How can AI models be adapted to incorporate cultural sensitivity in diagnosing and treating mental health conditions, considering Western and non-Western cultural contexts?

Amirkhon Aripov
Individual Researcher

Abstract

Artificial Intelligence (AI) is revolutionizing mental health care with advanced diagnostic tools, yet these systems often suffer from cultural biases in their design and training data. This research examines how AI can be adapted for cultural sensitivity in diagnosing and treating mental health conditions, focusing on both Western and non-Western contexts. Key barriers to seeking mental health help—such as social stigma, financial constraints, and lack of awareness—are identified, along with the influence of cultural factors like dreams and religious beliefs on mental health perceptions. Through a comparative analysis, the study reveals disparities in mental health understanding across cultures and underscores the need to integrate non-Western perspectives into AI systems. The findings provide recommendations for developing culturally responsive AI tools, aiming to create technologies that better address the diverse needs of individuals from various cultural backgrounds, ultimately contributing to more equitable and effective mental health care.

Key Words: Cultural sensitivity, Mental health diagnostics, AI adaptation, Western and non-Western contexts

I. INTRODUCTION

Artificial intelligence (AI) is revolutionizing mental health care by introducing advanced diagnostic and therapeutic tools. These innovations promise enhanced precision and accessibility in mental health services. However, the effectiveness of AI systems can be compromised by cultural biases in their design and training data. Many AI models reflect the cultural contexts of their predominantly Western training datasets (Ge et al., 2024; Prabhakaran et al., 2022), which can lead to mismatches between AI-generated assessments and the needs of individuals from non-Western cultures, potentially resulting in ineffective or harmful outcomes (Prabhakaran et al., 2022). For

instance, diagnostic tools developed in Western contexts may not fully address the symptomatology or treatment preferences of individuals from diverse cultural backgrounds (Hofstede, 2001).

To create equitable AI systems, addressing these cultural biases is crucial. This research will explore how AI models can be adapted to incorporate cultural sensitivity in diagnosing and treating mental health conditions. It is hypothesized that a nuanced understanding of cultural factors will improve AI models, leading to more accurate and culturally appropriate mental health diagnoses and treatments. By comparing Western and non-Western cultural contexts and collecting new data on non-Western perspectives, this research aims to guide the development of AI systems that meet the diverse needs of individuals with mental health issues. The ultimate goal is to contribute to AI technologies that are effective, culturally respectful, and inclusive.

II. RELATED WORKS: AI and Mental Health

Enhancing Diagnostic Tools with AI

Diagnostic tools like the Patient Health Questionnaire-9 (PHQ-9) and the Generalized Anxiety Disorder-7 (GAD-7) are essential for assessing depression and anxiety (Spitzer et al., 1999; DeGeorge et al., 2022). These tools offer standardized measures but have limitations such as variability in patient self-reporting and constraints in capturing the full range of symptoms. The PHQ-9's reliance on subjective self-reports can introduce bias, while the GAD-7 may not fully encompass generalized anxiety (Barua et al., 2024).

AI can refine these diagnostic tools by automating and enhancing the assessment process. Machine learning algorithms can analyze patient responses with greater precision, by detecting patterns and anomalies that indicate severe conditions or underlying issues (Alhuwaydi, 2024). This advancement allows for more nuanced and dynamic mental health assessments, leading to improved diagnostic accuracy and early, tailored interventions (Graham et al., 2019). AI also facilitates personalized treatment by developing patient-centric recommendations. For example, AI-driven systems can adapt cognitive-behavioral therapy (CBT) plans in real time based on patient feedback, ensuring that interventions align with individual needs and evolving responses (Zafar et al., 2024).

Leveraging Electronic Health Records (EHRs) and Innovative AI Tools

EHRs provide a rich source of patient data, yet extracting actionable insights from this data presents challenges. Machine learning techniques applied to EHR data can identify patterns and correlations that enhance diagnostic precision and inform treatment plans (Graham et al., 2019). By analyzing large datasets in real time, AI supports improved diagnostic accuracy and more personalized treatment

strategies (Thakkar et al., 2024).

Emerging AI-based tools represent significant innovations in mental health care. AI-driven chatbots offer continuous interactive support, engaging users in therapeutic conversations and providing coping strategies (Zohuri & Zadeh, 2020). This interaction facilitates early identification of mental health concerns and offers immediate support, making these tools valuable for both prevention and management. Additionally, AI tools that analyze structural MRI scans through neuroimaging enhance diagnostic processes with non-invasive methods, enabling early and accurate diagnoses (Klöppel et al., 2018).

Facilitating Personalized Treatment and Interventions

AI's capability to deliver personalized treatment represents a major advancement in mental health care. AI systems can analyze vast amounts of patient data, including genetic information, psychological profiles, and treatment histories, to generate highly individualized recommendations. These systems can design adaptive Cognitive Behavioral Therapy (CBT) plans, adjusting them according to real-time patient feedback and other dynamic factors such as stress levels or sleep patterns. This continuous alignment of interventions with each patient's evolving needs enhances the effectiveness of treatment and significantly improves patient engagement. Additionally, by identifying patterns in patient behavior and predicting potential crises, AI can facilitate timely interventions, preventing the escalation of mental health issues and supporting long-term recovery.

Key Advantages and Challenges of AI in Mental Health

AI offers numerous advantages in mental health care, including early risk detection, reduction of stigma, and extensive dataset utilization. AI can analyze large datasets to identify early warning signs of mental health issues, facilitating timely intervention (Graham et al., 2019). Wearable devices and mood-tracking apps further support continuous monitoring, helping to detect mood changes and behavioral patterns early on (Zafar et al., 2024). These capabilities enhance the timeliness and effectiveness of interventions, addressing various challenges in traditional mental health systems.

