

# Integrating mental health into primary care: Evaluating the Health Action for Psychiatric Problems In Nigeria including Epilepsy and SubstanceS (HAPPINESS) pilot project

Theddeus Iheanacho (✉ [theddeus.iheanacho@yale.edu](mailto:theddeus.iheanacho@yale.edu))

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## Research article

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# Abstract

## Background

The Health Action for Psychiatric Problems In Nigeria including Epilepsy and SubstanceS (HAPPINESS) project trains non-specialist and primary health care workers in Imo State, Nigeria, using the World Health Organization's Mental Health Gap Action Programme-Intervention Guide (mhGAP-IG) to treat common mental and neurological disorders in the primary care setting. This study evaluates the impact of the HAPPINESS pilot project training on trainees' beliefs and attitudes about mental disorders and explores the perspectives of trainees, trainers, and health services officials on its implementation using a convergent, mixed-methods approach.

## Methods

Trainees completed a 43-item questionnaire, before and after their 5-day training, to assess perceptions of mental disorders and attitudes towards people with mental illness. Paired-sample t-tests were conducted with respect to four subscales of the questionnaire: acceptance of *socializing* with people with mental illness, *normalizing* activities and relationships with people with mental illness, *supernatural causation* of mental illness, and endorsement of a *biopsychosocial* approach to mental illness. Semi-structured Key Informant Interviews with trainees, trainers, and local health officials who participated in or supported the HAPPINESS Project were also analyzed. Findings from the questionnaire and interviews were merged using a convergent, mixed method approach.

## Results

Trainees showed significant improvements on *socializing*, *normalizing*, and *supernatural causation* subscales of the stigma questionnaire ( $p < 0.05$ ). No significant effect was seen on the *biopsychosocial* subscale; however, evidence of biopsychosocial beliefs was found in interview responses. The HAPPINESS Project enhanced trainees' diagnostic and treatment abilities, mental health awareness, and empathy towards patients. Misinformation, stigma, inadequate funding and lack of road access to clinics were identified as barriers to mental health care integration into general care in Imo State. Lastly, respondents suggested ways that the HAPPINESS Project could be improved and expanded in the future.

## Conclusion

This study adds to the limited existing evidence on the impact of mhGAP-IG-based training for primary care workers in Nigeria. Notably, it quantitatively evaluates pre and post training change in stigma level among trainees. Future efforts should focus on clinical support, supervision and implementation

outcomes as well as scaling up and assessing the cost-effectiveness of the HAPPINESS Project intervention.

## Introduction

The prevalence of mental, neurological, and substance use (MNS) disorders is on the rise globally [1]. These rates are comparable between high-income countries and low-and-middle income countries (LMIC's). However, LMIC's often have healthcare systems with far less capacity to address such conditions [2]. Nigeria, Africa's most populous nation and an LMIC [3], has over 7 million people with depression and over 4 million people with anxiety disorders (the highest number of cases compared to other countries in the African region) [4]. The published national lifetime prevalence of any mental disorder in Nigeria is approximately 12% (although experts have estimated this to be 20–30% in actuality) and 12-month prevalence is 26% [5]. Some regional studies indicate even higher numbers. Among HIV/AIDS patients in Imo State's teaching hospital, it was found that out of 271 patients, 39.1% were depressed (with most being moderately depressed) [6]. In Abia State (a southeastern Nigerian state, like Imo), it was found that out of 400 adults in the ambulatory clinic, 48.5% had depression [7]. Similar rates have also been found among 402 outpatients in Northern Nigeria, where 49.8% were depressed (with most being mildly depressed) [8]. Furthermore, the World Health Organization (WHO) most recently estimated Nigeria's national suicide rate to be 17.3 suicides per 100 000 people in 2016 [9].

Despite these dire numbers, only about 10% of Nigerians with mental disorders receive any care irrespective of severity [5] and poor and underserved populations are particularly vulnerable to the adverse effects of these mental disorders [10]. Significant factors limiting access to mental health care in Nigeria include the scarcity of mental health specialists, with only 0.15 psychiatrists per 100 000 of the population (compared to the US's 10.54 per 100 000) [11], and the pervasive stigma towards mental disorders, even among health care providers [12, 13]. Stigma has been widely documented as a deterrent to help-seeking [14–17]. In Nigeria, there are high levels of self-stigma among Nigerians with a mental illness in addition to stigma at the community level [18, 19]. Mental illness is commonly believed to be something that should be concealed by the bearer and cannot be effectively managed once the mentally ill person begins to roam the streets and marketplaces [20]. Stigmatizing and negative attitudes toward mental disorders and people with mental illness are also common among health care professionals in Nigeria, which can adversely impact the therapeutic alliance and clinical outcomes [13, 21, 22].

In accordance with emerging evidence and WHO recommendations, Nigeria's Mental Health Policy (adopted in 1991 and reviewed since) established that mental health care was to be integrated into primary healthcare, with responsibility for implementation delegated to local governments [23]. This policy, however, was poorly implemented due to insufficient training and supervision of primary care workers, funding, and political will [24]. A revision of this policy in 2013 gave rise to the Policy on Mental Health Service Delivery [25]. It recognized the nuances of integrating mental health care within the primary healthcare system and outlined specific recommendations (e.g. roles of primary, secondary, and

tertiary care). Further, it encouraged the use of public-private partnerships to innovate the mental health system [26].

Finding innovative approaches to increase access to effective treatments for MNS disorders in LMICs like Nigeria is in line with WHO Sustainable Development Goals [27]; however, the challenge is to find feasible, acceptable, effective, and sustainable strategies. An effective approach is training non-specialist mental health workers to deliver packages of mental health care under the supervision of mental health specialists in a collaborative, stepped-care, task sharing approach [28]. A common effective strategy for scaling-up mental health care is implementing the Mental Health Gap Action Programme (mhGAP) [29]. This programme is an initiative of the WHO to help national and subnational leaders scale-up mental health care in their communities. Included in this program is the mhGAP-Intervention Guide (mhGAP-IG) that contains a package of interventions for assessing and managing MNS disorders [30]. The main goal is to ensure that, even when specialized psychiatric services aren't available, people can still receive care from trained non-specialist mental health care workers and lay healthcare workers (also known as "task-sharing" or "task-shifting"). The full modules of mhGAP-IG include: Introduction, Essential Care and Practice, Depression, Psychoses/Mania, Epilepsy, Child and Adolescent Mental and Behavioral Disorders, Dementia, Disorders due to Substance Use, Self-Harm/Suicide, and Other Significant Mental Health Complaints [30].

