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ORIGINAL RESEARCH

# Enhancing the Capacity of Providers in Mental Health Integration (ECaP-MHI) in Rural Uganda: The Adaptation Process

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**Purpose:** Uganda adopted the World Health Organization (WHO) model of creating district health management teams (DHMT) comprised of public health officials and administrators to supervise health service delivery at the community level. The purpose of this study was to characterize the perspectives of the DMHT in providing support supervision to primary health-care providers implementing mental health integration using the pre-recorded material. Our aim was to identify barriers to individual uptake and contextual fit, and to solicit solutions for co-designed improvements.

**Methods:** We conducted a qualitative exploratory study using one-on-one interviews informed by the Practical Robust Implementation and Sustainability Model.

**Results:** Members of the DHMT identified a systemic gap in supporting mental health integration into primary care, and reported limited knowledge in how to supervise mental health integration and lacked data on mental health delivery and outcomes. They recommended training of the DHMT in supervising mental health integration supported by standard outcome reports, pre-recorded instructional material by psychiatrists, checklists to help guide and standardize the process, and use of visual aids illustrating mental disorders and treatments for low-health literacy populations.

**Conclusion:** Implementing integrated mental health care using the WHO model of DHMTs as external facilitators and supervisors of primary health-care providers is potentially feasible and scalable, provided that substantial reforms occur such as training in how to provide supervision, standard collection of outcome reports, and practical tools to help guide and facilitate the process.

**Keywords:** district health management team, Practical Robust Implementation and Sustainability Model, integration of mental health services, primary healthcare

## Introduction

The mental health system in Uganda is profoundly under-resourced with approximately 50 psychiatrists in the entire country of over 40 million people.[1,2] According to the World Health Organization, there is one psychiatrist to serve 200,000 or more people with other mental health-care providers who are trained in the use of psychosocial interventions even more scarce.[3] The commonly quoted minimum psychiatrist to patient ratio is 1:10,000 with a recommended pragmatic ratio of 1:8000 for the foreseeable future;[4] however, the ratio of mental health providers to population is estimated to be approximately 200 times greater in high-income countries than in low-income countries.[5,6] The majority of the psychiatrists in Uganda practice at the national referral hospital fulfilling specialized roles and are not accessible at primary health-care clinics in the community.[2] This shortage of specialized mental health providers necessitated using task shifting of mental health services to non-mental health specialists.[7,8] In 2000, the Uganda Ministry of Health decentralized all health service delivery, including mental health to communities in the rural areas where majority of the population resides.[9,10] All health-related activities were decentralized to the district as the entry point for the implementation and scale-up of health policies and

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interventions.[11,12] The World Health Organization model of creating district health management teams (DHMTs) was adopted across the country that is comprised of public health officials and administrators to supervise health service delivery at community level.[13,14] The district health system involves operation and management of public health facilities, including providing supervision to health centers, and community health and planning services.[14–16]

The Uganda Clinical Guidelines on the management of mental disorders were developed,[17,18] and primary health-care providers were trained in the identification, management and referral of mental disorders for specialized care.[10] However, integration of mental health services into PHC has been suboptimal.[19–21] In 2018, we conducted a study to identify barriers and facilitators to integration of mental health services into primary health care in one district (Mbarara) in rural Uganda.[22,23] Among the key barriers identified were a lack of in-service training and support supervision in the provision of mental health services.[22] As a potential solution, we co-designed and tested an intervention to "Enhance Capacity for Providers in Mental Health Integration, ECaP-MHI", which involved three components: 1) a summary of Uganda Clinical Guidelines with algorithms for the identification, management, and referral of selected mental disorders – packaged in the form of table charts; 2) modification of the health management information system paper-based registers to include data entry columns for mental disorders; and 3) in-person training and support supervision by a visiting psychiatrist for six months.[24,25]

In partnership with the psychiatrists who were involved in the pilot, the research team determined a need for modification and adaptation of the training format and process of supervising personnel of the ECaP-MHI. Although the primary care providers found the ECaP-MHI intervention acceptable and expressed willingness for adoption, the pilot study determined that working with psychiatrists as an implementation strategy to provide training and support supervision was not feasible, scalable, nor sustainable given their centralized role in tertiary care facilities.[24] The suggested modifications included (a) replacing in-person training and support supervision by psychiatrists with pre-recorded instructional audios or videos (by psychiatrists) packaged on flash drives, and (b) members of the DHMT providing support supervision to the primary health-care providers instead of the psychiatrists – guided by instructions from psychiatrists on how to support the primary care providers. Of note, DHMT have an existing responsibility to provide support supervision for public health with the goal of integrating physical and mental health, but implementation has been limited.