However, advancing AI in mental health care brings challenges related to privacy, transparency, and accountability. Implementing privacy-preserving frameworks, such as differential privacy, is crucial for protecting sensitive mental health data (Baclic et al., 2020). Ensuring algorithmic transparency through methods like attention maps and adversarial testing helps identify and mitigate biases, fostering accountability in AI systems (McStay, 2020). Effective oversight by regulatory bodies is essential to uphold ethical standards and performance guidelines (Alhuwaydi, 2024). Integrating these principles into AI development from the start ensures tools are not only effective

but also respectful of user privacy and ethical norms.

AI and Culture

Role of Culture in Shaping AI Needs and Expectations

Cultural factors profoundly influence AI needs and user perceptions of trust (Ge et al., 2024; Prabhakaran et al., 2022). Preferences for AI communication styles, such as directness versus indirectness, differ markedly across cultures. For instance, users from collectivist cultures, such as China, may prefer AI systems that foster a sense of connection and demonstrate influence, reflecting an interdependent perspective (Matsumoto, D., & Juang, L., 2016). An example is the integration of culturally relevant social cues in conversational AI used for mental health support in China, which can enhance user engagement and trust by aligning with cultural norms (Matsumoto & Juang, 2016). Conversely, users from individualist cultures, such as those in the United States, might favor AI that emphasizes user control and autonomy, aligning with their independent outlook (Ge et al., 2024; Prabhakaran et al., 2022). For instance, AI tools designed in the U.S. often feature customizable settings, allowing users to tailor interactions according to their preferences, which caters to their desire for individual control (Nivisha et al., 2023).

Cultural dimensions, including individualism versus collectivism, power distance, and uncertainty avoidance, play a significant role in shaping AI expectations. In high power distance cultures (where authority and hierarchy are emphasized), AI might be expected to reinforce hierarchical structures by showing deference to authority figures, whereas low power distance cultures (which prioritize equality and minimize hierarchical differences) may prefer more egalitarian interactions (Hofstede, 2001). For example, organizational AI tools in high power distance cultures might prioritize hierarchical communication patterns, while those in low power distance cultures emphasize peer-level interactions (Peters & Carman, 2024). Additionally, varying levels of technological familiarity affect AI expectations. Users from less tech-savvy cultures, such as rural areas, might approach AI with caution due to limited exposure, whereas those from advanced tech environments may have higher expectations for AI capabilities and seamless integration (Matsumoto, D., & Juang, L., 2016).

Explanatory preferences for AI systems vary between individualist and collectivist cultures, impacting the design of explainable AI (XAI) systems (Peters & Carman, 2024). Individualist cultures generally prefer internal explanations that focus on personal agency, such as detailed reasoning behind AI decisions. In contrast, collectivist cultures might expect explanations that consider contextual and social factors, reflecting a more holistic view of decision-making (Triandis, 2019). Within collectivist cultures, variations in explanatory preferences may occur based on regional traditions, religious beliefs, and social norms

(Nisbett, 2003). For example, in Japan, where social harmony and group consensus are highly valued, XAI systems might need to provide explanations that emphasize consensus and group-oriented outcomes (Nisbett, 2003). Understanding these cultural nuances is vital for creating XAI systems that offer explanations aligned with diverse cultural expectations.

Addressing Cultural Mismatches and Ensuring Representation

Cultural mismatches between AI design and user values can undermine trust and user experience (Prabhakaran et al., 2022). For instance, AI systems developed in Western contexts might inadvertently perpetuate stereotypes or impose hegemonic classifications on users from non-Western cultures. A notable example is the biased performance of facial recognition systems across different ethnic groups, which highlights the risks associated with cultural incongruencies (Gaver et al., 1999). To address these issues, formative testing methods, such as cultural probes and contextual inquiries, are essential for identifying and rectifying potential biases before full deployment (Gaver et al., 1999; Gasson, 2003). These methods enable developers to gain a deeper understanding of users' cultural contexts, leading to more accurate and culturally sensitive AI design.

Including non-WEIRD (Western, Educated, Industrialized, Rich, Democratic) populations in AI research is essential to capture critical cultural perspectives and avoid biases [Prabhakaran et al., 2022; Peters & Carman, 2024). For instance, AI applications in rural South America have demonstrated how localized data collection and analysis can lead to more effective health interventions tailored to specific cultural contexts (Page, 2007). Achieving representative research requires multi-pronged strategies, including forming partnerships with local organizations, leveraging community networks, and employing culturally knowledgeable researchers. Integrating culturally diverse teams throughout the AI development cycle ensures that cultural considerations are embedded at every stage, resulting in more inclusive and effective AI systems (Page, 2007).

Designing Culturally Inclusive AI Systems

Developing culturally inclusive AI systems requires integrating diverse cultural perspectives to avoid biases and ensure these systems benefit different populations (Nivisha et al., 2023; Peters & Carman, 2024). This is particularly crucial in high-risk domains such as healthcare (Nivisha et al., 2023). For example, healthcare AI systems need to account for ethnic variations in disease prevalence and symptom presentation to provide accurate and relevant treatments. Research indicates that culturally tailored AI tools, which consider language nuances and cultural expressions of distress, can significantly enhance diagnostic accuracy, particularly in depression screening (Israel et al.,

2001).

To prevent imposing external frameworks that may not align with local norms, it's essential to incorporate emic cultural perspectives through community-based participatory research (Israel et al., 2001). Engaging with communities iteratively, through focus groups and pilot studies, ensures that AI systems are effectively adapted to meet cultural needs. This approach establishes ongoing feedback loops with communities, allowing continuous input to keep the tools relevant and effective (Betancourt et al, 2003).

Evaluating AI systems from multiple cultural viewpoints ensures fairness and effectiveness across diverse contexts. This requires culturally knowledgeable researchers who can navigate various cultural settings and involves multi-pronged strategies such as forming partnerships with local organizations, leveraging community networks, and employing culturally aware researchers (Betancourt et al, 2003). For instance, AI applications for mental health in diverse cultural settings, such as indigenous communities in Canada, need continuous community input to ensure they remain relevant and effective (Betancourt et al, 2003).

In conclusion, creating culturally inclusive AI systems demands a comprehensive approach that integrates diverse cultural perspectives throughout the AI development cycle. By embedding cultural considerations at every stage, from design to deployment, we can develop AI systems that are not only fair and effective but also truly inclusive and beneficial across various cultural contexts.