The mhGAP-IG has been implemented and evaluated in many countries [31]. In a review of 33 evaluation studies, Keynejad et al. concluded that more research is needed to look at mhGAP implementation especially focused on local adaptations and highlighting the challenges of contextual adaptation through qualitative studies and randomized control trials. Our study describes the Health Action for Psychiatric Problems In Nigeria including Epilepsy and SubstanceS (HAPPINESS) pilot project, which incorporates mhGAP-IG modules, and evaluates its impact on trainees' beliefs and attitudes about mental illness as well as the trainees', trainers' and administrators' experience of the project using a convergent, mixed-methods approach [32].

## Methods

## Methods

### Description of the HAPPINESS pilot project

In 2018, the Yale Global Mental Health Program and CBM International, in collaboration with Imo State University Teaching Hospital (IMSUTH) and Imo State Primary Healthcare Development Agency, initiated the HAPPINESS pilot project. It used the WHO's Mental Health Gap Action Plan-Intervention Guide (mhGAP-IG) [30] to train primary healthcare workers (i.e., community health extension workers, nurses, and non-specialist physician) to assess and treat MNS disorders in their communities while consulting or making referrals to specialists as clinically indicated. There were six main components to the HAPPINESS

pilot project: *Training, Refresher Training, Clinical Practice, Support Supervision, Community Engagement, and the Drug Revolving Fund (DRF)*.

## Training

The training aimed to improve knowledge of MNS disorders, attitudes towards persons with mental illness and skills in assessment and management of MNS disorders. Of the 9 modules in the mhGAP-IG, we chose *Essential Care and Practice, Depression, Psychoses/Mania, Epilepsy, and Substance Use Disorders* and made relevant adaptations based on local needs. We also created a module that focused on stigma reduction.

The module on *depression* teaches symptoms/signs, differential diagnoses, assessment, including risk assessment, and biopsychosocial treatment planning over time. The module on *psychoses/mania* teaches both psychosis versus mania in bipolar disorder symptoms and signs, diseases' natural history and course over time, assessment, and treatment planning including managing adverse reactions and side effects of medications. The module on *epilepsy* teaches convulsive versus nonconvulsive seizures, contextual symptoms and signs, causes, and assessment (especially reactive seizing). The module on *substance use disorder (SUDs)* introduces the misuse of substances (alcohol, opioids, benzodiazepines (BZDs), khat, tobacco, stimulants), their signs and symptoms, biopsychosocial impact, assessment of SUDs, and the biopsychosocial treatment and management over time. It also includes motivational interviewing and management of medical and psychiatric emergencies related to SUDs such as intoxication, overdose, and withdrawal. The module on *stigma reduction* discussed common, local stigmatizing language, myths, beliefs, and ways to decrease associated stigma, discrimination, and human rights violations.

The training was delivered in-person, facilitated by five trainers experienced in mhGAP-IG training. It was a 9-hour per day, 5-day training (with scheduled breaks) that contained sessions composed of didactics, group workshops, and role-plays. Didactics were based on mhGAP-IG modules with adaptations made to include local content, examples, and narratives (see Table 1). Group workshops were interactive sessions of 5 to 7 people each who read, reviewed, and discussed identified topics. Role-plays were enacted by 3 trainees (that took turns as a client, clinician, and observer) and observed by a facilitator. They simulated scenarios such as initial evaluation, psychoeducation, and first aid for seizures. Trainees completed the mhGAP-IG pre- and post-training test before and after each day of training on the specific modules. Also, to evaluate the HAPPINESS project intervention, trainees completed a pre and post stigma questionnaire that captured the local stigmatizing beliefs and negative attitudes about mental disorders. Lastly, we also included *observed practice sessions* to evaluate trainees on MNS screening, assessment, treatment, and follow up planning. Post-training certification was based on the following: 100% attendance to all training activities, a score of at least 90% on the post knowledge test, and a "pass" grade on the observed practice session as scored by trainers according to pre-set competency rubrics (patient assessment, patient education, diagnosis, and treatment). A one-day in-person refresher training was scheduled for every six months for all trainees and topic-based discussions using a group WhatsApp forum was planned for every two weeks.

Table 1

Examples of adaptations to the mhGAP modules on psychosis, epilepsy and substance-use disorders

mhGAP Module	Section	Examples of adaptations
Psychosis	Introduction to psychosis	<ul style="list-style-type: none"> <li>- Identified and listed local names for psychosis/mania: e.g. “Isi ngbaka”, “ara”, Isi nmebi”</li> <li>- Identified and listed local myths and beliefs about psychosis/mania: e.g. “untreatable”, “once the affected persons go to the market, it becomes incurable”</li> </ul>
	Assessment of psychosis	- Incorporated local concepts of bizarre behavior; e.g. “ogbanje”, “mami-water”
	Management of psychosis	- Identified and listed local brand names/generic equivalents for antipsychotics/mood stabilizers on the essential drug list: e.g. <i>Lanzep/Prexal = Olanzapine</i>
	Role-Play	- Developed script for role play vignette in local <i>Igbo</i> language
Epilepsy	Introduction to epilepsy	- Identified local myths and beliefs about seizures: e.g. <i>It is infectious, it is a spiritual attack, it is untreatable</i>
	Assessment of epilepsy	- Identified and listed local names for seizures: e.g. “ <i>akwukwu</i> ”, “ <i>ihe odido</i> ”
	Management of epilepsy	<ul style="list-style-type: none"> <li>- Identified and listed local brand names for anti-seizure medications on the essential drug list: e.g. <i>Cartol, Epicar = carbamazepine</i> and <i>Epilim Chrono = valproate</i></li> <li>- Identified and listed available local specialist/tertiary care centers for referral</li> </ul>
	Role Play	- Developed script for role play vignette in local <i>Igbo</i> language
Substance-use disorders	Introduction to disorders due to substance use	- Identified, listed local names for commonly used drugs and alcoholic beverages. Example: Liquor like rum, bourbon called “ogogoro”, Cannabis: called “Igbo”, “ahihia” “anwuru ike” and Cigarette and tobacco products called “anwuru”
	Assessment of disorders due to substance use	- Identified and quantified local measures of alcoholic beverages using NIDA guidelines/standards
	Management of disorders due to substance use	- Identified, characterized and listed available community resources for people with SUD
	Role Play	- Developed script for role play vignette in local <i>Igbo</i> language

## Clinical Practice

Informed by the input from community stakeholders, we developed a clinical practice Standard Operating Procedure (SOP) for all the trainees depending on their roles in the primary health center [see **Additional File 1**]. The goal was to streamline patient healthcare delivery, continuity of care, as well as clinical support and evaluation. For example, the design and development of a personalized pocket-sized appointment reminder was an accessible and affordable way to facilitate treatment adherence and support paper chart medical record organization. Another practical and detailed adaptation was the implementation of a customized paper medical record system for accurate documentation of enrollment: an initial evaluation intake form, follow up visit forms as well as referral templates. The questions built into the forms were tailored to include important psychosocial and environmental factors that might exacerbate or mitigate symptoms. To facilitate systematic data collection, management, and evaluation of the intervention and its impact, the medical chart documentation included monthly tallies that the trainees fill out broken down by demographics: age, sex, and mental health diagnostic categories. The mental health supervisor reviewed the data collected during their monthly visit in addition to supervising clinical cases and eliciting constructive feedback. The SOP also included a clear flowchart for *Screening, Assessment, Treatment, Follow up, Documentation and Periodic evaluation*.

