Socio-cultural Perspective on Mental Health and Wellbeing:
Design Implications for Developing Nations

Makuochi Samuel Nkwo
Ebonyi State University,
Abakaliki, Nigeria
Makuonkwo@gmail.com

Banuchitra Suruliraj
Dalhousie University,
Halifax, N/S Canada
Banuchitra.suruliraj@dal.ca

Rita Orji
Dalhousie University,
Halifax, N/S Canada
Rita.orji@dal.ca

Transformation || Design || Health & Wellness || Persuasive Strategies || Mobile Technology

Abstract

The goal of this research is to evaluate the socio-cultural factors that contribute to poor mental health in the global south with a view to designing a responsive intervention. The results from our study uncover that negative perceptions, stigmatizations, religious beliefs, and absence of automated supports prevent people from seeking early and appropriate mental health help. These delays together with the ingestion of unproven local mixture might lead to severe depressive symptoms, suicidal risks, and negatively affect the mental health of patients. Based on our results and in partnership with stakeholders, we developed "Gwam-Okwu" [Talk to Me]; a culturally-appropriate mobile app that is tailored to facilitate collaborative care, support social engagement and promote information-seeking behaviors among patients.

Keywords

Mental Health, Culture, Religion, Behavior Change Strategies, Personalization, Persuasive Technology, Mobile App, Africa, Global South

Introduction

In recent times, there are increasing reports of severe depressive symptoms/suicidal risks among youths in rural communities in the global south [9]. Although there are gaps in accessing quality care and support in these communities, the gaps are widened by the prevailing socio-cultural perceptions of clients and relatives. These attitudes are gradually taking their toll on the health-seeking behaviors and care of mental health clients in Africa. Telemedicine plays a crucial role in effective healthcare delivery in low and middle-income countries [7]. However, to the best of our knowledge, little or no study has been done to adapt technology to mental healthcare in developing nations such as Nigeria. Besides, studies have investigated the socio-cultural attitudes about mental health that affect the information-seeking behaviors, treatment and

supports provided to mental health clients and their relatives. The overarching aim of this research is investigate the socio-cultural factors that contribute to poor mental health in developing nations with a view to developing culturally-appropriate collaborative applications to support mental health care and help-seeking behaviors among Nigerian communities. We report initial findings from interviews of 25 stakeholders – including community health works, mental health patients, and their relatives to understand the socio-cultural factors that affect mental healthcare and how technological interventions can be designed to promote mental health.

Context

Prior HCI studies in western nations have focused on adapting technologies to support clients seeking mental health information and support [1][10]. The findings show promising results concerning information delivery, monitoring, screening, evaluation, and support to mental health clients [3][10]. In low-middle income African nations, technologies have been used in the area of health and wellness to sensitize people about control and prevention of various diseases like hypertension, HIV, malaria, and Ebola [7]. Little or no existing study has been focused on investigating and supporting mental healthcare in Nigeria, using mobile technologies. On the other hand, research has shown that culture plays a role in the manner people use technologies [4] and respond to mental health concerns [1]. Therefore, research has begun to explore ways of designing culturally-appropriate applications to support distinct groups [5-6]. In this study, however, we aim to understand how socio-cultural attitudes affect mental health help-seeking; hence, inform the design of a collaborative mental health management app that is socially-responsive and personalized to the mental health needs of typical African patients.

Study Design, Results, and Discussion

We explore the socio-cultural factors that contribute to poor mental health, which would inform the design of a community-based intervention to support the mental health clients and CHWs to collaboratively manage the patient's health conditions. The study method included the use of interviews and prototype design based on the findings from the user study.