Cultural Differences in Perceptions and Treatment of Mental Health

Individualism versus Collectivism

Mental health perceptions are significantly influenced by the cultural dimensions of individualism and collectivism. In Western cultures, where individualism is prominent, mental illness is often viewed as a personal issue, emphasizing individual autonomy and personal experiences (Stuber et al., 2014). This perspective can lead to a focus on personal responsibility and self-reliance in managing mental health issues. Conversely, in non-Western cultures, which are more collectivist, mental illness is perceived as affecting the collective well-being of families and communities. This communal approach highlights the interdependence of individuals within their social groups and the shared responsibility for addressing mental health challenges (Abdullah & Brown, 2011; Akhand, 2019; Rice & Liamputtong, 2023). For example, in Central Asia, traditional treatments such as prayers and herbal remedies are preferred initially due to their alignment with indigenous explanatory models (Aliev et al., 2021).

Biomedical versus Sociocultural Models

The models of understanding mental illness differ markedly between Western and non-Western contexts. Western approaches predominantly utilize biomedical frameworks that locate the origins of mental illness within individuals, focusing on biological and neurological factors (Stuber et al., 2014). This model supports interventions such as medication and individual therapy. In contrast, non-Western perspectives often attribute mental health challenges to relational or spiritual problems that impact social systems. For instance, Islamic views might attribute mental illness to supernatural forces like Jinn, and some cultures believe in karma or past-life retribution (Rice & Liamputtong, 2023; Aliev et al., 2021). Traditional and alternative treatments are often preferred initially due to their alignment with these cultural belief systems, which may not fit within the biomedical model. Moreover, the presentation of somatic symptoms and culture-bound syndromes poses challenges for diagnosis using Western nosologies alone. Training health workers to identify underlying distress and link symptoms to cultural meaning systems can improve identification of issues (Al-Krenawi, 2019).

Perceptions of Stigma

Cultural perceptions of stigma associated with mental illness also vary. In many non-Western communities, strong stigma surrounds mental illness due to beliefs that it reflects failures of personal or family responsibility and brings shame upon the collective (Lauber & Rössler, 2007). This stigma can significantly impede individuals from seeking help and exacerbate mental health issues by promoting secrecy and avoidance. For instance, in the Middle East, negative stereotypes and misunderstandings about mental illness contribute to stigma, making it difficult for individuals to seek professional support (Elshamy et al., 2023). In contrast, while stigma exists in Western cultures, the focus on individualism may lead to different stigma dynamics, where personal failure is emphasized rather than collective shame.

Help-Seeking Behaviors

Help-seeking behaviors are influenced by cultural norms and values. In Western cultures, individuals may independently pursue formal support through clinical interventions such as therapy and medication (Mackenzie et al., 2014). This aligns with the individualistic approach to health and autonomy. Conversely, non-Western individuals often prefer addressing mental health needs within family networks and may rely on traditional or spiritual healers. These practices are rooted in cultural traditions that value community support and holistic healing methods over solely clinical approaches (Abdullah & Brown, 2011; Akhand, 2019). For instance, in Central Asia, the preference for traditional healers and self-treatment is prevalent due to distrust in formal psychiatric care (Aliev et al., 2021).

Implications for Culturally Sensitive Approaches

The literature underscores the necessity of cultural sensitivity in addressing mental health. Non-Western perspectives call for holistic, community-based approaches that integrate informal support systems, address stigma at collective levels, and respect diverse explanatory frameworks beyond strictly biomedical models (Rice & Liamputtong, 2023). Effective mental health care must balance biomedical and indigenous perspectives to address the needs of culturally diverse populations. This includes recognizing the value of traditional practices, addressing stigma through community engagement, and developing culturally-grounded communication strategies. Future research should focus on integrating these perspectives into mental health interventions and evaluating their impact on stigma reduction and treatment efficacy (Elshamy et al., 2023; Moitabai et al., 2016).

AI has the potential to revolutionize mental health diagnosis and treatment through several key mechanisms. By increasing the precision and accuracy of diagnostic tools, AI can detect patterns and anomalies that might be missed by traditional methods, leading to earlier and more accurate diagnoses. This capability is particularly crucial in mental health, where early intervention can significantly improve outcomes. Furthermore, AI facilitates personalized treatment plans by leveraging data from electronic health records (EHRs) and other sources. This personalization extends to adapting therapeutic interventions in real time based on patient feedback, ensuring that treatments remain effective and relevant. Innovative AI tools, such as AI-driven chatbots and neuroimaging analysis, also offer continuous support and non-invasive diagnostic options, making mental health care more accessible and responsive.

Despite these advancements, significant challenges remain, particularly regarding cultural sensitivity. AI systems are often developed within Western contexts and may not adequately account for non-Western cultural perspectives, leading to cultural mismatches and potential reinforcement of existing biases. Previous research on AI and culture predominantly relies on outdated data concerning non-Western cultural contexts. This gap underscores the urgent need for updated, culturally relevant data to inform the development of inclusive AI systems.

To address these gaps, this research will focus on collecting new data from non-Western cultural contexts to provide an up-to-date understanding of how cultural factors influence perceptions and treatment of mental health. This empirical approach will involve gathering data through surveys and interviews, examining aspects such as perceptions of AI in mental health care, attitudes towards mental health and stigma, the role of family and community in mental health

interventions, and preferences for traditional versus clinical treatment methods. By analyzing this data, this research aims to contribute to the development of culturally sensitive AI systems that can effectively serve diverse populations. The insights gained will help bridge the gap between AI technology and cultural understanding, ensuring that future AI applications in mental health are not only innovative but also inclusive and respectful of cultural diversity.

III. METHODOLOGY

Research Design

This study utilized a cross-sectional survey design to investigate the perception of AI in mental health among non-Western populations, with a specific focus on Uzbekistan. The survey was structured to capture a wide array of variables, including demographic data, perceptions of AI in mental health, the role of mental health and religion, barriers to mental health care, the relationship between mental health and dreams, and attitudes towards consulting mental health professionals.