## **Community Engagement**

The project team leaders participated in a local radio morning show to raise awareness of the project and provide public health education about mental illness and emotional health. Trained primary health workers also engaged their local communities via local churches, town hall meetings, and visits to traditional rulers. The HAPPINESS Project's social media platforms (Facebook page, Instagram, and Twitter account) also engaged with local groups, individuals, and organizations to create mental health awareness and disseminate information about the project.

## **Drug Revolving Fund (DRF)**

The project utilizes a DRF to ensure consistent availability, affordability and accessibility of high-quality psychotropic and anticonvulsant medications for those who need it [33]. Medications are dispensed with a marginal mark-up but below market retail price. Any generated net profit is used to offset logistic issues and ensure sustainability of the scheme [see **Additional File 2** for further details].

## **Primary healthcare in Imo State**

Imo state has a population of about 4 million people, with 527 primary health care (PHC) centers staffed by 453 nurses, 76 community health officers and 864 community health extension workers spread across the State's urban and rural areas (as of 2017). Each center has a part-time or full-time covering physician. The HAPPINESS pilot project was conducted in 10 primary care centers from five local government areas of the state [34].

## **Measures**

## Questionnaires

Trainees' perceptions of mental disorders and attitudes towards people with mental illness were assessed using a 43-item questionnaire (see **Figure 1**) that was created via modifying items from the Fear and Behavioral Intentions (FABI) Toward the Mentally Ill questionnaire, the Community Attitudes to Mental Illness (CAMI) scale, and a questionnaire developed for the World Psychiatric Association (WPA) Program to Reduce Stigma and Discrimination [35–37]. This questionnaire has been used in previous studies in Nigeria [38–40] and includes four subscales (acceptance of socializing with people with mental illness, favorable attitudes towards normalized activities and relationships with people with mental illness, beliefs in witchcraft as a cause of mental illness, and endorsement of a biopsychosocial perspective of mental illness).

A separate questionnaire was also administered to document self-reported sociodemographic characteristics (age, gender, and years of education), profession (i.e. Community Health Extension Worker, Community Health Officers, Doctor, or Nurse), where they were born, and where they currently live.

## Qualitative Interviews

The semi-structured key-informant interviews were conducted with 4 nurses, 1 Primary Care Doctor, 4 state health officials (from various organizations in Imo State; all doctors themselves), and 2 mental health specialists (1 Clinical Psychologist and 1 Psychiatrist) (n=11). Each interview ranged from 20-60 minutes using a structured interview guide and additional prompts as needed during the interview for clarifications and relevant details. The interview guide was developed with the Consolidated Framework for Implementation Research (CFIR) with focus on “*intervention characteristics*” (HAPPINESS project training and implementation), “*outer setting*” (Healthcare policy in the state, country, infrastructure and community engagement), “*inner setting*” (primary care clinics structure, hours, functioning), and “*process*” (clinical assessments, treatments, referrals and consultations) [41].

## Analysis

### Questionnaire

Out of 34 filled questionnaires received, only 13 were usable due to some missing data at either pre- or post-training. Trainees were not additionally compensated for responding to the questionnaire but were given meals during the training and reimbursed for transportation costs. The questionnaires were conducted by-hand during the workshop.

Thirty questions were included in the analysis and categorized into four subscales as per previous studies that utilized the same questionnaire (*socializing, normalizing, supernatural causation and biopsychosocial approach*) [38–40]. Responses were analyzed using a paired sample t-test conducted on



each of the four subscales using the R statistical software. Variances for each of the subscales were considered unequal except for the biopsychosocial subscale; however, deeming the variance equal or unequal did not affect the results of the t-test.

### ***Interviews***

Interviews were transcribed by one of the authors, CC, (who did not conduct the interviews) with the assistance of the interviewer field notes in cases where audio was difficult to decipher. Coding was done using the Dedoose software (Version 8.3.17) and Microsoft Word by CC and reviewed by two of the authors, TI and KW. After the first round of reviewing transcripts, initial parent and child codes were formed. This initial codebook was re-evaluated to ensure clarity; theme and sub-themes were merged where necessary. After the final codebook was formed, codes were applied to the previous transcribed interviews. Transcriptions that corresponded to each theme and sub-theme were analyzed to generate findings and conclusions regarding the HAPPINESS pilot project and training.

## **Results**

### **Questionnaires**

**Table 2** summarizes the demographics for the initial respondents (n=34) and the subsample of respondents who completed both pre- and post-training questionnaires (i.e., the analyzed sample; n=13). The average age of the initial sample was approximately 45 years old ( $SD = 7.73$ ), and approximately 43 years old ( $SD = 8.74$ ) for the analyzed sample. The average years of education were approximately 19 years ( $SD = 3.77$ ) for the initial sample and approximately 18 years ( $SD = 2.68$ ) for the analyzed sample.

The initial respondents and the analyzed sample were predominantly female (85% and 92%, respectively). The initial respondents were mostly doctors, then community health extension workers (CHEWs), then nurses (53%, 35%, and 12%, respectively). The analyzed sample was also predominantly doctors, then CHEWs, then nurses (62%, 31%, and 8%, respectively). Most people were born in rural areas (79% for the initial respondents, 92% for the analyzed sample), and none were born in semi-urban areas. For the initial respondents, 39% were currently living in a rural area, 33% in an urban area, and 27% in a semi-urban area. For the analyzed sample, 23% were currently living in a rural area, 38% in an urban area, and 38% in a semi-urban area. Thus, our analyzed sample of 13 people was less rural living than the initial respondents of 34 people.

