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Chapter 63

An AI-Based Mental Health and Loneliness Support Plushie

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ABSTRACT

Mental health is a major public health concern around the world, and it should play a prominent role in the healthcare business. However, the rate of progress in this subject appears to be relatively modest. Recently, AI techniques have gained a lot of attention in other industries, including mental health. Current developments highlight AI's revolutionary potential, with applications including early identification of mental health issues, individualized treatment programs, and AI-powered virtual therapists. SoulSense has the potential to lower barriers to mental health care by offering 24-hour access, lowering costs, and reducing the stigma associated with seeking therapy. AI systems may examine enormous information to identify trends that human clinicians may overlook, resulting in more accurate assessments and tailored treatment strategies. However, the implementation of SoulSense in mental health presents considerable hurdles. Concerning areas like data privacy, ethical use, algorithmic prejudice, and AI's inability to completely duplicate human empathy must be addressed. This research investigates how SoulSense can supplement traditional therapy, the advantages and disadvantages of existing AI mental health technologies, and the ethical concerns required for responsible innovation. By evaluating current breakthroughs and case studies, the study hopes to emphasize the potential for AI to complement, rather than replace, human-centered mental health care, ensuring that technology improves rather than degrades therapeutic outcomes.

Key Words: Artificial Intelligence, Mental Health, Diagnosis, Therapy, Ethical Concerns

1.0 INTRODUCTION

According to a scientific brief published in 2022 by the World Health Organization (WHO), the prevalence of anxiety and depression rose by a staggering 25% worldwide in the first year of the COVID-19 pandemic. The extreme stress brought on by the pandemic's social isolation is a key factor in the rise. Anxiety and depression have also been linked to several stressors, including loneliness, financial concerns, sadness following a loss, fear of infection, and suffering and death for oneself and loved ones. Since many people are unable to receive in-person care, they have turned to online resources for support, indicating the critical need for conveniently accessible and trustworthy digital solutions. Nonetheless, creating and implementing digital solutions continues to be extremely difficult in nations and environments with little resources.

If such an essential need is not met, it is common for individuals to experience feelings of loneliness (Chang et al., 2020). Numerous studies have linked loneliness to a variety of chronic diseases, making it an increasing worldwide issue for adult populations. It is assumed that emotional loneliness refers to the absence of an attachment figure (together with feelings of isolation) and social loneliness as the lack of a social network, the absence of a circle of people that allows an individual to develop a sense of belonging, of company, of being part of a community (Yanguas et al., 2018). Although loneliness is not an officially recognized mental health illness, it is a crucial component that can have a negative impact on mental health and raise the risk of conditions like anxiety and depression.

Loneliness and mental health support needs must evolve in today's fast paced, technologically advanced, continuing and available without putting the user under additional clinical pressure. A clever, emotionally resonant plush device, SoulSense is a cutting-edge mental health and loneliness companion. SoulSense seamlessly integrates Ai-powered insights with empathetic design to give people real time emotional well-being monitoring and deliver psychiatrists safe, useful data for better therapy. SoulSense reimagines how mental health can be supported, not only in therapy sessions but also in the daily life of those who need it most, by turning a soft toy into a scientifically useful yet emotionally accessible tool.

2.0 LITERATURE REVIEW

Over the decade, AI has been used to aid or even replace humans in many professional fields. One of the most promising areas of development for AI is healthcare (Mishra et al. 2021). AI is quickly becoming effective at performing several tasks in the healthcare setting that we used to consider a human prerogative. In particular, AI seems to be better than humans at diagnosing some diseases because it can learn from vast datasets and recognise patterns better than we can (Loh 2018).

AI has proved helpful in diagnosing mental illness, often via means unavailable to human therapists. In particular, AI has been used to help with mental healthcare in three main ways, namely through “personal sensing”, through natural language processing, and through chatbots (D’Alfonso 2020). SoulSense can upgrade mental health practice via better informed, personalized and predictive decisions without replacing the human role. Despite these developments, the ethical implications of employing AI in therapy must not be

neglected. As Mittlestadt et al. (2016) note issues such as data privacy, algorithmic prejudice, and computers' lack of emotional intelligence. To maintain user confidence and safety, SoulSense must be built with strong data protection protocols and transparent algorithms.

Finally, there seems to be at least some potential for AI as a beneficial tool in the provision of mental healthcare. Here, we have been concerned primarily with the possible use of SoulSense AI to solve some long-standing problems in mental healthcare provision. However, in order to have a real-world impact, such systems must address not only the technological and clinical aspects of mental health care, but also the ethical, emotional, and cultural complexities.

3.0 METHODOLOGY

This study employed a quantitative research approach using an online survey to explore young adults' perceptions of mental health challenges and their openness to AI-based emotional support tools, including a concept product called SoulSense. A total of 12 female participants aged between 18 to 34 took part in the survey. Most of them were students aged 18–24, enrolled in programs such as Business, Psychology, Tourism, and Information Technology, while a few were working professionals in fields like Nursing and Administration.