Participants

The study targeted individuals from Uzbekistan and neighboring regions, specifically those aged 18 to 24 years. A total of 90 participants were recruited, with the majority from Uzbekistan and additional respondents from Kazakhstan, Kyrgyzstan, Turkey, Belarus, the UK, and the US. The sample was predominantly Muslim and encompassed a diverse range of ethnicities, primarily Asian, followed by Middle Eastern, Caucasian, and others.

Survey Instrument

The survey instrument was designed to gather comprehensive data on various barriers to mental health help-seeking and the influence of cultural and societal factors.

1. Barriers to Seeking Mental Health Help:
    (a) What are the main barriers to addressing mental health issues in your community?
    (b) Have you ever sought help for a mental health issue?
    (c) What factors influence your decision to seek professional help for mental health?

2. Religion and Mental Health:
    (a) How important is religion in your daily life?
    (b) Do your religious beliefs influence how you perceive mental health issues?

3. Dreams and Mental Health:

(a) Do you believe there is a connection between your mental health and the dreams you experience?
(b) How often do you remember your dreams?

4. View of Mental Health Issues in Society:
(a) How do you feel when someone close to you experiences mental health issues?
(b) How supportive are you towards others experiencing mental health issues?

5. Comparative Analysis:
(a) How comfortable are you with using AI-based tools for mental health support?
(b) Do you believe AI can effectively understand and address mental health issues?
(c) What concerns, if any, do you have about using AI for mental health support?

Data Collection Procedure

Data was collected using a Google Forms questionnaire, which was distributed via social media platforms to reach a broad audience. The survey was designed to be accessible and user-friendly, allowing respondents to complete it at their convenience. Informed consent was obtained from all participants prior to survey participation. The questionnaire ensured anonymity and confidentiality of responses. It was made available in multiple languages to accommodate the diverse linguistic backgrounds of the respondents.

Data Analysis

Data were analyzed using both quantitative and qualitative methods. Descriptive statistics summarized demographic and closed-ended question responses. Qualitative data from open-ended questions were analyzed thematically to identify common patterns and insights. Initial coding was conducted to identify recurring concepts related to barriers to mental health help-seeking. These codes were then grouped into broader thematic categories, such as discrimination, labeling or stereotyping, and social exclusion. The frequency of responses within each category was subsequently quantified to generate the subcategories presented in Figure 1.

IV. RESULTS

Barriers to Seeking Mental Health Help

The survey results reveal that social stigma is the most frequently cited barrier, with subcategories including discrimination (30 responses), labeling/stereotyping (24 responses), and social exclusion (20

responses). This is followed by lack of awareness (20 responses), financial constraints (15 responses), lack of access to professionals (12 responses), and cultural beliefs (10 responses).

The following key barriers were identified:

(a) Social Stigma: Predominantly includes discrimination, labeling/stereotyping, and social exclusion.
(b) Lack of Awareness: Limited knowledge about mental health resources.
(c) Financial Constraints: High costs associated with mental health services.
(d) Lack of Access to Professionals: Geographic and service availability issues.
(e) Cultural Beliefs: Traditional perspectives and family expectations impacting mental health perceptions. (Figure 1).

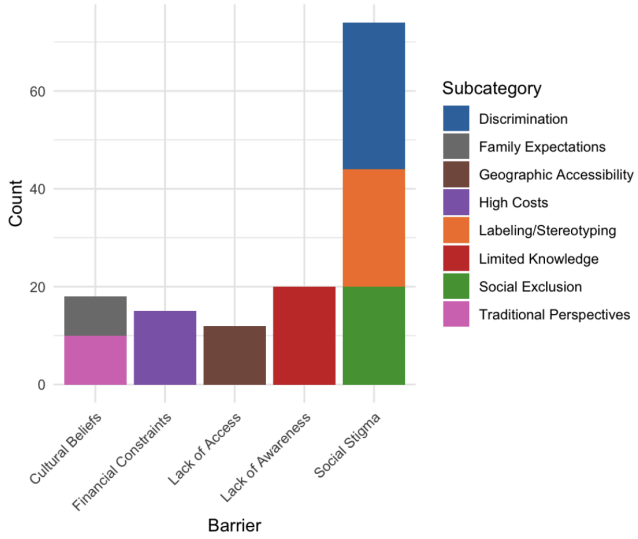

FIGURE 1. Distribution of barriers to seeking mental health help, categorized by subcategory.

Dreams and Mental Health

Frequency of Dream RecallThe majority of respondents report frequently recalling their dreams. Specifically, 29 individuals remember their dreams "every night," while 37 recall them "a few times a week". In contrast, 17 respondents recall their dreams "a few times a month," and 7 do so "rarely" (Figure 2).

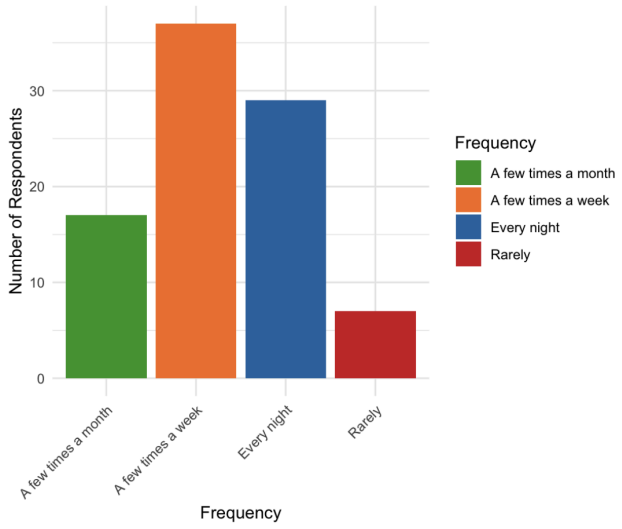

FIGURE 2. Frequency of dream recall among respondents.

