Original Article

An Adapted Collaborative Care Model to Manage Co-morbidities of Depression and Chronic Non-Communicable Diseases in Rwanda

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Abstract

Background
The World Health Organization has recommended the implementation of the Collaborative Care Model in all countries to manage the comorbidities of depression and chronic non-communicable diseases. In Rwanda depression is major problem not only among patients with chronic illnesses but also in general population considering the unique history of war and genocide in Rwanda.
Purpose
The purpose of this paper is to describe the process of adaptation and testing of the Collaborative Care Model in the Rwandan healthcare context.
Methods
The larger study used the Action Research design with mixed method –sequential explanatory design. A research-practice partnership method and an iterative process was used to adapt and test the Collaborative Care Model. Qualitative content analysis was used to analyse the data.
Results
Four structural components to the model were adapted including the addition of a registered nurse to the team, relocation of the model to the district level, consultation with a psychiatrist every 3 months and involvement of community health workers. The evaluation indicated that the model was applicable and acceptable.
Conclusions
Initial evaluation of the Adapted Collaborative Care Model shows promise in Rwanda. Implementation of this model in other Rwandan districts is warranted.
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Introduction

The concept of the Collaborative Care Model (CCM) was developed in an attempt to bridge the gaps in the quality of care for patients with the co-morbidities of depression and chronic non-communicable diseases (NCDs). A multidisciplinary team of researchers at Group Health and the University of Washington contributed to the development of this model and were influenced by the original work on the chronic illness model of care by Wagner and colleagues.[1] Since its conception, the CCM has been used in several studies to manage depression in primary health care systems.[1] It has also been used to guide management of depression associated with NCDs such as diabetes, hypertension, and different types of cancers.

CCM guided care has been shown to be a cost effective way to manage the co-morbidity of depression and other chronic NCDs.[1-3] The CCM is recommended by the World Health Organization (WHO) for use in primary care settings to manage depression associated with NCDs.[4]

In Rwanda, patients with the co-morbidities of depression and chronic NCDs are still receiving fragmented care. This means that patients need to travel from a medical hospital for their physical condition and to a mental health hospital for their depression. Fragmented care is associated with financial costs for transportation and meals; fatigue; and duplication of tests and drugs.[5] Also, many patients are not aware of their mental health condition because they consult with medical specialists for their physical problems such as diabetes; hypertension; renal disease; and heart disease. Medical health care professionals often don't have the time or the training to assess the mental health condition of their patients. It is also very important to note that the number of patients with chronic illnesses in Rwanda increases day by day. WHO estimates from 2016 indicates that NCDs accounted for 44% of total annual mortality in Rwanda, with CVDs and injuries taking the first place of NCD-related mortality (both 14%), followed by cancers (13%), chronic respiratory diseases CRDs (3%), diabetes (2%) and other NCDs (13%).[6] There is a paucity of data regarding prevalence of depression among patients with NCDs; however an article from a large study we conducted to identify the problem reported a high prevalence of depression among patients with NCDs.[7] The study found out that the majority of respondents, 83.8% (n=284), had depression, among them 17.9% (n=61) had moderately severe to severe depression while 81.9% (n=223) had minimal to moderate depression.

Philosophical Underpinning of the Adapted Collaborative Care Model

A change management theory guided the adaptation of the CCM to achieve improvement in health care service delivery and outcomes in Rwanda. The key elements from the change theory involve the cyclical process of setting aims, establishing measures, developing informed changes to practice, and evaluating the impact of these changes. The adapted CCM was also guided by attributes of collaborative care. The defining attributes of the adapted CCM are summarized as: (a) Intellectual and cooperative endeavour of team members; (b) Knowledge and expertise are more important than role or title; (c) Working together as a team; (d) Participation in planning and decision making for all team members; (e) Non-hierarchical relationships; (f) Sharing of expertise; (g) Willingness to work together towards an agreed purpose and trust, and (h) Respect between members. Finally, the "framework for service orientation," provides the philosophical and theoretical underpinnings for the practice of collaborative care which guides the adapted model. The framework is comprised of two perspectives: a person-centred practice and recovery-orientation.