Interviews. We used semi-structured interviews to understand the socio-cultural factors which impact early diagnosis, treatment and help-seeking behaviors of mental health clients. The interview involved 25 persons– 5 CHWs from the local health facility, 8 persons who had either recovered or are recovering from a mental health crisis and 12 relations of people who are either

suffering or had mental health incidences broadly defined to include all forms of mental health issues such as anxiety disorder, depression. We established the health status of the 8 clients via the medical register of the health facility. We got consents from the health facility management to access their register after a thorough consideration of our ethical clearance certificate for this study, which was issued from the first author's institution. Moreover, questions focused on help-seeking and experiences with mental health clients and relations, organizational processes at the healthcare facility, challenges to caring for mental health clients and basic information technology knowledge. We adapted the questions from [12] and modified them to suit the domain of our study; mental healthcare. Using the thematic analysis approach [2], we identified key themes from the interview responses associated with our research questions such as perception, stigmatization, attitudes towards help-seeking and automated support, etc. We iteratively analyzed and coded the themes to drive insights. The following themes emerged from the data analysis and thus, motivated the design of our Community-based Mental Health Intervention:

- **Manual mental healthcare and support**: There is no automated mental health system or support in Nigeria's rural communities. Clients have no chance to self-report or track their symptoms. Although people have mobile phones, they were not integrated into mental healthcare nor provided any form of mental care support to clients and relations.

- **Negative and Wrong perceptions:** Our studies uncovered that there is a lack of awareness about the causes of mental health. Most clients and their relations/friends believe that mental health crisis is spiritually motivated "*an act of God's punishment*" or "*an attack by the devil*". This attitude deters them from seeking proper health checkup. The rising rate of acute depressive symptoms or suicides among youths confirms this finding [9].

- **Stigmatization***:* Most clients and relations report that the fear and shame of being tagged as a "mentally ill "person or relation of one, deters them from seeking help at a far-away public mental health facility. This is a major reason people don't seek help for their mental health issues. They would prefer to prayerfully deal with the issue secretly or maybe resort to local concoctions from the herbalist. This also supports the notion of Mental Health being an "*Act of God or a Punishment*".

- **Use of Smartphones and internet***:* Both the CHWs, mental health clients and relations attested to the use of mobile phones and internet access

Concept Design and Usage Scenario

The findings from our study show great promises for the design of a hyper-localized online platform that can support clients/CHWs to collaboratively manage client's health remotely. In collaboration with various stakeholders, we iteratively designed a high-fidelity prototype of the mobile app called "Gwam-Okwu"(figure 1) to show how socio-cultural barriers and related factors can be tackled using an app. "Gwam-Okwu" is an integrated desktop and mobile app that promote effective and two-way private communication, as well as safety and personalization of mental health services to clients. It provides CHWs with an interface that lists clients currently registered in the facility with health history accessed by clicking the client's name. Conversely, mental health clients can access their accounts and send or view messages and personalized reports from CHWs. With regards to the app version, the CHWs use the desktop and mobile version of Gwam-Okwu depending on their location and availability of electric power supply, while the clients use the mobile version accessible from their low-end phones. Specifically, the mental health intervention incorporates features which can be used in the following scenarios:

Connect, communicate and collaborate: The app connects everyone involved in the circle of mental healthcare in a way that they can share and get timely health education, as well as provide and receive supports. The conversation module offers a chat interface to CHWs and mental health clients intending to support collaborative management of the latter's conditions. Also, clients can send quick voice/SMS in local lingo to report sudden health concerns to the CHW. All of these inform and afford clients the much-needed privacy and helps overcome negative perceptions and the stereotypes associated with mental healths which are major reasons people don't seek mental help care.

Personalized self-monitoring: The app allows users to answer an online questionnaire to evaluate their mood, record mental health incidents and time. Users receive feedback messages in the form of instructions to either do nothing, do some self-care activities such as meditation, physical activity, listen to music depending on the issue and what works for each patient (patient's preference), contact a CHW via an online chat appointment or schedule a face-to-face

assessment with a select CHW (in cases where severe depressive symptoms or suicidal risks were envisaged).

Guided self-learning (How to): The app simulates various healthy living techniques such as meditation, exercises, and relaxation and videos of similar other people who successfully overcame mental health challenges using these scientifically proven techniques. Besides, the app includes traditional foods and drinks, as well as locally meaningful music playlists which are suggested to the users on a need to need basis as antidepressants for clients having aversive experiences.