Perceived Connection Between Dreams and Mental Health

Most respondents believe there is a connection between their mental health and the dreams they experience. A total of 23 individuals "Strongly agree" with this connection, and 29 "Agree". Fewer respondents are "Neutral" (25), while even fewer "Disagree" (12) or "Strongly disagree" (1) (Figure 3). This distribution suggests a generally strong perception of the link between dreams and mental health among the majority of respondents.

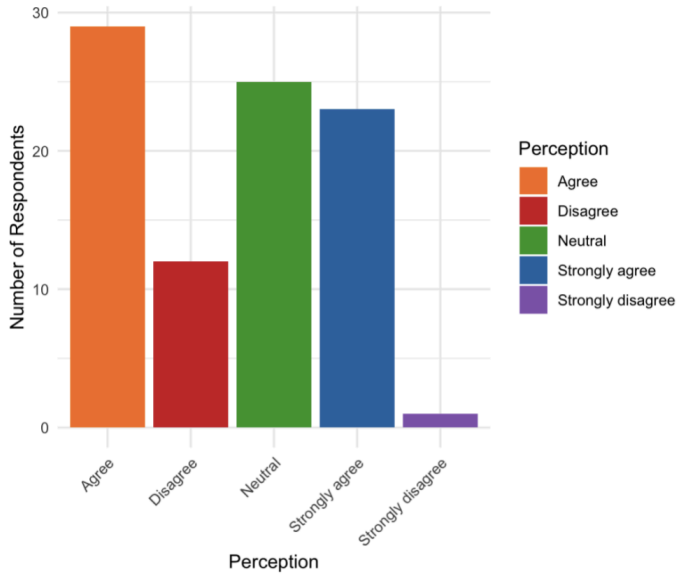

FIGURE 3. Perceived connection between mental health and dreams among respondents.

Influence of Religious Beliefs on Perception of Mental Health Issues

The data reveals that the majority of respondents perceive a significant influence of their religious beliefs on their understanding of mental health issues. Specifically, 23 individuals "Strongly agree" that their religious beliefs influence their perception of mental health, and 29 "Agree" with this sentiment. Conversely, 25 respondents are "Neutral," while fewer participants "Disagree" (12) or "Strongly disagree" (1) (Figure 4).

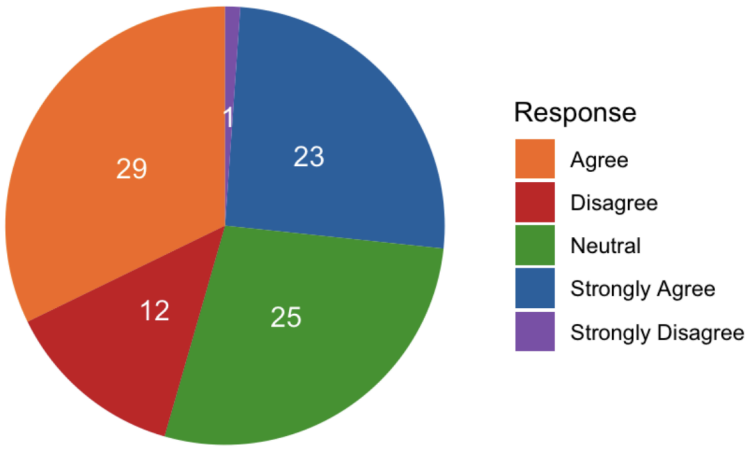

FIGURE 4. Influence of religious beliefs on perception of mental health issues among respondents.

View of Mental Health Issues in Society

Responses to Mental Health Issues in Close Ones

Responses to how individuals feel when someone close to them experiences mental health issues reveal a broad spectrum of reactions. A significant number of respondents express empathy and a desire to help, with 45% indicating emotional reactions such as feeling sad or concerned. Supportive actions, such as offering comfort or advice, are noted by 30% of respondents, while the remaining 25% show neutral or indifferent reactions (Figure 5). This suggests that societal views on mental health issues often lead to supportive behaviors, though the level of emotional engagement varies.

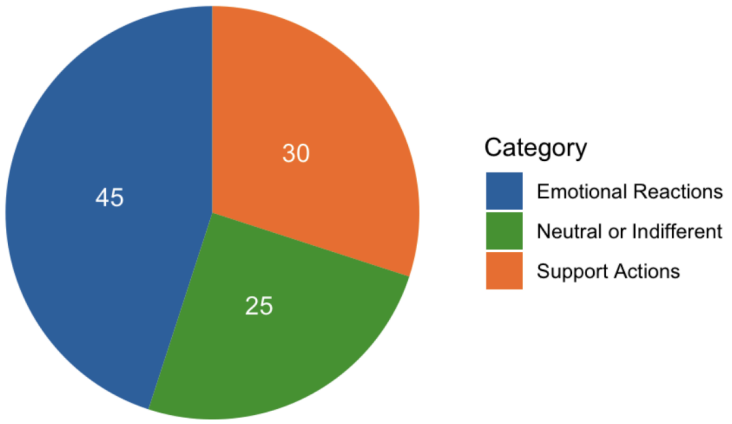

FIGURE 5. Types of responses towards others experiencing mental health issues.

Supportiveness Towards Others Experiencing Mental Health Issues

When asked about their supportiveness towards others experiencing mental health issues, the majority of respondents (~58%) identify as "Somewhat supportive." A smaller proportion, 30%, categorize themselves as "Very supportive," while 12% are either "Neutral" or "Somewhat unsupportive" (Figure 6). This indicates a generally positive attitude towards providing support to others facing mental health challenges, reflecting a supportive societal perspective.