<b>Table 2. Demographic Information</b>			
		Initial Respondents (n=34)	Analyzed Sample (n=13)
	Average Age	<b>45.09</b> (7.73)	<b>43.08</b> (8.74)
	Average Years of Education	<b>18.94</b> (3.77)	<b>17.77</b> (2.68)
Gender	Male	<b>15%</b>	<b>8%</b>
	Female	<b>85%</b>	<b>92%</b>
Job	Community Health Extension Worker	<b>35%</b>	<b>31%</b>
	Community Health Worker	<b>0%</b>	<b>0%</b>
	Doctor	<b>53%</b>	<b>62%</b>
	Nurse	<b>12%</b>	<b>8%</b>
Born	Urban	<b>21%</b>	<b>8%</b>
	Rural	<b>79%</b>	<b>92%</b>
	Semi-urban	<b>0%</b>	<b>0%</b>
Currently Live	Urban	<b>33%</b>	<b>38%</b>
	Rural	<b>39%</b>	<b>23%</b>
	Semi-urban	<b>27%</b>	<b>38%</b>
<p>Note: Demographic information collected from the self-report stigma questionnaire for the original set of respondents (n=34) and the final sample (n=13) included in the analysis. For average age and years of education, the numbers in parentheses are the standard deviations.</p>			

**Table 3** shows the results from the paired two-sample t-test. Overall, there were fewer stigmatizing attitudes and beliefs towards people with a mental illness after the training, compared to before. This is demonstrated by the mean responses of each subscale (pre- versus post-), but also by the t-test results. Scores significantly improved on three of the subscales (socializing, normalizing, and causation). Post training, respondents reported more acceptance of socializing with people with a mental illness,  $t(12) = 3.07, p = 0.01$ , more favorable attitudes towards normalized activities and relationships with people with a mental illness,  $t(12) = 5.03, p = 0.0003$ , and less of a belief that witchcraft was a cause of mental illness,  $t(12) = -2.55, p = 0.025$ . There was no significant effect of the training on the biopsychosocial subscale,  $t(12) = 0.74, p = 0.472$ .

<b>Table 3.</b> Change in Attitudes and Beliefs of People with Mental Illness				
<b>Subscale</b>	<b>Pre-Training Mean</b>	<b>Post-Training Mean</b>	<b>T-Value</b>	<b>P-Value</b>
Socializing	1.72 (0.24)	1.88 (0.10)	3.07	0.010
Normalizing	1.55 (0.18)	1.79 (0.10)	5.03	0.0003
Witchcraft	1.37 (0.34)	1.12 (0.10)	-2.55	0.025
Biopsychosocial	1.58 (0.21)	1.69 (0.16)	0.74	0.472
<p>Note: Subscale means are based on an answer of 1 for disagree and 2 for agree to questionnaire statements. For the socializing subscale, 1 indicates less acceptance of socializing with people with a mental illness (and 2 indicates more acceptance). For the normalizing scale, 1 indicates less favorable attitudes towards normalized activities and relationships with people with mental illness (and 2 indicates more favorable). For the witchcraft subscale, an answer of 1 indicates a belief that witchcraft does not cause mental illness (and 2 indicates a belief that it does). Numbers in the parentheses are the standard deviations.</p>				

## Interviews

The interviews highlighted respondents' perspectives on specific aspects of the HAPPINESS pilot project, but also, more generally, existing barriers within the context of health care delivery in Imo State. A summary of these findings is presented in **Table 4**. Some interviewees' specific job titles are omitted to preserve anonymity (as there are few of these roles in Imo State). Primary care nurses and doctors will be noted as *primary care workers*. Psychiatrists and psychologists will be referred to as *mental health specialists*.

<b>Table 4.</b> Themes from the qualitative interviews with key stakeholders of the HAPPINESS Project		
<b>Theme</b>	<b>Sub-Themes</b>	<b>Summary</b>
HAPPINESS Project impact	new skills	Newly gained or improved ability to advocate for patients and detect, diagnose and treat mental illness.
	ideological changes	An improved awareness of mental illness, leading to more empathy and respect towards patients.
	drug revolving fund	An overall positive impact on drug access.
Contextual threats to address	lack of awareness	High levels of misinformation and stigma in the population leading to undetected mental illness.
	physical/structural/systemic barriers	Poor access to mental health care (road access and availability of specialists), lack of funding, and lack of basic healthcare tools (some, unrelated to mental health).
Project-specific remarks and opportunities	promoting early detection	Educating community members and families to bring patients to a primary care center instead of alternative types of treatment (e.g. religious).
	supervision	Lack of supervision on a day-to-day basis for trainees.
	training structure & components	Adding additional topics, increasing the length of training, and tailoring training to each type of health workers' needs.
	trainee recruitment & retention	Providing trainees additional stipends and recruiting trainees who are more deeply motivated to expand their knowledge on mental health care.
	involving more people	Training more people and building more partnerships with local organizations.

## ***The HAPPINESS Project's Impact***

**New Skills.** Interviewees cited many changes to the way trainees took care of patients after the training workshop:

*“Before the training, I was referring my patients with MNS conditions. But after the training, I am now able to diagnose and treat my patients. Like, treating [those that present] with psychosis. After treating them, they become better and go back to their families, they gained back their responsibilities.” – Primary Care worker*

Many noted a drastic improvement in their ability to detect, diagnose, and treat mental illness. For instance, the workshop taught them how to record and use Patient Health Questionnaire-9 (PHQ-9) and Brief Psychiatric Rating Scale (BPRS) scores to screen for and assess the severity of common mental disorders. Trainees also reported increased belief in the importance of counseling:

*"I think the most important thing is counseling. Every patient needs counseling. Because one out of every 10 patients have an MNS condition, even silently ... so we counsel them...they tend to open up things that you may not have really known. Or they have an issue that they never wanted to say. We need to create that good relationship with the patient and try to let them know that everything I discuss with you is private, is between you and (inaudible), except when they give you consent to discuss these things [with others]" – Primary Care Worker*

A psychiatric nurse also noted marked improvements in her ability to diagnose and treat patients with a mental illness (including providing the correct drug dosage), despite being a psychiatric nurse who was already formally trained in psychiatry:

*"We (found) it difficult before, to give diagnosis but after the training, most of us, even those who are not psychiatric nurses can now identify the mentally ill...we now make the right diagnosis. Even when I can't do it myself, I'll call (the mental health specialist) and (they'll) give the right diagnosis. We give the right diagnosis, we give the right drug... with this project, it's actually really improved my knowledge and gave me (a) wider knowledge of psychiatry, so I'm impressed and happy"*

*"Some of them (used to) react to the dosage but nowadays, since this training, none of my patients have reacted to dosage, because I give them the right drug dosage now"*

Lastly, many respondents indicated feeling confident to apply what they learned in the training workshop to practice. Notably, there was one occasion where the psychiatric nurse advocated for their patient, who would have been arrested by the police if they did not step in:

*"he had a problem with somebody and they started beating him, the police arrested and they locked him up, so I went to the police station and I told the cops in charge, I said, please don't beat this person, he is a mentally ill patient, he doesn't know what he's doing... he's not mentally sound, this and that, and I said he's my patient... I stood my ground because I know what I am saying..."*

The training equipped the nurse with the confidence to advocate for their patient, which was rooted in their new and more expansive knowledge of mental illnesses.