Informed by the Practical Robust Implementation and Sustainability Model (PRISM),[26] this study aimed to characterize the perspectives of the DMHT in providing support supervision (as external facilitators) to primary health-care providers in mental health integration – using the pre-recorded material, identify the associated barriers to individual uptake and contextual fit[27] and co-design solutions for improvement.

# Methods

## Research Design Overview

We conducted a qualitative exploratory study that used one-on-one interviews to describe individual perspectives of the members of the DHMT while in their routine clinical care setting.[28] Our aim was to identify contextual factors likely to influence uptake, implementation, modification, and evaluation of the adapted components (training and supervision) of the ECaP-MHI in rural Uganda. The qualitative interviews were guided by the Practical Robust Implementation and Sustainability Model (PRISM).[26] We approached this study from an exploratory perspective using a participant-oriented perspective for improved engagement, acceptability, and clinical outcomes.[27,29]

## Study Setting and Participants

### Researchers' Description

The research team was comprised of investigators with expertise in qualitative research methods (EKW), implementation research methods (SJB and JEH), and health systems research (CO). The research assistant (VA) had a social sciences background with training in conducting qualitative interviews.

### Participants Description

The research participants were members of the Lira DHMT located approximately 337 kilometers (209 miles) by road north of Kampala, the capital city in the country.[30] Lira District (northern region) was purposively selected to obtain additional contextual perspectives to those from Mbarara district (southwestern region) where the original ECaP-MHI was first co-designed and pilot tested.

### Recruitment Process

Study participants were recruited by the lead researcher (EKW) through phone calls to schedule in-person interviews. The study purpose was introduced to the target participants and only those who consented to being interviewed were scheduled for one-on-one interviews.

### Participant Selection and Sample Size

We purposively recruited all (the total number) of 8 members who comprise the Lira DHMT involved in direct supervision of health service delivery.[14] This group of DMHT members provided a substantial range of professional perspectives including backgrounds in medicine, public health, planning, education, and community development.[31] Our approach did not consist of achieving thematic saturation because of the small sample size and the diverse backgrounds and experiences of the participants.

## Data Collection

### Data Collection Procedures

A semi-structured interview guide (Additional File 1) was developed corresponding to key PRISM domains[26,32] as the a priori themes with questions adapted to the two intervention components under exploration a) Training format: Pre-recorded material on training and support supervision and b) Supervision personnel: DHMT as external facilitators to primary health-care providers in mental health integration.

Data was collected between October and November 2021. The first two interviews were conducted by EKW together with VA to set the tone for the subsequent interviews which would later be conducted by VA.[33] Prior to conducting the interviews, EKW introduced VA to the participants as the research assistant, they both consented to her presence. A conversational approach was used with the participants during the interview, probing and motivating them to provide complete and accurate information.[34]

The participants were informed about the purpose of the study, namely to gain their perceptions about an intervention (ECaP-MHI) that was co-designed and pilot tested in Mbarara district but had components that needed adaptation. EKW and VA introduced all the components of the original ECaP-MHI to the participants including the summarized Uganda Clinical Guidelines with algorithms for the identification, management, and referral of selected mental disorders – packaged in the form of table charts; in-person training and support supervision by a visiting psychiatrist for six months; and the modified health management information system paper-based registers to include columns on mental disorders.[24,25] Additionally, the participants were informed that the in-person training and support supervision by a visiting psychiatrist needed to be replaced or adapted because this approach was not feasible nor scalable given the small number and centralization of psychiatrists in tertiary care facilities in Uganda.

All participants were assured about confidentiality of their responses and that any publications would be de-identified with respect to quotations from the interviews.[35] Informed consent was obtained, and interviews were conducted in private spaces. Verbal consent was obtained to audio record the interviews, supported with fieldnotes. During the interviews, open-ended questions were sequentially asked following the interview guide, while allowing the participants time to reflect and provide detailed responses. Probes were used to either acquire more information or for further clarification. All interviews were conducted in-person, in English language (the official language in Uganda), and lasted for approximately 30 to 60 minutes, with an average interview time of 45 minutes. Prior to data collection, the study was IRB approved.

