating this new digital mental health platform is a major step toward satisfying older adults' healthcare demands. The platform combines mental health help, real-time health monitoring, and social interaction features into a single, easy-to-use interface to improve older adults' quality of life. Its holistic approach provides medical and emotional care, develops community, and promotes independence, which are vital to mental and physical health. Wearable sensors, mobile apps, and data analytics let the platform provide personalized and proactive healthcare. This helps consumers get individualized care, detect health issues early, and keep in touch with doctors and family. Scaling and adapting to different scenarios indicates that it can make eldercare more accessible, efficient, and caring. As the global elderly population grows, these digital health solutions become more important. We should improve the user experience, protect data, and support underserved communities in the future. This platform shows how technology can be used in holistic elderly care. It can also make global aging populations healthier, more connected, and powerful.

REFERENCES

Rangarajan, S. K., Sivakumar, P. T., Manjunatha, N., Kumar, C. N., & Math, S. B. (2021). Public Health Perspectives of Geriatric Mental Health care. *Indian Journal of Psychological Medicine*, *43*(5_suppl), S1–S7. https://doi.org/10.1177/02537176211047963.

Ray, K. K. (2023). COVID-19 pandemic and the determinants of depressive symptoms among senior citizens of India: An empirical investigation. *Asian Social Work and Policy Review*, *17*(3), 196–207. https://doi.org/10.1111/aswp.12286

Shao, M., Chen, J., & Ma, C. (2022). Research on the Relationship between Chinese Elderly Health Status, Social Security, and Depression. *International Journal of Environmental Research and Public Health*, *19*(12), 7496. https://doi.org/10.3390/ijerph19127496

Sivakumar, P. T., Mukku, S. S. R., Kar, N., Manjunatha, N., Phutane, V. H., Sinha, P., . . . Math, S. B. (2020). Geriatric Telepsychiatry: Promoting access to geriatric mental health care beyond the physical barriers. *Indian Journal of Psychological Medicine*, *42*(5_suppl), 41S-46S. https://doi.org/10.1177/0253717620958380

Zadworna, M., & Ardelt, M. (2025). Understanding mental health in older adults: exploring the interplay of wisdom, perceived poor health, and attitudes toward aging. *Aging & Mental Health*, 1–12. https://doi.org/10.1080/13607863.2025.2452943