**Ideological Changes.** The training also led to a changed attitude regarding mental illness. Many developed a sense of empathy and respect for patients. This went on to change the way they interacted with patients, as well as how they provided treatment to patients:

*"... most of them need privacy (for the) patient doctor-relationship, (we need) to create that perfect environment for them ... so I ask, are you okay? Do you need somebody to stay with us?... I'll keep the*

*patient's relative outside ... just to make the patient feel comforted. And first off, I need to let them know that whatever we're going to discuss, (will) be confidential, (will) be between me and the patient" – Primary Care Worker*

*"I'll go ahead to ask them if they permit me to bring in a colleague or a nurse...and if they say no, I don't go ahead, I respect their decision" – Primary Care Worker*

These primary care workers described how they altered the environment and treatment approach to make patients feel more comfortable and that their autonomy was being respected. They also noted pre-workshop versus post-workshop ideas about people with MNS disorders in the following quote:

*"(I) felt that (before), (we were) not really tending to MNS ... because of, probably because of their environment and how violent they can be. You know? But after that training, I was able to ... show love to these patients. They can be understanding to you, can listen to you or... instructions..., the training made me realize that we are all one...they have the same problem...it's just a sickness that needs to be treated"*

This mentality of "they are just like us" and that the patient has an illness that needs to be treated is evidence that some respondents may have developed a biopsychosocial view of mental illness.

Lastly, there was also an emphasis on integrating patients back into society and regular life (e.g. their workplace) after treatment. This is one of the key components of the "recovery approach", which has long been used to guide the creation and delivery of mental health services [42].

**DRF.** In general, respondents had positive views of the DRF. They noted that although it involved a lot of "paperwork", it led to drastic improvements in the ability of patients to pay for and adhere to treatment. The following quotes show, from multiple perspectives, that the DRF is beneficial for patients and affordable:

*"... financial constraint is another problem because you have a family that doesn't have money to afford medications...so if you have no money, you can't be treated. So, I think the program can help to either reduce the funding from bill of these patients or trying to subsidize so everyone can access treatment irrespective of your income"- Primary Care Worker*

*"They don't complain even though financially, things are not suitable for most people even though it is very, very affordable for them, but some of them take it with ease, some come and pay half and half. But in my clinic...I told them don't ever stay at home because you don't have money to take your drugs. Please take your drugs, please be stable. By the time your patient is stable and improving, the patients' relatives will not hesitate to pay for the drugs...they pay for it" – Psychiatric Nurse*

The main limitation of the DRF is that it only covers oral medications that are found on the country's Essential Drug List [43]. This removes part of the cost barrier to accessing treatment, but it is still limiting the types of conditions that primary care workers can handle. Additionally, there are also situations where

health workers must administer a drug via *intramuscular injection* as opposed to *oral administration*; for example, when health workers encounter severely agitated patients:

*“I’m using the drug revolving fund. But the problem with that, [we don’t] get access to injectables, we only have oral drugs. And like... Yes, most psychotic patients find it hard to take oral drugs initially. If you can inject them, they will calm down and then start taking oral drugs” – Primary Care Worker*

## ***Contextual Threats to Address***

Although interviewees only consisted of providers, all of them noted many existing barriers to mental health care in Imo State that could influence the success of the HAPPINESS Project. The following quote by a mental health specialist highlights the main barriers that are experienced by people who are seeking care:

*“There is no insurance to cover mental health in the country, so treatment is basically out of pocket. The barriers to care [include,] the distance [and] accessibility to care. Most of the patients live in the rural areas, [but] the facilities are located in the urban areas. So, there is a very large distance for them to [travel] to access care, which is very expensive. [Other barriers] ...lack of knowledge and lack of awareness about mental health. A lot of people still believe that they are caused by spiritual power, and the severe lack of... nurses, doctors, social welfare workers, therapists, I don’t think there’s any in the state now, clinical psychologists are very few...”*

**Physical/Structural/Systemic Barriers.** An inadequate physical environment, lack of funding, and poor availability of mental health professionals were noted as barriers to mental health care that have persisted in Imo State.

Many respondents noted a lack of basic health care tools in many clinics (e.g. weight and height scales). Moreover, project supervisors claimed that routes leading to primary care centers were difficult to physically access.

Lack of funding was commonly mentioned as a barrier to seeing a mental health worker or to acquiring medications that are prescribed for treatment. There are very few mental health specialists in Imo State; thus, people living in more rural areas have difficulty accessing treatment. Moreover, people must be screened and referred before they can access care from a mental health specialist (they may not self-refer).

Regarding the supply of mental health workers, there are relatively few programs in Nigeria that train and produce psychiatrists. Brain drain, defined as when Nigerians trained within the country seek better job opportunities in other countries (common in many African countries) [44], was also noted as a challenge:

*“We have two colleges, the national college [National Postgraduate Medical College of Nigeria] and the West African college [West African College of Physicians] for training of a specialist. And then when you*

*graduate, the training averages 4-6 year for you to become a fellow of the college and when you graduate you become a psychiatrist, a general psychiatrist... because of brain drain, most of the personnel (these trained psychiatrists) are outside of the country”- Mental Health Specialist*

Within Imo State, there are no training programs for psychiatrists, and thus, it may be less likely that local people will become psychiatrists. Even when people from Imo State are trained elsewhere, they may not choose to return. Aside from the limited availability of mental health specialists, there are a limited number of health workers (potential trainees for the HAPPINESS Project), most of whom are already overburdened. Many trainees noted working full days, 7 days a week, and frequently working overtime:

*“(I work) from 8 o’clock. The official time is (to) 4 o’clock, but I go beyond that if I have a patient or if [anyone] calls me on the phone that they’re coming, I have to wait for them. So specifically, I don’t have times when I don’t see anybody and leave. – Psychiatric Nurse*

**Lack of Awareness.** A severe lack of mental health awareness was frequently noted by all the interviewees as a common challenge in providing adequate care and early diagnosis. This was rooted in the high levels of misinformation and stigma among the general population and local community leaders. The following quote by a primary care worker details the severity of stigma that people are facing:

*“Most of them are scared. They don’t want to tell their neighbors, or (their) son or (their) daughter or (their) friend...that they are having this problem, so that they don’t stigmatize them. So, they tend to hide this problem, and this problem is killing the patients. So, it’s a very big problem, so I think that has been a stumbling block”*

Another theme related to a lack of awareness is that underlying mental illnesses are often ignored and go undetected because mental health is the last priority. At the health system level, resources and attention tend to go towards acute and chronic physical illnesses and conditions, rather than mental health. This lack of awareness leads to a delay in receiving the correct and suitable care. One state health official demonstrates this in the following quote:

*“The person that comes with the thing that is malaria, that’s the reason why they came to the health center. Or they may have typhoid fever, meanwhile the issue (that remains) is depression”*

## ***Project-Specific Amendments and Opportunities***

**Promoting Early Detection and Raising Awareness.** The majority of respondents talked about the urgency of taking measures to ensure that people with MNS disorders are diagnosed and treated as early as possible. Many were concerned that those affected by mental illness get exposed to alternative treatments (notably, at churches), which are viewed as improper treatment. These treatments reportedly often involve violence and are perceived as very harmful to individuals:



*"I also experienced a case where this patient had this condition and the parents took the patient to somewhere where they were flogged...in general in rural [settings], creating awareness that once someone, your child or your daughter, or your son is having this problem, or someone you're familiar with is having this problem, please don't do this. You can't... look at (the) difference, there are fully steps you can take to ensure that this patient gets treated." – Primary Care Worker*

Many respondents viewed increasing awareness as a key element to early detection and proper treatment. They also believe that raising awareness and educating the public is essential to combating stigma as a barrier to treatment. They suggested raising awareness through paper advertising (e.g. flyers and brochures), media advertising (e.g. TV and radio), and directly engaging with churches. The content of awareness initiatives should include basic information about mental illness and advocate for bringing those (who may have a mental illness) to clinics rather than churches. Additionally, they emphasized partnering with local government leaders on awareness-raising initiatives.