## Data Management and Analysis

### Recording and Data Transformation

All audio recorded interviews were transcribed verbatim by VA, and the transcripts reviewed by EKW for accuracy,[29] inserting notations for pauses, clarification of information and punctuations. All the transcripts were read and re-read by EKW, JEH and CO to familiarize with the data to get a general appreciation of the information and the overall meaning.[36]

### Data-Analytic Strategies

Data were manually organized using a framework matrix[37] guided by the PRISM implementation domains (planning, implementation, evaluation and dissemination) as the broad topics. The rows were used for sub-themes generated from the research questions, while the columns represented the subgroups (from probes, fieldnotes), and responses from the participants.[37–39] The content in the cells of the raw matrix was analyzed in relation to the research questions and the PRISM domains to check that the responses were correctly placed under each category.[37,39,40] Responses that were not properly categorized were shifted to where they were most appropriate. The rationale for using the PRISM domains was to identify contextual factors likely to influence implementation, modification, uptake, and evaluation of the adapted training and supervision components, and categorize the findings for appropriate action.

### Trustworthiness

Several strategies were used to ensure trustworthiness of the findings. First, most of the interviews (six out of eight) were conducted and transcribed by VA, and reviewed by EKW against the audio recordings for consistency. The coding process was handled by EKW and JEH independently and reviewed by SJB and CO for consistency checks to ensure rigor.[37,38] The transcripts were manually coded because of the small sample size, themes and quotes selected or inclusion in the results section by consensus after discussion with the research team. Three investigators (JEH, SJB and CO) were not part of the data collection process, which allowed for objectivity and stimulated discussions that produced a more thorough and complete analysis. All the interview transcripts, audio recordings and write-up related to this study were securely stored on a password protected computer.

# Results

All eight members of the DHMT in the Lira district who were responsible for public health and who provided direct supervision to the primary care providers were interviewed. They included a medical doctor, two public health officers, an environmental health officer, a biostatistician, a medical records officer, a health information officer, and a health education officer. The results were organized corresponding to four PRISM domains that guided the interview including: (i) Planning – DHMT as external facilitators to primary care providers in mental health integration and pre-recorded material on training and support supervision; (ii) Implementation – contextualizing content of the pre-recorded material (training and supervision) and utilization of the pre-recorded material (training and supervision); (iii) Evaluation – DHMT as external facilitators to evaluate primary care providers in mental health integration; and (iv) Dissemination – communicating key implementation findings during support supervision.

# Domain 1: Planning

## DHMT as External Facilitators to Primary Healthcare Providers in Mental Health Integration

All the participants described a systemic gap in supporting mental health integration because of a lack of training in the provision and supervision of mental health services. In addition, they reported being impaired in providing appropriate and effective supervision as they did not receive status reports on mental health from the primary care clinics, in contrast to routine reports on the incidence and outcomes of other (medical) health conditions. This limited the supervisor's ability to inquire about mental health because they lacked information to guide follow-up as illustrated by the following quote:

> There is a knowledge gap in what we should do when we go to supervise the health workers…I think the mental health workers have been left on their own to do whatever they can do. There is no programmed activity to enhance their capacity to report, but then our enthusiasm to support mental healthcare as supervisors is low because we are not sure how to practice. DHMT Participant 2

To address the gap, five participants recommended training for members of the DHMT to support mental health integration. They highlighted the effects of COVID-19 to stress the urgency to build their capacity in supporting mental health integration.

> …we should all be trained to supervise mental health care and periodically get refresher training. As we talk mental health is a big deal in this region after the war, now CORONA… People are not aware but mental health is going to be a big deal which we need to build capacities for to support the health workers and social workers to handle the increasing cases. DHMT Participant 5

### Pre-Recorded Material for Training and Support Supervision

Five of the participants were amenable to using pre-recorded material (audio or visual) of the psychiatrists providing training on mental disorders and support supervision on mental health. They recognized the scarcity of the psychiatrists and expressed willingness to utilize pre-recording as the best alternative.

> I think it will be okay because we don't even have a psychiatrist in Lira district, besides, visual aid, from my teaching background is very key in sending messages and causing change in practice. DHMT Participant 3

Three participants made suggestions on the content to be pre-recorded. Two proposed development of pictorial illustrations and depictions of various mental disorders as an additional intervention for the benefit of people with no training in mental health.