Adapted CCM Principles

The adapted model was guided by three principles which are the initial principles of CCM; population based-care; measurement based-care and stepped care. These principles were operationalized into seven components. The seven CCM components were adapted from IMPACT Model (6) and include: (a) Consistent use of the PHQ-9 for assessing and monitoring depression severity; (b) The registered nurse will be responsible for systematic patient follow-up tracking and monitoring using the registry; (c) Treatment intensification for both depression and medical illness(es) for patients who did not improve; (d) Relapse prevention planning for those who go into remission; (e) A mental health nurse is responsible for educating, monitoring, and coordinating treatment for depression and s(he) will be responsible for involving the community health workers when necessary; (f) Scheduled and regular psychiatric caseload supervision (once every three months) with the district team in order to provide adjustments and recommendations for depression treatment;

and (g) The registered nurse will be responsible for monthly report of overall progress for each patient.

Assumptions of the Adapted CCM

The adapted CCM suggests that collaboration between medical health professionals and mental health professionals in caring for patients suffering from both mental (depression) and chronic physical health problems will result in high quality care targeting the whole person, therefore improving the quality of life and patient satisfaction. The adapted model suggest that such collaboration between health professionals improve delivery of care which is patient cantered.i.e. treatment that is coordinated and more personalized.

This paper describes the process of adaptation and testing of the CCM model in Rwandan context. The objectives of the new adapted model are to: (a) Regularly screen for depression among patients with chronic NCDs who consult at district hospitals; (b) Provide stepped quality care that integrates mental and physical health care for patients with depression and chronic NCDs; and (c) Monitor care outcomes using patient registries.

Methods

Design, Sample, & Setting

The CCM was adapted to the Rwandan context by a team of 14 health professionals (research team) including two psychiatrists, three mental health nurses, three medical doctors, five registered nurses, and the researcher. All members of the research team were considered to be experts in mental health and chronic NCDs. The adaptation of the CCM to the Rwandan health system was proposed as a solution to manage the comorbidities of depression and chronic NCDs following our prior study which indicated that the prevalence of depression among patients with NCDs was high.[7] We also found in our prior work that there was no protocol or interventions aimed at managing depression.[8]

The method used to adapt the model was a research practice partnership. In this method, the researchers collaborate with health care providers who are in practice to implement new care interventions.[6,7,9] The impact study, in which the CCM was implemented to manage depression in elderly patients with one or more chronic diseases, guided the adaptation of the new model.[6,7,9] The team also based the adapted model on core principles and components of the CCM described by numerous authors.[1, 6-11]

A two-day workshop, presented by the research team, was held with the purpose of adapting the CCM to the Rwandan context. We used an iterative process which included the following steps to adapt the existing CCM to the Rwandan context: (a) Reviewed the existing model (b) Identified potential key components of the existing model (c) Mapped data for the adapted model; (d) Designed a draft adapted model; (e) Discussed the draft model (f) Redrafted the adapted model; (g) Tested the model, and finally (h) Evaluated the model. After the model was adapted, it was implemented in one district hospital over 12 weeks. A convenience sample of 30 patients was enrolled in the study after participants gave written consent. The implementers (collaborative care team of four health care professionals) were members of the research team working at the selected hospital. After three months of implementation, the researcher used a semi-structured interview guide to explore the opinions and perceptions of the CCM team about the applicability of the model; the acceptance of the model by patients, and the relevance of the model based on short term outcomes of CCM, i.e. a personalized care plan with motivational targets, adherence to treatment; reduction of medication prescriptions and a reduction of depressive symptoms. Qualitative content analysis with an inductive approach was used to analyse qualitative data.

Results

Key changes in our Adapted CCM include the addition of a registered nurse to the team, relocation of the CCM to the district level, consultation with a psychiatrist every 3 months instead of every week, and involvement of community health workers.

Structure and Key Concepts of the Adapted ModelCollaborative Care team

The adapted CCM team fit was similar to the original CCM with the exception of an additional registered nurse.

The adapted CCM team included four health professionals:

(a) A medical doctor; (b) A registered nurse; (c) A mental health nurse; and (d) A psychiatrist. Each member of the team had specific activities to perform including: (a) Close collaboration between mental health and medical/nursing providers; (b) Treating the whole person; (c) Involvement of family and community in patient care; and (d) Involvement of community health workers.