The survey was distributed through informal online channels using a convenience sampling method. It included structured questions on stress frequency, perceived barriers to seeking mental health care, trust in AI tools, and preferred features for emotional support technology. Participants also provided feedback on their comfort level, expectations, and concerns regarding the proposed SoulSense product. All responses were collected via Google Forms and analyzed using descriptive methods to identify patterns and trends relevant to the study's objectives.

4.0 RESULT AND DISCUSSION

4.1 Result

The survey was taken through Google Forms and presented a questionnaire to investigate the possibilities of acceptance and the practicality and consumer interest in the AI-based product of emotional and mental support. A companion. The results were visualized by means of diagrams and tables that reflected not only the survey but the overall research methodology as well.

i. Demographic Profile of Respondents:

A total of 12 responses were collected. The demographic characteristics of the respondents are as follows:

Table 1 Demographic Profile of Respondents

Demographic Categories	Subcategory	Percentage
Gender	Female	100%
Age group	18-24 years	91.7%
	25-34 years	8.3%
Occupation	Student	83.3%
	Work	16.7%

ii. Feedback on SoulSense Concept:

Table 2 Feedback on SoulSense Concept

Question	Response	Percentage
How would you feel about using a plush toy integrated with AI for emotional support?	Very comfortable	8.3%
	Comfortable	16.7%
	Neutral	66.7%
	Uncomfortable	8.3%
Would you prefer a device like SoulSense to be used on a regular basis or just during moments of high stress or anxiety?	Regular basis (daily or weekly check-ins)	41.7%
	Only during high-stress moments	16.7%
	I'm unsure	41.7%
Do you think having a companion app with SoulSense would be beneficial for tracking and improving emotional health?	Yes	25%
	No	8.3%
	Maybe	66.7%
What kind of features would you expect from a plush toy that provides emotional support?	Real-time emotional analysis	66.7%
	Sensor-based tracking (e.g., heart rate and grip pressure)	50%
	Customizable responses	41.7%
	Based on my emotions	
	Connection to a mobile app	50%
	To track mood and journal	
	Privacy and security data	50%

4.2 Discussion

The results reflect a growing awareness of mental health among young adults, though barriers like cost, access, and social stigma still prevent many from seeking help. Interestingly, while most respondents don't currently trust AI for emotional support, there's a willingness to try such tools if provided with more information and assurances of privacy. The strong interest in features like mood tracking and connection to professionals suggests that users don't see AI

as a full replacement but rather a complementary support system. The feedback on SoulSense implies that users value emotional comfort but are also highly sensitive to privacy and personalization. These findings validate the importance of designing mental health tech with a user-first approach, focusing on trust-building, real-time responsiveness, and secure data handling.

5.0 CONCLUSION AND RECOMMENDATION

In conclusion, one of the major indicators of social well-being is loneliness. Numerous physical and mental health conditions can result from loneliness. Loneliness can have a negative impact on one's physical and emotional well-being if neglected. Addressing the growing issue of adult loneliness may be greatly assisted by a human-centered approach to AI in mental health and loneliness. SoulSense lowers the psychological barriers to self-expression and involvement by integrating AI-driven journaling and monitoring tools into a soft approachable plush toy companion. This is especially beneficial for kids, teenagers and people who are reluctant to utilize standard digital tools. Early implementation and preliminary user feedback points to a great potential for enhancing emotional self-awareness and persistence to mental health and loneliness routines. While technology alone cannot replace the richness of human connection, it can provide meaningful support, companionship, and pathways toward healing when developed (Sullivan et al., 2023). By grounding AI in the lived experiences of users and aligning design with core psychological and social values, one can move beyond reactive solutions towards proactive, empowering interventions (Sullivan et al., 2023).

The ethical regulation of digital mental health technologies, long term emotional results, and hybrid models of care should all be explored more thoroughly in future studies. To evaluate the effectiveness of AI based therapies and the combination of AI based and human based interventions, more study needs to be conducted. Each recommendation needs to be supported by relevant needs and literature review to guide future research and validation. The first recommendation is to adapt SoulSense to accommodate a range of age groups and demographics, such as youngsters, and people with neurological disorders, and culturally varied communities, making sure that the language and design reflect inclusive values. To identify specific requirements, cultural barriers and accessibility enhancements, research needs are determined by conducting usability studies, testing and participatory design sessions with underrepresented user groups. Next recommendations are to improve treatment sessions and remote care coordination by developing a safe, user-friendly clinician dashboard with visual data summaries, personalized alarms, and mood tracking trends. Working with legal and ethical professionals to audit the system's privacy is necessary for this recommendation's research, particularly when it comes to use by minors or in a clinical setting.

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