Mental Health Artificial Intelligence Pal (MHAI-Pal) Privacy Policy

1. Introduction

The purpose of this research app is to investigate the relationship between student behavioral patterns using passive sensor signals generated from smartphones and self-reported survey data. **The purpose of this study** is to assess the role of technology in helping students' understanding of psychological well-being.

2. Data Collection

Two types of data will be collected with this app: survey-based data and sensor signal data. Both are summarized below.

Survey data collection

The survey data collected are user provided and will fall into several categories.

- Profile creation and sociodemographics - 5 minutes - create a unique profile and answer sociodemographic questions (age, sex, gender, race, ethnicity, first generation college status, income group perception, degree program, perceived health)
- Bi-weekly (3 total)/monthly (6 total) follow up survey: A pivotal aspect of our study involves collecting responses for the Patient Health Questionnaire (PHQ-9) and the Generalized Anxiety Disorder 7-item (GAD-7) surveys. Recognizing the initial six weeks of the semester as a period with heightened attrition risk for first-year students, our data collection strategy is tailored to capture this significant phase. Specifically, during the first two months of the semester, we will gather these survey responses bi-weekly (for a total of three biweekly surveys) to capture potential fluctuations in mental health status as students transition into university life. Subsequently, starting in November 2024 the frequency will be reduced to a monthly basis (total of 6 monthly surveys, synchronizing with the anticipated stabilization of students' circumstances. We intend to use push notifications via our mobile application to prompt students to complete follow-up surveys. Each notification will grant students a 24-hour window for questionnaire completion, striking a balance between prompt data collection and accommodating diverse schedules. Bi-weekly/monthly follow up survey will take approximately 2 minutes to complete each time.
- Week six of the study: Social Network Battery week 6 (third follow-up survey) In October, the follow up survey (3rd follow up) in addition to the PHQ-9 and GAD-7 will include a couple questions about the first-year experience. The questions will ask about the top three stressors on campus and its impact on their future at the university and include a social network survey. Completed via the mobile application. The SNB varies in time of completion, but could take approximately 10 minutes.
- Month 5 of the study: Trauma questionnaire will take approximately 5 minutes to complete in December (month 5 of the study and the fifth follow up survey) Baseline and Endline surveys: Two rounds of separate survey responses will be gathered, before and after the one-year study. The baseline survey will be administered during the first week of class. This baseline survey will encompass the Flourishing Scale (FS-8), PHQ-9, GAD-7, Perceived Stress Scale (PSS-10), Loneliness Scale -6, Pittsburg Sleep Quality Index-Brief (B-PSQI), and the mental health-promoting knowledge (MHPK-10) instrument. Moreover, participants' demographic information, such as age, gender, majors, personal and family mental health history, employment status, total number of credits enrolled in (online vs. in-person) for the upcoming semester, family's annual income group, citizenship status, and first-generation college status will be collected during onboarding and profile creation. The 30-minute baseline survey via the mobile application and will include questions regarding how they view their belonging on campus and ability to complete the program. An identical endline survey will be administered via the mobile application at the end of the 2024-2025 academic year. Completed via the mobile application. These surveys will take approximately 20-30 minutes each to complete.

Sensing data collection
The collection of mobile sensor signals will be facilitated through a pre-developed mobile app. This approach serves to capture participants' physical and social behaviors, presenting a more objective and efficient method for identifying individuals exhibiting depressive behaviors, when contrasted with human assessments or self-reports. Data will be collected at regular intervals while phone is charging. Sensing data is collected from August 2024-May 2025 and will include data from accelerometers (from CoreMotion iOS framework), gyroscope (from CoreMotion iOS framework), GPS (from CoreLocation iOS framework), step (from HealthKit iOS framework), distance (from HealthKit iOS framework), calories burned (from HealthKit iOS framework), sleep duration (from HealthKit iOS framework), sleep interruption (from HealthKit iOS framework), sleep intensity(from HealthKit iOS framework), light exposure (from HealthKit iOS framework), and nearby Bluetooth signals (from CoreBluetooth iOS framework).

3. **Data Usage**

Through the utilization of AI-enabled analytics techniques, the goal is to automatically analyze sensor signals generated by the devices to identify symptoms of mental health concerns, specific behaviors they are exhibiting that are associated with depression, and the relationship between the behaviors and understanding of mental health information. All of these will be used to help improve future app functionality.

4. **Data Sharing**

Your personal information may be shared outside the research study if required by law. We also may need to share your research records with other groups for quality assurance or data analysis. These groups include the Indiana University Institutional Review Board or its designees, and state or federal agencies who may need to access the research records (as allowed by law). Information collected for this study may be used for other research studies or shared with other researchers who are conducting their own research studies. This may include sharing with researchers outside Indiana University and sharing with private companies. It may also include making the information available in public and private databases of research data so that other researchers can use the information to answer research questions.

5. **Data Security**

We will protect your information and make every effort to keep your personal information private. No information which could identify you will be shared in publications about this study. Identifiable electronic subject data (health data, accel, gyro) will be collected via a two-phase encryption and will be stored with a decryption key owned by PI and doctoral student. The protection of participant privacy through the removal or anonymization of personally identifiable information (PII) will be implemented at various stages of the data flow. Initially, upon collection, data will be stored (i.e. cached) locally, adhering to Apple's encryption standards before transmission. This encrypted data is then transmitted using SSL certificates to the Jetstream server, where a two-step encryption process takes place. Firstly, the data is encrypted upon arrival and then re-encrypted before being sent to our backend MySQL server for storage, which utilizes AES encryption. Afterwards, permission to access this data will only be restricted to specific individuals such as the Principal Investigator (PI) and lead graduate students. Collected survey data, identified only by IU username which will be encrypted prior to being stored securely by SQL database on Jetstream, and then downloaded to a secure database and server maintained by Samtani's research team in the highly secure UITS data center. All files will be kept on a secure IU server. The systems administration staff has designed a number of processes for preventing intrusions or data loss on the Jetstream servers. Remote access to the servers is tightly controlled by user IDs, passwords, and two-factor authentication through DUO. Physical access to servers is restricted per the security protocols of IU's data center.

6. **User Rights:**

For questions about your rights as a research participant, to discuss problems, complaints, or concerns about a research study, or to obtain information or to offer input, please contact the IU Human Research Protection Program office at 800-696-2949 or at irb@iu.edu. **If you decide to participate in this study, you can change your mind and decide to leave the study at any time in the future.** If you decide to withdraw, call any research staff member or one of the principal investigators and inform the research staff member of your decision. Once you express that you would like to be withdrawn from the study, you will be immediately removed from the study. Data can be removed for your profile. Data can be accessed at any time with contact to the study investigators (see below).

7. **Contact Information:**

The study is being conducted by Indiana University's Assistant Professor Dr. Sagar Samtani from the Department of Operations and Decision Technologies at the Kelley School of Business, Assistant Professor Dr. Edlin Garcia from the Department of Health & Wellness Design at the School of Public Health, and Distinguished Professor Dr. Bernice Pescosolido from the Department of Sociology. The study is funded by the IU Vice Provost for Research and the Kelley School of Business. **If you have questions about the study or encounter a problem with the research**, contact the researcher, Dr. Sagar Samtani or Dr. Edlin Garcia by email at MHAIPAL@iu.edu by phone at (812) 855-8925 or (812) 855-3102.

8. **Changes to the Privacy Policy:**

All changes to the privacy policy will be shared via the app or through push notifications and emails.