> They should highlight basic aspects of mental health for instance absence seizures…many children in school have them… We need to have visual images on such mental disorders so that when nontechnical people [patients and caregivers] view them, they understand. We also need talking points so that when we go to support the health workers and educators, we have a guide to follow. DHMT Participant 1

## Domain 2: Implementation

### Contextualizing Content of the Pre-Recorded Material (Training and Supervision)

When asked about the format for packaging the pre-recorded material (training and supervision) to fit in the local setting, three participants suggested that audio-visual was a good communication channel with better effect on the person receiving the message:

> I would prefer a combination of audio and visual. Let somebody see and hear what you are talking about, 'you know the popular saying that seeing is believing?' …we saw the impact of audio-visual messages especially when HIV had just rocked the country… those messages changed the lives of the people. DHMT Participant 4

While five preferred print version of the training for wider reach beyond the members of the DHMT. Additionally, there was a suggestion for pictorial illustrations of different mental disorders, with key messages for public consumption.

> It must be printed in a language that the target beneficiary understands even the non-technical people. The members of the DHMT are technical people, but sometimes other people are there…so the materials should not have medical jargon. We also need some pictorial presentation that can be put as posters about mental health so that whoever reads it understands what it is, the referral pathway, and what the role of each person is with such key messages… a diagram is more appropriate than audio-visual recording. DHMT Participant 7

### Utilization of the Pre-Recorded Material (Training and Supervision)

When asked how they would use the pre-recorded (audio or visual) materials for training and supervision to support primary care providers in mental health integration, three of the participants noted that the pre-recorded material would

serve as reference in case they did not know what to do. One participant specifically mentioned that the material would be used for continuous professional education for those they supervise.

> I can use it personally to listen to refresh my knowledge in mental health, I can use it to do continuing professional development for my staff.okay today we are going to look at depression…we have a brief overview, and then play the recording to crosscheck our knowledge and give it practical aspects …that would be able to inform our staff and then build their interest in mental health. DHMT Participant 2

## Domain 3: Evaluation

### DHMT as External Facilitators to Evaluate Primary Care Providers in Mental Health Integration

All the participants reported that they used a standard checklist with pre-defined measures during the supervisory visits for general health care, but mental health was not included. Five of them suggested modification of the checklist to include mental health as illustrated below:

> During our support visits we usually have a checklist of what we want out of the support supervision, what strengths and weaknesses we need to identify and then we sit with the team to correct mistakes. The checklist guides us to carry out support supervision in an effective manner. So, I think we shall need to modify our tools for support supervision to include mental health…the DHO has the power to direct modification of the tools. DHMT Participant 8

## Domain 4: Dissemination

### Communicating Key Implementation Findings During Support Supervision

Six of the participants proposed giving real-time feedback to the primary care providers during support supervision in relation to findings on mental health integration. They also mentioned identifying actionable items for improvement. One participant further suggested that the DHMT separately develop a performance improvement plan that would then be discussed with the primary care providers at the next visit.

> …before we leave the site, we should be able to give a brief summary of key findings [to the primary care providers] on mental health issues within the health facility. We look at it in terms of gains that they are registering and also the challenges they are experiencing which need to change. Then back in our office we agree on the performance improvement plan so that next time when we go for support supervision, we disseminate it. DHMT Participant 1

## Discussion

We conducted a formative qualitative exploratory study to characterize the perceptions of one district health management team (DHMT) on providing support supervision to the primary care providers as external facilitators in the integration of mental health service into primary healthcare, and identify potential challenges and possible solutions. Conducting this study was an attempt to test alternatives to identified barriers to mental health integration (no in-service training and scarcity of psychiatrists) in the Ugandan healthcare system.[22,24] We identified systemic gaps affecting the DHMT as external facilitators such as limited knowledge in the process and expected outcomes of conducting mental health supervision (attributable to limited training); and no status reports provided on the incidence and outcomes of mental health conditions from the primary care clinics, despite being expected to effectively prioritize, plan, implement, and monitor services.[14] We did not find many publications on mental health programs specifically working with the DHMT as external facilitators. The closest was a strategic review report on child health strategies where Tanya Doherty et al described the role of DHMTs as essential for planning and implementation of health services, and were key to improving quality of care and achieving health goals.[41]