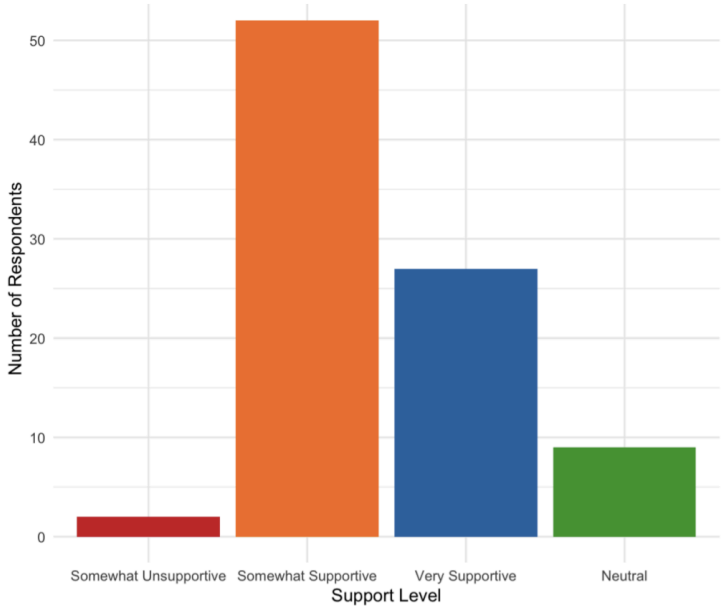

FIGURE 6. Levels of self-assessed supportiveness towards others.

V. DISCUSSION

Barriers to Seeking Mental Health Help

Our findings reveal that barriers such as social stigma, lack of awareness, financial constraints, lack of access to professionals, and cultural beliefs significantly impact the likelihood of seeking mental health help. These results align with existing literature that identifies social stigma as a major barrier in both Western and non-Western contexts (Stubet et al., 2014; Launber & Rössler, 2007). The stigma associated with mental illness, reflecting personal or familial failures, often leads to avoidance of professional help and exacerbates mental health issues (Launber & Rössler, 2007).

Financial constraints and lack of access to professionals also mirror issues highlighted in previous studies (Abdullah & Brown, 2011). In many non-Western cultures, traditional or informal help-seeking practices are more common due to these constraints. This aligns with our findings, which suggest a reliance on family networks and traditional healers. Our results extend the literature by providing a nuanced understanding of how these barriers are interrelated and influenced by cultural factors, such as differing perceptions of mental health within collectivist versus individualist frameworks (Akhand, 2019; Rice & Liamputtong, 2023).

Addressing these barriers in AI systems involves creating tools that can effectively navigate and mitigate social stigma, provide resources tailored to low-income users, and facilitate access to mental health professionals, including traditional healers. AI systems should incorporate features that support and educate users about mental health to reduce stigma and improve help-seeking behaviors. From a practical AI adaptation perspective, this may include stigma-sensitive interaction modules that normalize help-seeking behavior within collectivist contexts, as well as referral mechanisms that integrate both clinical services and culturally recognized support pathways.

Dreams and Mental Health

Our data on dream recall and its perceived connection to mental health suggest that frequent dream recall is associated with greater awareness of mental health issues. This finding supports existing research that links dream patterns to psychological states (Aliev et al., 2021). However, our results also indicate that cultural beliefs significantly influence the interpretation of dreams and their relevance to mental health, extending previous studies that primarily focus on Western contexts (Al-Krenawi, 2019). For instance, in collectivist cultures, dreams may be seen as significant in understanding mental health, while in individualist cultures, their role might be less emphasized.

AI systems that aim to assist with mental health should therefore consider integrating dream-related information in a culturally informed manner, particularly in contexts where dreams are believed to have a strong connection to mental well-being. By incorporating culturally

relevant dream interpretation frameworks, AI tools can offer more personalized and contextually appropriate support. Practically, this could involve embedding culturally specific dream ontologies or symbolic interpretation modules that allow AI systems to contextualize dream-related inputs according to locally meaningful belief systems rather than relying solely on Western psychoanalytic assumptions.

Influence of Religious Beliefs on Perception of Mental Health Issues

The influence of religious beliefs on mental health perceptions, as identified in our study, highlights a critical aspect of cultural variability. Our findings align with literature suggesting that religious and spiritual beliefs can shape perceptions and treatment approaches (Lauber & Rössler, 2007; Elshamy et al., 2023). For instance, beliefs in supernatural forces or karma, as seen in Islamic and some Asian contexts, affect how mental illness is perceived and managed. These insights contribute to the literature by providing updated and culturally specific examples of how religious beliefs impact mental health, which is essential for developing culturally sensitive AI systems.

AI systems designed to support mental health in such contexts must therefore be capable of recognizing and respecting religious explanatory models. This includes providing options for users to reflect their religious beliefs in their mental health care and ensuring that AI-generated recommendations remain culturally and spiritually appropriate. At the system level, this may be supported through the integration of religious knowledge graphs or belief-aware reasoning components that enable AI systems to account for faith-based interpretations of distress when generating assessments or intervention suggestions.

View of Mental Health Issues in Society

The societal views on mental health issues revealed in this study underscore the role of cultural attitudes in shaping responses to mental health challenges. Findings from this case study confirm that societal reactions, including supportiveness and stigma, vary across cultural contexts (Mackenzie et al., 2014). While Western societies may exhibit varying degrees of openness toward mental health support, non-Western societies, including those represented in this study, often experience stronger collective stigma that influences help-seeking behaviors (Elshamy et al., 2023). This section contributes to the existing literature by highlighting how social attitudes toward mental illness affect both individual and collective responses to mental health needs.

To address societal stigma associated with mental health, AI systems should include components that promote mental health awareness and encourage supportive attitudes. Tailoring AI

interventions to address culturally embedded stigma and providing accessible education on mental health can enhance the effectiveness and acceptance of AI-based mental health tools across different social contexts.

VI. CONCLUSION

Summary of Findings

This study examines the intersection of AI, mental health, and culture through empirical findings drawn from a Central Asian context. The results identify social stigma as the most significant barrier to seeking mental health help, encompassing discrimination, labeling or stereotyping, and social exclusion. Other prominent barriers include lack of awareness, financial constraints, limited access to professionals, and culturally embedded beliefs. The findings also indicate that frequent dream recall is commonly perceived as connected to mental health, while religious beliefs play a substantial role in shaping how mental health issues are understood and addressed. Although societal attitudes toward mental health appear generally supportive, levels of emotional engagement and willingness to act vary.