The target for awareness-raising should be the entire community, people with a mental illness, and their families. Specifically, these should focus on educating people on what mental illness is, its treatability and what are safe treatment settings:

*"it also made me to realize that whenever I see families,(I tell these) families – don't chain (your) loved ones because of these conditions...I need to intervene as quickly as possible, you know, let them know that this is not the right way to do it" – Primary Care Worker*

*"probably tell the villagers... you should accept them, be friendly with them ... give them a chance to say something, contribute...And probably to teach them the signs (to) notice earlier. Because a mentally ill patient may not know because some of them lack insight. Even when you tell them, they say no. So, when they see such people...they bring them to the clinic and they better. They shouldn't be hiding them because of stigma or what people will say, they should help the patients" – Psychiatric Nurse*

The person who has a mental illness may not realize they have a mental illness; thus, it is up to the community and people around them to not impose and exacerbate stigma, to recognize that someone may have a mental illness, and should consider seeking professional help. Moreover, a reduction of stigma in the communities will be conducive to helping individuals recover.

**Supervision.** In-person supervision post-training was also key to project implementation:

*"(after the HAPPINESS Project) I have someone around that always visits (the) office. I feel happy when (the project supervisor) around, if I have patients I will say, talk to them, take care of them. And (the project supervisor) does" – Psychiatric Nurse*

However, supervisors noted that they are strained and have difficulty accessing the primary care centers:

*"We do supervision, the circuits. Because we need to supervise them. Not just training them and leaving them, they need to be supervised... I'm the only clinician at the training part of the training now. Though*

*we have a project coordinator who goes twice a month to collect data.” – Mental Health Specialist*

*“We need to supervise them. Not just training them and leaving them, they need to be supervised. So, it’s been difficult doing the supervision because of the state of the routes, the routes are very bad. We don’t have a project vehicle, which is a very urgent need. The roads and centers cannot be accessed using a normal (vehicle)” – Mental Health Specialist*

**Training Structure and Components.** Respondents commented favorably about the training materials (i.e. the adapted mhGAP training materials) and found them to be a helpful resource when they are unsure about a patient or unable to reach a mental health specialist. Moreover, the WhatsApp forum was transformative, especially when there were no mental health specialists physically or virtually available, since it provides a quick way for trainees to ask for help and seek advice from specialists and fellow trainees.

Participants also suggested several improvements to the training itself, including additional training materials and topics, and amending the training structure and length. For additional materials, one respondent suggested making a website to collect information from the training:

*“this program has been so helpful, but I still want to know more. You should create a platform, we already have one [the WhatsApp forum], but I don’t know if we have everyone. We should have access to a website where we can see materials to improve our knowledge about MNS conditions that would be great” – Primary Care Worker*

Some respondents also desired new topics such as child mental disorders, cognitive behavioral therapy, and other neurological disorders. Some respondents also reported that more in-depth training would help them differentiate between different disorders and improve identification and diagnosis (since many mental illnesses have similar signs and symptoms).

*“MNS conditions can be confusing. So, it can really be confusing, and we need to understand every aspect of these conditions. I think they need to go deeper. So, we can be able to differentiate. Um, these conditions, everybody sees it, then most of the times it can look like the symptoms” – Primary Care Worker*

*“I want to know the difference between depression and anxiety, and manic depression. I want to know the differences. Manic depression and depression and anxiety” – Psychiatric Nurse*

Most respondents believed that the training was “rushed” and that there was “too much information”, but they liked the way materials were taught (e.g. using role-play). For this reason, many suggested a 7-day training, with a refresher every 3 months (compared to current 5-day training with a refresher every 6 months). Respondents also indicated that the project should continue to provide travel stipends and lodging for the duration of the training:

*“residential training is good, and you know the cost. They have to take care of the logistics and also pay for the transports and all the other out of pocket expenses” – State Health Official*

*“if you increase it to 7 days, of course, it would be better, but it needs to be an in-house training so that some of the rural health centers (can attend)” – State Health Official*

Some respondents also expressed that some trainees felt “rushed” because they were coming in with different expertise. Thus, many suggested training different professions separately:

*“So I think the training can be increased, you can have a separate training for doctors and nurses, then you have for the CHEWs, you also have a separate training for them because for those you need to be slow...some of the CHEWs, they’re going to start from the basics, so they need time” – State Health Official*

*“I think that doctors should be trained differently, separate from nurses and also CHEWs because this one uses SOP’s [standard operating procedures] that doctors that use to treat. So, the content really shouldn’t be the same” – State Health Official*

Professionals from different backgrounds may learn at different speeds, and these differences could be better addressed by training them separately. Additionally, each profession has a different SOP, meaning they have different skills and scope of practice for treating patients. Conversely, however, one primary care worker expressed their desire to share information between different types of professions.

**Trainee Recruitment & Retention.** Respondents were favorable towards the current HAPPINESS Project retention strategy of only recruiting trainees who will be staying in their location for at least two years. Respondents suggested multiple retention strategies including that the HAPPINESS project should provide travel and lodging for trainees and have adequate resources within clinics. Many respondents also thought it was important that training should only be for those who are motivated and passionate about mental health. Respondents believe that people without motivation will be passive learners and not gain a lot from the training. There was also concern that people will misrepresent their roles after being trained as being a mental health specialist:

*“Somebody can just try this training and put on his or her bag and walk into the village and say, you know, now I am a psychiatric doctor, if anybody, please come to this address. Those are the things you people have to avoid and you use those within the health system. That’s my own advice, it’s an opinion. If you use people that are not into health, they can’t do what I’m doing, in the villages...with formal training, yes, doctors, nurses, community health workers, yes” – Psychiatric Nurse*

**Involving More People.** When asked about how the HAPPINESS Project could expand, respondents suggested recruiting more trainees and partners.