From our findings, the members of the DHMT did not have specific training on mental health supervision, rather, they were oriented to provide integrated support across all the departments (eg, maternity, out-patients, health records), using a structured checklist. For optimal performance in mental health supervision, members of the DHMT need targeted

training in how to provide supervision, which can be likened to the leadership and management training that was conducted for health managers in Zambia to strengthen health systems.[42] Studies have shown that management training and coaching are essential for effective supervision.[41] However, because of the scarcity of psychiatrists in Uganda to provide the training, we explored using pre-recorded training as a potential alternative that could easily be spread to other DHMTs across the country.

Key suggested modifications to the ECaP-MHI[24] included adding mental health indicators to the checklists that the DHMT use during supervisory visits; and provision of pictorial illustrations and depictions of various mental disorders. Typically, checklists are used in LMICs as part of the supportive supervisory packages to structure supervisory visits[43,44] because they are an objective, clear, and concise supervision method.[45] Pictorial illustrations have been used educational campaigns[46] to reduce public stigma on mental illness.[47,48] As such, these recommendations were subsequently incorporated into an ongoing study of the adapted ECaP-MHI, the results will be reported in a future publication.

Our study has significant limitations – generalizability is limited by a single district that may not reflect the broader health system; and it is also limited by a small sample size. To address the limitations, all the members of the DHMT in the district who directly provided support supervision to primary health-care providers were included in the study.

The strength of this study was the in-depth exploration of the issues around mental health integration and supervision using a theory-driven approach. In addition, results from this study guided adaptation of the training and supervision components of the ECaP-MHI from in-person provision by the psychiatrist to pre-recorded video-based training, and DHMTs as external facilitators guided by the pre-recorded material. The implication is a potential blueprint for scale-up to other districts in Uganda given that each one has a DHMT.

## Conclusions

The members of the DHMT in the study district expressed willingness to support the primary care providers in mental health integration as external facilitators provided that substantial reforms occur such as training in how to provide supervision, standard collection of outcome reports, and practical tools to help guide and facilitate the process. All the eight participants identified a major gap in having the necessary knowledge and guides for supervising mental health integration and recommended that specific training on supervising mental health services be provided in conjunction with checklists to help guide and standardize the process. Five participants were amenable to using pre-recorded material delivered by psychiatrists given their limited number and centralized roles in Uganda. They suggested additional adaptations to the ECaP-MHI to include pictorial illustrations and depictions of various mental disorders captioned in the local language, and adding mental health indicators to the checklist used by the DMHT during support supervisory visits.

## Abbreviations

DHMT, District Health Management Team; ECaP-MHI, Enhancing the Capacity of Providers in Mental Health Integration; HMIS, Health Management Information System; MOH, Ministry of Health; PHC, Primary Health Care; PRISM, Practical Robust Implementation and Sustainability Model.

## Data Sharing Statement

This work is still ongoing, but will be available on request from the corresponding author when the Post-doctoral program is completed.

## Ethics Approval and Consent to Participate

Ethical approval was provided by two Institutional Review Boards, ie, Gulu University Research Ethics Committee under application number GUREC-2021-128 (local IRB where the study took place) and Harvard University-Area Committee on the Use of Human Subjects under IRB registration - IRB00000109, Federal Wide Assurance - FWA00004837 (where the primary author is a Post-doctoral Fellow). The study was registered with the Uganda National Science and Technology (HS1847ES) a regulatory body that grants permission for research studies to be conducted in the country. The researchers upheld the rules and regulations as provided by GUREC and Harvard IRB ethical framework for

research involving human participants. Permission to conduct this study at the Ogur Health Center IV in Lira district was obtained from the District Health Officer and the health facility managers (in-charges). All the study participants provided written informed consent before each in-depth interview was conducted. Privacy of participants was ensured by the use of codes on the interview transcripts in addition to conducting the interviews in private spaces.

## Consent for Publication

All participants consented to publication of their responses anonymized.

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## Author Contributions

All authors made a significant contribution to the work reported (ie, in the conception, study design, execution, acquisition of data, analysis and interpretation); took part in drafting, revising or critically reviewing the article; gave final approval of the version to be published; agreed on the journal to which the article has been submitted; and agree to be accountable for all aspects of the work.

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