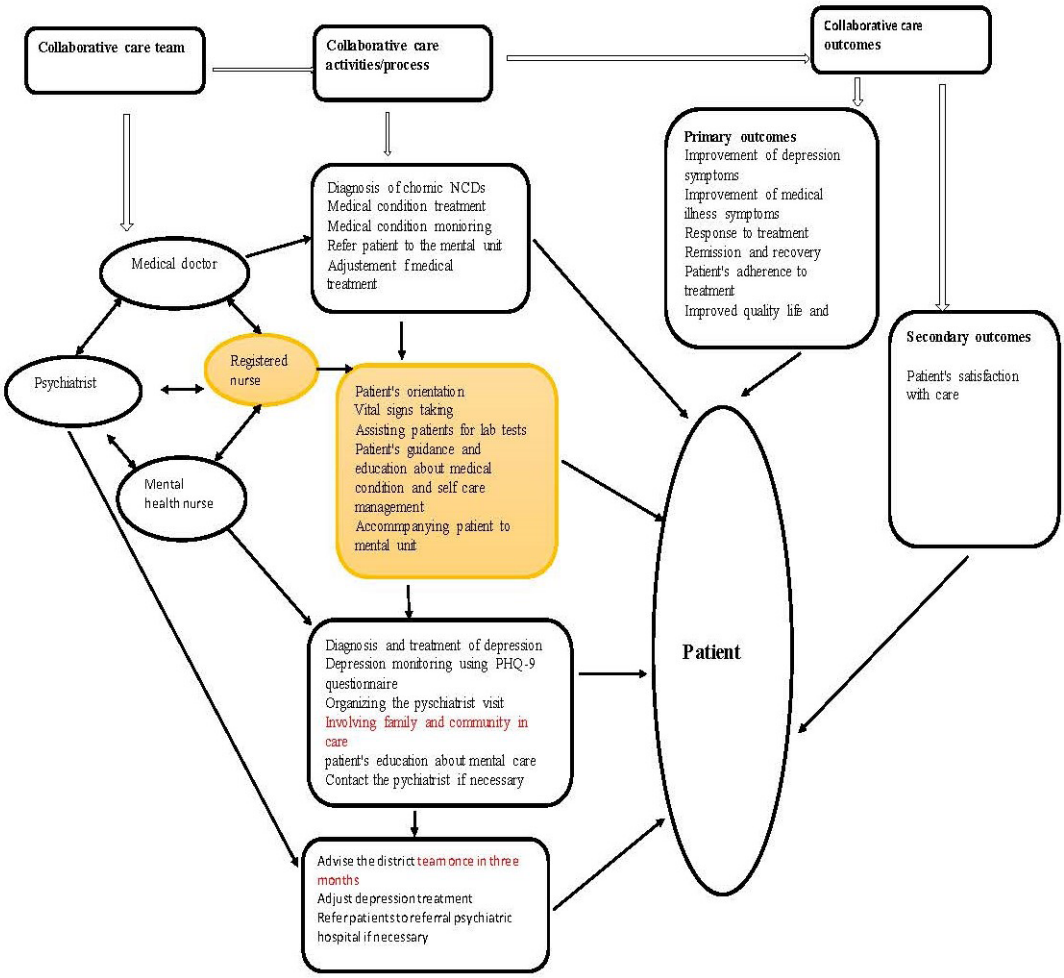

Figure 1. Adapted Collaborative Care Model to the Rwandan context

Involvement of the Community Health Workers

Involvement of community health workers was deemed essential in order to conduct quality follow ups of patients in their respective communities. The mental health nurse was responsible for patient follow-up but the community health workers played a vital role in the community home-based patient's education and in facilitating and encourage patients to make regular hospital visits.

The testing of the Adapted CCM and collaborative care activities

We tested the CCM over a period of 3 months with a sample of 30 patients who have screened positive for depression (moderately to severe depression). Patients were cared by

a collaborative care team at district hospital (a medical doctor, a registered nurse and a mental health nurse), this team received the consultancy (physically) of a psychiatrist once during the three months. However, the psychiatrist was consulted over the phone by the team once every month.

Patients were cared by the team following the collaborative care activities. The collaborative care activities of the initial CCM were maintained for the adapted CCM to the Rwandan context, except the added activities of the added "registered nurse".