Significance of Non-Western Perspectives

A key contribution of this research lies in its focus on a cultural context that is often underrepresented in AI and mental health literature. By grounding the analysis in data from Uzbekistan and neighboring regions, this study provides a case-based perspective on how cultural factors such as stigma, religion, and symbolic interpretations of mental health experiences influence help-seeking behaviors. These findings highlight gaps in current AI-driven mental health tools, which are frequently developed within Western frameworks and may not fully account for culturally specific understandings of mental health.

Interpretation of Results

The findings underscore the importance of cultural context in shaping mental health perceptions and barriers to care. Social stigma, operating at both individual and collective levels, remains a dominant obstacle to help-seeking behavior. The observed connections between dreams and mental health suggest that symbolic and culturally meaningful experiences are integral to how psychological distress is interpreted. Additionally, the influence of religious beliefs demonstrates that mental health perceptions are often embedded within broader spiritual or moral frameworks. Together, these results indicate that AI-driven mental health interventions must account for culturally grounded belief systems to remain relevant and effective.

Implications for Practice

The results have direct implications for the development and deployment of AI-based mental health tools. AI systems intended for use in similar cultural contexts should be designed to address stigma sensitively, recognize the influence of religious beliefs, and incorporate culturally meaningful experiences such as dreams into their interpretive frameworks. Developing AI tools that are responsive to these factors may improve user engagement, trust, and overall effectiveness. In addition, policies that support the integration of AI tools aimed at reducing financial and access barriers, alongside public education initiatives that promote mental health awareness, could further enhance mental health outcomes.

Limitations

This study is subject to several limitations, including a relatively small sample size, potential biases associated with self-reported data, and a geographically concentrated participant pool. These factors may limit the generalizability of the findings and should be considered when interpreting the results. The limitations also have implications for the training and validation of AI models informed by such data. Future research should seek to address these constraints by incorporating larger and more diverse samples and employing complementary methodological approaches.

Future Research

Future research should expand cross-cultural investigations to examine how mental health barriers and perceptions vary across different cultural contexts, providing richer data for AI model development. Longitudinal studies could offer insights into how cultural beliefs and attitudes toward mental health evolve over time and influence help-seeking behavior. Further exploration of culturally specific factors, including the relationship between dreams, religion, and mental health, could inform the continued development of adaptive and culturally responsive AI systems.

Final Thoughts

Incorporating culturally grounded empirical evidence into AI-based mental health systems is essential for developing tools that are both effective and inclusive. By integrating insights from underrepresented cultural contexts, AI technologies can better align with users' lived experiences and avoid reinforcing existing cultural biases. Such an approach supports the development of mental health interventions that are not only technologically advanced but also culturally attuned and socially meaningful.

References

Abdullah, T., & Brown, T. L. (2011). Mental illness stigma and ethnocultural beliefs, values, and norms: An integrative review. Clinical Psychology Review, 31(6), 934–948. https://doi.org/10.1016/j.cpr.2011.05.003

Akhand, M. H. (2019). Factors contributing to mental health problems in Kazakhstan: Literature review [fi=AMK-opinnäytetyö|sv=YH-examensarbete|en=Bachelor's thesis|]. http://www.theseus.fi/handle/10024/227469

Alhuwaydi, A. M. (2024). Exploring the Role of Artificial Intelligence in Mental Healthcare: Current Trends and Future Directions – A Narrative Review for a Comprehensive Insight. Risk Management and Healthcare Policy, 17, 1339–1348. https://doi.org/10.2147/RMHP.S461562

Aliev, A.-A., Roberts, T., Magzumova, S., Panteleeva, L., Yeshimbetova, S., Krupchanka, D., Sartorius, N., Thornicroft, G., & Winkler, P. (2021). Widespread collapse, glimpses of revival: A scoping review of mental health policy and service development in Central Asia. Social Psychiatry and Psychiatric Epidemiology, 56(8), 1329–1340. https://doi.org/10.1007/s00127-021-02064-2

Al-Krenawi, A. (2019). The Impact of Cultural Beliefs on Mental Health Diagnosis and Treatment. In M. Zangeneh & A. Al-Krenawi (Eds.), Culture, Diversity and Mental Health—Enhancing Clinical Practice (pp. 149–165). Springer International Publishing. https://doi.org/10.1007/978-3-030-26437-6_9

Barua, P. D., Vicnesh, J., Lih, O. S., Palmer, E. E., Yamakawa, T., Kobayashi, M., & Acharya, U. R. (2024). Artificial intelligence assisted tools for the detection of anxiety and depression leading to suicidal ideation in adolescents: A review. Cognitive Neurodynamics, 18(1), 1–22. https://doi.org/10.1007/s11571-022-09904-0

Baclic, O., Tunis, M., Young, K., Doan, C., Swerdfeger, H., & Schonfeld, J. (2020). Challenges and opportunities for public health made possible by advances in natural language processing. Canada Communicable Disease Report, 46(6), 161–168. https://doi.org/10.14745/ccdr.v46i06a02

Betancourt, J. R., Green, A. R., Carrillo, J. E., & Ananeh-Firempong,

O. (2003). Defining cultural competence: A practical framework for addressing racial/ethnic disparities in health and health care. Public Health Reports, 118(4), 293–302. in Chile. *Bridges: A Journal for Jewish Feminists and Our Friends* 4: 63-74. Retrieved from http://pkp.ubc.ca.

DeGeorge, K. C., Grover, M., & Streeter, G. S. (2022). Generalized Anxiety Disorder and Panic Disorder in Adults. American Family Physician, 106(2), 157–164.

Elshamy, F., Hamadeh, A., Billings, J., & Alyafei, A. (2023). Mental illness and help-seeking behaviours among Middle Eastern cultures: A systematic review and meta-synthesis of qualitative data. PLOS ONE, 18(10), e0293525. https://doi.org/10.1371/journal.pone.0293525

Gaver, B., Dunne, T., & Pacenti, E. (1999). Design: Cultural probes. Interactions, 6(1), 21–29. https://doi.org/10.1145/291224.291235

Gasson, S. (2003). Human-Centered Vs. User-Centered Approaches to Information System Design. The Journal of Information Technology Theory and Application (JITTA), 5(2), 29-46.