All respondents agreed that there should be more trainees in the future. This could involve an expansion beyond the 5 local government areas (LGAs), to the rest of the total 27 LGAs, or the inclusion of trainees

from a wider range of backgrounds (e.g. village health workers):

*"I still see those 5 local governments, meanwhile we have 27 local governments. So, the training can (be increased) so that all 27 local governments can benefit" – Mental Health Specialist*

Respondents also suggested forming more partnerships with potential local funders, the local community, schools, churches, *traditional rulers*, and the local governments. They believed that with more links to these community stakeholders, the chances of helping people with MNS disorders increases. *Traditional rulers* (usually selected or appointed with no term limits) were commonly noted as they are the stable, sustainable interface between LGA's and the communities. Thus, they would be useful in getting community buy-in and long-term support for the project.

## Merged Results

Significant findings from the stigma questionnaire related to findings under the HAPPINESS Project impact theme and matched findings under the *ideological changes* sub-theme. The questionnaire found that trainees were significantly improved on the *socializing, normalizing, and supernatural causation* subscales, which matches respondents' claims that they have developed a better understanding of mental illness, and more empathy and respect towards patients (which were enacted through more empathetic and respectful interactions with patients).

## Discussion

Overall, the HAPPINESS Project was successful in training its participants. Findings from the stigma questionnaire were congruent with the interview findings that revealed a favorable change in attitudes regarding mental illness following the HAPPINESS Project training. As indicated by the questionnaire, trainees reported significantly more acceptance of socializing with people with mental illness and more favorable attitudes towards normalized activities and relationships with people with mental illness; further, they were less likely to endorse supernatural causes of mental illness. These preliminary quantitative results were supported by emergent themes from the interviews, which showed that trainees gained a better understanding of mental illness, learned new skills in providing diagnosis and treatment, and developed (and acted with) more empathy and respect towards patients. A demonstrated increase in empathy and respect from the interviews also demonstrated biopsychosocial perceptions of mental illness (which was insignificant in the analysis of the stigma questionnaire).

A pervasive theme in this study is the impact of awareness on the ability of health care workers to treat people with a mental illness. These are demonstrated in Fig. 2. Lack of awareness is what leads to the delayed detection of a mental illness, which leads to poor management of mental illness, and it presents in different ways. First, lack of awareness is rooted in misinformation and high levels of stigma. Misinformation then leads to the inability of people to identify a mental illness (and recognizing it as a medical illness that needs to be treated) and the belief that mental illness is caused by spirits and must be addressed by churches. Second, high levels of stigma within the community also leads to the

alienation of individuals who display symptoms, which may not only exacerbate their illness but also delay care-seeking (and prevent them from acquiring proper illness management).

[Figure 2 here]

Figure 2. **Enablers to achieving proper management of mental illness.** The direction of arrows and the gradient of rotated squares indicate the process necessary to achieve better illness management for people with a mental illness. To create more awareness regarding mental illness, there must be efforts to reduce misinformation and stigma. More awareness of mental illness (signs, symptoms, etc.) can lead to early clinical presentation to and detection by a trained healthcare worker. Early presentation and detection lead to better treatment outcome because the illness would be managed and prevented from exacerbation.

Many respondents recommended increasing the length of the training (to have more time to learn) and tailoring training for different health professions (since some clinical workers have had less exposure to the workshop content previously). Additionally, respondents still desired extra training on how to differentiate between illnesses and additional topics they wanted covered. Thus, a challenge will be to slow down the training's pace, while adding additional topics.

To promote primary care center visits for people who may have a mental illness, respondents suggested working closely with community leaders and creating promotional material to improve awareness of mental illness. The HAPPINESS Project had already taken steps to address these avenues via raising awareness on social media and on local radio shows (whose effects may not have been captured at the time of this study). Additionally, some project sites have made outreach visits to traditional rulers, village committees and councils (with anecdotally positive results so far). Another issue that the HAPPINESS Project has been addressing includes implementing trainee retention strategies. The project team is currently working with the local university to develop this training into a university-based certificate program. This way, trainees will get recognition for the time and effort they spent on building new skills in mental health.

This study fills the mhGAP research gap that was identified by Keynejad et al., which is the focus on local adaptation [31]. The barriers that were identified in the implementation of this project are also consistent with cultural and contextual challenges to the mhGAP-IG training and implementation identified by researchers who've implemented mhGAP-IG in many countries [45]. Their report identified key challenges including the local perception of mental disorders, the healthcare system, available support for trainees, prior knowledge of trainees, trainee recruitment, and the larger socio-political context. This similarity further confirms that the detailed perspectives uncovered in this study could apply to different low-resource settings.

Previous Nigerian mhGAP-IG implementation projects in Ogun and Osun found significant improvement and retention in trainees' skills, and that mhGAP-IG was equally effective compared to an alternative approach (respectively) [46–48]. The present study complements those previous studies by identifying

challenges that arise in initiating a mhGAP-IG implementation project, as well as how external factors (e.g. awareness) contribute to the success of the project. This fits into the “outer context” of the CFIR framework [41]. Specifically, the quantitative component revealed a reduction of stigma among trainees, and the qualitative component robustly revealed social and physical barriers to implementation. These findings are helpful not only for the growth of the HAPPINESS Project but also for other project teams who are initiating or expanding their mhGAP-IG interventions.

Although one of the main strengths of the HAPPINESS Project is its use of the widely available primary healthcare system in Imo State, it should be acknowledged that there are challenges to access that go beyond an easily accessible PHC. This study revealed that a lack of human resources and proper healthcare resources influences many aspects of project implementation and day-to-day primary healthcare center functions. Having a small supply of healthcare workers limits the pool of potential trainees and supervisors and the availability of current trainees and supervisors. This may not be a current concern, but as the project expands, more supervisors will be needed to offer online and in-person support. Moreover, there is also poor physical access to primary care centers (mentioned by a respondent as a barrier for supervision) and a lack of basic health assessment tools (e.g. stethoscopes and blood pressure cuffs). Beyond this study, it has been found that primary healthcare facilities in Imo State are often dilapidated, poorly staffed, lacked essential drugs, had long wait-times and high cost for treatments [49, 50]. To combat some of these issues, the HAPPINESS Project has given basic medical tools to the partnering clinics. However, there are still limitations to what the project can ameliorate. For instance, although the DRF was highly regarded by the respondents of this study, it only provides oral medications on the national essential drugs list (thus, restricting the types of therapies available) [43].

Beyond challenges within PHCs, there are also severe disparities with regard to individuals’ abilities to pay for care in Nigeria. Even with the establishment of the federal National Health Insurance Scheme (NHIS) in 2005, more than 90% of the national population (and 5 million people in Imo State) remain uninsured [51, 52]. NHIS is also more challenging to obtain for those who are unemployed (which is common for those with a mental illness). In southeast Nigeria (where Imo State is located), 27% of households incur catastrophic health expenditures, and this rate was higher for rural regions and for people with a mental illness (factoring in both direct and indirect costs of the illness) [53–55]. Even if people obtained NHIS, these plans only cover care at certain federal hospitals and do not cover drugs that are not on the essential drug list of Nigeria, which excludes many common psychotropic medicines (e.g. SSRIs) [43]. NHIS plans also do not cover care provided by clinical psychologists, social workers, and occupational therapists, and they also do not cover mental health services such as psychotherapy and addiction clinics [20].