Table 1. Collaborative care model team and Collaborative care model activities

Two process	**A registered nurse**	**A medical doctor**	**A mental health nurse**
Systematic diagnosis and outcome tracking	1. Orientating the patient 2. Taking vital signs including blood pressure 3. Orientating and assisting patients to get their lab tests done 4. Orientating patients to enter the medical room 5. Accompanying patients to the mental unit	1. Medical diagnosis and treatment 2. Monitoring the medical diagnosis (ex. Diabetes, hypertension, cancer, etc…) 3. Education and guidance about medical condition and treatment	1. Education and self-management support once a week or once in a two weeks 2. Individual psychotherapy once a week 3. Group psychotherapy once a week or once in a two weeks 4. Monitoring depression with PHQ-9 questionnaire 5. Involving the community/family when necessary
Stepped care	1. Educating patients about management of chronic diseases	1. Adjust medical treatment for patients who are not improving 2. Adjust medications for patients who have complicated sides effects of medications 3. Refer patients to the referral hospital if case complicated	1. Suggest the referral to a psychiatrist for severe depression cases

Outcomes and Barriers of the Adapted Model

Primary outcomes were: improvement of depression symptoms; response to treatment including remission and recovery; and improvement in quality of life and functional status. The secondary outcome was the patient's satisfaction with care.

Barriers to the implementation of CCM

Barriers to the implementation of the adapted model for patients included;
financial concerns; lack of knowledge about mental services; beliefs about acceptability and effectiveness of psychological treatment, and fear of family disapproval/stigma. Barriers related to providers included perceptions of CCM need (Providers questioned the need the model) in the Rwandan context and limited human resources to provide coordinated care.

Applicability of the Collaborative Care Model and its importance based on the short outcomes of the CCM

The implementers confirmed that the model was applicable in terms of Human resources; materials and infrastructures. Also the implementers confirmed that the model was very well accepted by clients because of the following reasons: (a) all patients completed all sessions; (b) patients' wishes to continue the model; short outcomes of CCM expressed by clients including improvement of depression symptoms. Implementers have categorized importance of CCM in five categories: Personalized care, improvement and less drugs, reduction of attendances and emergency admissions and reduction of depression symptoms.

Discussion

Comparison between the Initial CCM and the Adapted CCM

The research-practice partnership method used to adapt the CCM in the Rwandan context demonstrated that adaptation was possible while respecting the general concepts/features of the original model to maintain its effectiveness. The key concepts, principles and components of the initial model were maintained. The adapted model includes a fourth member (registered nurse) to the team; necessary because in Rwanda, as in other developing countries, many patients still need someone to orient them, assist them, and even escort them to access medical and specialty care. Also, in the adapted model, the district level has been identified as the setting where the model will be implemented instead of primary health care centres. This is because of the limited availability of staff at the district level and also because consultations for patients with NCDs is done at the district level. Other studies, which have adapted the CCM, have used different settings including those affiliated with academic institutions, community-based organizations, preferred provider organization or similar organizations.[10,11]

The same authors [10,11] confirm that collaborative care is relevant and effective in a range of settings that span and link outpatient and inpatient care.

Finally, in the initial CCM, the psychiatrist is scheduled to consult with the primary health care team weekly. In the adapted model, the psychiatrist will consult with the CCM team once every three months. This will not be a barrier to implementation as the baseline to monitor depression progress is 3 months according to Thota and colleagues; [11] also the team will be able to contact the psychiatrist through other communication channels including phone calls, and emails. Communication with psychiatrists through those channels is also recommended in the initial CCM.[12,13]

It has been found that the model was applicable, acceptable and yield positive short term outcomes including personalized care, reduced emergency admissions and improved depression symptoms. Different studies have also implemented Collaborative Care Model in different settings with good results.[9-13]

During the model testing, some strengths included the completed collaborative care team, support of the district hospital management, the patients cared for who had screened for moderately to severe depression and who were most educated as the district hospital was located in the city who could understand the high health risk of their condition. The limitations included the conflicting activities of the collaborative care team and the high number of patients with depression to care for especially in the mental health service with only two mental health nurses at the District hospital. Some of these limitations were fund by other authors who implemented the CCM in other settings.[9,11]

Conclusions

The aim and objectives, philosophical underpinning, key concepts, model principles, model assumptions, and outcomes of the adapted CCM in the Rwandan context remained the same as in the original model. Four structural components to the model were adapted including the addition of a registered nurse to the team, relocation of the CCM to the district level, consultation with a psychiatrist every 3 months instead of every week, and involvement of community health workers. Barriers of the model implementation in Rwanda were found and categorized into two types; those related to the patients and those related to providers.

Authors' contribution
MM, HAD have played a significant role in the conception, design, data analysis and interpretation, and writing of the manuscript.

Conflict of Interest
There is no conflict of interest.

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