Graham, S., Depp, C., Lee, E. E., Nebeker, C., Tu, X., Kim, H.-C., & Jeste, D. V. (2019). Artificial Intelligence for Mental Health and Mental Illnesses: An Overview. Current Psychiatry Reports, 21(11), 116. https://doi.org/10.1007/s11920-019-1094-0

Ge, X., Xu, C., Misaki, D., Markus, H. R., & Tsai, J. L. (2024). How Culture Shapes What People Want From AI. Proceedings of the CHI Conference on Human Factors in Computing Systems, 1–15. https://doi.org/10.1145/3613904.3642660

Hofstede, G. (2001). Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations. Culture's Consequences: Comparing Values, Behaviors, Institutions, and Organizations Across Nations. https://doi.org/10.1016/S0005-7967(02)00184-5

Israel, B. A., Schulz, A. J., Parker, E. A., Becker, A. B., & Community-Campus Partnerships for Health. (2001). Community-based participatory research: Policy recommendations for promoting a partnership approach in health research. Education for Health (Abingdon, England), 14(2), 182–197. https://doi.org/10.1080/13576280110051055

Klöppel, S., Kotschi, M., Peter, J., Egger, K., Hausner, L., Frölich, L.,

Förster, A., Heimbach, B., Normann, C., Vach, W., Urbach, H., Abdulkadir, A., & Initiative, for the A. D. N. (2018). Separating Symptomatic Alzheimer's Disease from Depression based on Structural MRI. Journal of Alzheimer's Disease, 63(1), 353–363. https://doi.org/10.3233/JAD-170964 Lauber, C., & Rössler, W. (2007). Stigma towards people with mental illness in developing countries in Asia. International Review of Psychiatry, 19(2), 157–178. https://doi.org/10.1080/09540260701278903

Mackenzie, C. S., Erickson, J., Deane, F. P., & Wright, M. (2014). Changes in attitudes toward seeking mental health services: A 40-year cross-temporal meta-analysis. Clinical Psychology Review, 34(2), 99–106. https://doi.org/10.1016/j.cpr.2013.12.001

Matsumoto, D., & Juang, L. (2016). Culture and psychology: People around the world (6th ed.). Wadsworth Cengage Learning.

McStay, A. (2020). Emotional AI, soft biometrics and the surveillance of emotional life: An unusual consensus on privacy. Big Data & Society, 7(1), 2053951720904386. https://doi.org/10.1177/2053951720904386

Mojtabai, R., Evans-Lacko, S., Schomerus, G., & Thornicroft, G. (2016). Attitudes Toward Mental Health Help Seeking as Predictors of Future Help-Seeking Behavior and Use of Mental Health Treatments. Psychiatric Services, 67(6), 650–657. https://doi.org/10.1176/appi.ps.201500164

Nivisha, P., Rowen, G., & Saadiya, A. (2023, December 10). Promoting Cultural Inclusivity in Healthcare Artificial Intelligence: A Framework for Ensuring Diversity. HMPI. https://hmpi.org/2023/12/10/promoting-cultural-inclusivity-in-healthcare-artificial-intelligence-a-framework-for-ensuring-diversity/

Nisbett, R. E. (2003). The geography of thought: How Asians and Westerners think differently...and why. Free Press.

Page, S. E. (2007). The difference: How the power of diversity creates better groups, firms, schools, and societies. Princeton University Press.

Prabhakaran, V., Qadri, R., & Hutchinson, B. (2022). Cultural Incongruencies in Artificial Intelligence (arXiv:2211.13069). arXiv. https://doi.org/10.48550/arXiv.2211.13069

Peters, U., & Carman, M. (2024). Cultural Bias in Explainable AI

Research: A Systematic Analysis. Journal of Artificial Intelligence Research, 79, 971–1000. https://doi.org/10.1613/jair.1.14888

Rice, Z. S., & Liamputtong, P. (2023). Cultural Determinants of Health, Cross-Cultural Research and Global Public Health. In P. Liamputtong (Ed.), Handbook of Social Sciences and Global Public Health (pp. 1–14). Springer International Publishing. https://doi.org/10.1007/978-3-030-96778-9_44-1

Spitzer, R. L., Kroenke, K., Williams, J. B. W., & and the Patient Health Questionnaire Primary Care Study Group. (1999). Validation and Utility of a Self-report Version of PRIME-MD. The PHQ Primary Care Study. JAMA, 282(18), 1737–1744. https://doi.org/10.1001/jama.282.18.1737

Stuber, J. P., Rocha, A., Christian, A., & Link, B. G. (2014). Conceptions of Mental Illness: Attitudes of Mental Health Professionals and the General Public. Psychiatric Services, 65(4), 490–497. https://doi.org/10.1176/appi.ps.201300136

Triandis, H. C. (2019). Individualism And Collectivism. Routledge. https://doi.org/10.4324/9780429499845

Thakkar, A., Gupta, A., & De Sousa, A. (2024). Artificial intelligence in positive mental health: A narrative review. Frontiers in Digital Health, 6. https://doi.org/10.3389/fdgth.2024.1280235

Zafar, F., Fakhare Alam, L., Vivas, R. R., Wang, J., Whei, S. J., Mehmood, S., Sadeghzadegan, A., Lakkimsetti, M., & Nazir, Z. (2024). The Role of Artificial Intelligence in Identifying Depression and Anxiety: A Comprehensive Literature Review. Cureus, 16(3), e56472. https://doi.org/10.7759/cureus.56472

Zohuri, B., & Zadeh, S. (2020). The Utility of Artificial Intelligence for Mood Analysis, Depression Detection, and Suicide Risk Management. J. of Health Science, 8, 67–73. https://doi.org/10.17265/2328-7136/2020.02.003