Clients' privacy/safety and personalization: Access and workflow control are operationalized to ensure that the chat interface is only open to authorized users via a dedicated channel with password access. Personalized suggestions are sent to the users which correspond to their self-reported mental health state and personality. The app also allows users to provide personalized feedback internally on what worked (using the quick report feature), which is further used to refine the personalization.

Speak and Text Capabilities: Since some of our users are not all that proficient in using the keyboard, the app allows for the dual-mode of communication either using the speech or by text. We are currently working on including local language communication, translations, and voice to text capabilities based on the feedback from the stakeholders.

Figure 1: App Homepage, Client/CHW Chat Window, Automated Self-monitoring, and Playlist Windows

Conclusion and Future Work

This study is ongoing and therefore, we need feedback from the community which will potentially give us insight that will help us fully develop and evaluate this mental health app to support target audiences in the developing communities.

HCIxB and Sustainable Development Goals (SDGs)

This research addresses one of the United Nations SDG's; good health and wellbeing, as it concerns the mental health of the marginalized communities in the global south. Coming from various HCI research backgrounds and cultural inclinations, we believe that this research and the ensuing interests and discussions it will engender will offer new insights to us and other interested researchers around the world. Ultimately, it will potentially guide our evaluations and redesigns as well as afford us the privilege to contribute to the discussions about working within and across intersectional discourses and borders.

References

[1] Atienza and Abby C. King. 2002. Community-based Health Intervention Trials: An Overview of Methodological Issues, Epidemiol Rev Vol. 24, No. 1, 2002

[2] V. Braun and V. Clarke. 2006. Using thematic analysis in psychology. qualitative research in psychology, 3, 2, 77-101.

[3] Sanford Finkel et al.2007, E-Care: A Telecommunications Technology Intervention for Family Caregivers of Dementia Patients, Am J Geriatr Psychiatry 15:5, May 2007

[4] Kiemute Oyibo et al. 2018. The Susceptibility of Africans to Persuasive Strategies: A Case Study of Nigeria. Proceedings of the Personalization in Persuasive Technology Workshop, Persuasive Technology 2018.published at http://ceur-ws.org

[5] Makuochi Nkwo. 2019. Designing Culturally-appropriate Persuasive Technology to Promote Positive Work Attitudes Among Workers in Public Workplaces. In Proceedings of ACM UMAP conference (UMAP'19).ACM, NY, USA, 5 pages. https://doi.org/10.1145/3320435.3323465

[6] Makuochi Nkwo and Rita Orji. 2019. Personalized Persuasive Technology to Promote Positive Work Attitude in the Workplace, In the Proceedings of the ACM UMAP Conference, Cyprus, June 2019 (UMAP'19), https://doi.org/10.1145/3314183.3323858.

[7] Erick Oduor et al. 2018. Medication Management Companion (MMC) for a Rural Kenyan Community. CSCW'18 Companion, November 3-7, 2018, NJ, USA. https//doi.org/10.1145/3272973.3274041.

[8] Fernando Parada et al. 2019. Using Persuasive Systems Design Model to Evaluate" Cuidatu A´nimo'': An Internet-Based Pilot Program for Prevention and Early Intervention of Adolescent Depression**.** Published by Mary Ann Liebert, Inc. DOI: 10.1089/tmj.2018.0272.

[9] Kohn, S. Saxena, I. Levav, and B. Saraceno. 2004. Bulletin of the World Health Organization. The treatment gap in mental health care. World Health Organization, Geneva, Switzerland.

[10] J.D. Schaefer et al. 2017. Enduring Mental Health: Prevalence and Predictions. Journal of Abnormal Psychology 126, (Feb. 2017), 212-224.

[11] Éricade Toledo Piza Peluso and Sérgio LuísBlay. 2004.Community perception of mental disorders: A systematic review of Latin American and Caribbean Studies, Soc Psychiatry Psychiatr Epidemiol (2004)39: 955–961, DOI:10.1007/s00127-004-0820-y

[12] Chukwunonso Nwokoye and Ikenna Ihemelu. 2018. Improving Communication, Prisoner Welfare and Support through Mobile Collaborative Technologies, Community. CSCW'18Companion, November 3-7, 2018, NJ, USA. https//doi.org/10.1145/3272973.3274044