Instead of being fully reliant on federal health insurance programs, the Imo State Health Insurance Agency, in 2019, started to collaborate with the WHO and different unions and health organizations in the community to improve health insurance for people in Imo State [52]. Looking ahead, these improvements to health coverage in Imo State will be highly essential to the success of the HAPPINESS Project, as it will increase the number of people who can access PHC services without paying out-of-pocket. Additionally,

any upcoming improvements to bolstering primary healthcare's infrastructure and human resources will be conducive to the HAPPINESS Project's expansion.

There were methodological limitations to this study worth noting. Firstly, due to financial constraints, this was a small pilot, proof-of-concept study that focused on training a small number of primary health workers using the mhGAP-IG in select LGAs in one state in Nigeria. Thus, the findings may not be generalizable to larger portions of the state or the country. Optimistically, the project team has received funding to use the data and lessons learned from this pilot study to conduct a larger, prospective study to evaluate the feasibility, acceptability and effectiveness of the HAPPINESS intervention across the entire state (Imo State).

Secondly, this study only examined the perspectives of healthcare workers (doctors and nurses) and health systems leaders. It did not include any community health workers (CHWs), community health extension workers (CHEWs), or the patients' perspectives. In the next, planned larger implementation study of the HAPPINESS intervention, the study team intends to include perspectives from CHWs, CHEWs, patients, families, and other relevant community stakeholders.

## **Conclusion**

Overall, this study provides preliminary evidence for the successful contextualization and utilization of the mhGAP-IG to local settings in a part of Nigeria where mhGAP-IG training is highly needed. Additionally, it explicitly evaluates the change in stigma levels among trainees pre and post training. It also provides some evidence on the potential impact of external factors on the success of this model of integration of mental health into primary care. Future efforts should focus on clinical and implementation outcomes as well as scale up and cost-effectiveness of the HAPPINESS Project intervention.

## **Declarations**

### **Ethics approval and consent to participate**

Ethical approval was granted by Yale University's Institutional Review Board and Imo State Teaching Hospital's ethics committee.

All participants provided verbal consent to participate.

### **Consent for publication**

Not applicable.

### **Availability of data and materials**

Not applicable.

## **Competing interests**

The authors claim that they have no competing interests.

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## **Authors' contributions**

TI, CA, EN, NR, and CD were responsible for the creation of the HAPPINESS Project training. TI and NR were part of data collection. CC transcribed data, conducted thematic analysis, and conducted data analysis. All authors provided input for and approved the final manuscript.

## **Author Information**

Yale School of Public Health, New Haven, CT, USA

### **Casey Chu & Katie Wang**

Department of Psychiatry, Yale School of Medicine, New Haven, CT, USA

### **Nichole Roxas, Charles Dike & Theddeus Iheanacho**

Department of Medicine, Imo State University, Owerri, Imo State, Nigeria

### **Chinyere M. Aguocha**

CMB International, Country Office, Abuja, Nigeria

### **Emeka Nwefoh**

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## **Abbreviations**

HAPPINESS

Health Action for Psychiatric Problems In Nigeria including Epilepsy and SubstanceS

MNS

Mental, Neurological, and Substance Abuse



mhGAP-IG

Mental Health Gap Action Programme–Implementation Guide

CHWs

Community Health Workers

CHEWs

Community Health Extension Workers

DRF

Drug Revolving Fund

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## Figures

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### A. Socializing

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- I would have a former psychiatric patient as a friend.
  - I would live with a next door neighbor who is a former psychiatric patient.
  - I am not afraid of people with mental illnesses.
  - I am not afraid of making conversation with people with mental illness.
  - I would have conversation with neighbors who previously had mental illness.
  - I would invite a previously mentally ill person in my house.
  - I would marry a person who was previously mentally ill.
  - I am not ashamed if someone in my family was diagnosed with mental illness.
  - I am not upset working on the same job with a mentally ill person.
  - I would not avoid conversation with a neighbor who is mentally ill.
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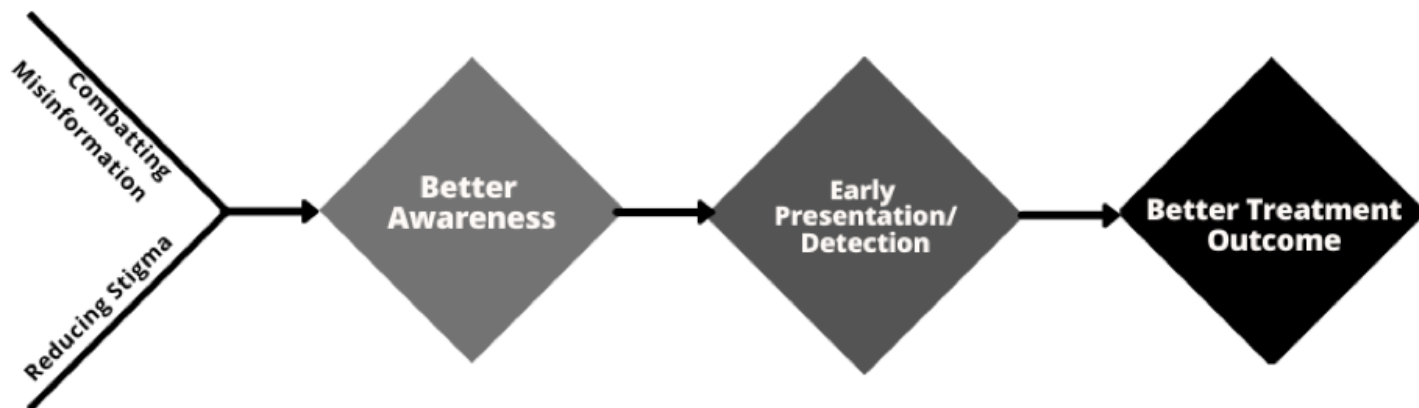
### B. Normalizing Relationship

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- Mental illness is an illness like any other illness.
- The best therapy for mentally ill people is to be a part of society.
- People with mental illness do not tend to be retarded.
- I would be willing to work with somebody with a mental illness

**Figure 1**

Stigma Questionnaire Questions (paraphrased) and Subscales



**Figure 2**

Enablers to achieving proper management of mental illness. The direction of arrows and the gradient of rotated squares indicate the process necessary to achieve better illness management for people with a mental illness. To create more awareness regarding mental illness, there must be efforts to reduce misinformation and stigma. More awareness of mental illness (signs, symptoms, etc.) can lead to early clinical presentation to and detection by a trained healthcare worker. Early presentation and detection lead to better treatment outcome because the illness would be managed and prevented from exacerbation.

## Supplementary Files

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