Original Research

Clinic outcomes of the Pathway to Care Model: A cross-sectional survey of adolescent depression in Malawi

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Abstract

Background

Depression, which often initially onsets in young people is one of the leading causes of the global burden of disease. While effective treatments are available, in low-income countries such as Malawi, the lack of appropriately trained health providers in community health settings makes access to effective mental health care for young people with Depression challenging. To address this need, a Canadian developed youth Depression Pathway to Care model, linking school based mental health literacy interventions to training of community health care providers was adapted for use in Malawi and successfully applied.

Methods

A sample of health care providers (n=25) from community health clinics (n=9) were trained in the use of a comprehensive, systematic clinical intervention addressing the identification, diagnosis and treatment of Depression in youth who had been referred from schools where mental health literacy interventions had been implemented. Referrals outcomes were obtained using a standardized clinical record form.

Results

Over 120 clinical outcome forms were available for analysis. Seventy percent of youth referred by their teachers were diagnosed with Depression. Most youth diagnosed with Depression identified physical symptoms as their primary difficulty. Available standardized outcome measures applied by clinicians indicated that overall, youth showed positive outcomes as a result of treatment.

Conclusions

Community health care providers in Malawi were trained in the identification, diagnosis and treatment of youth Depression that when applied in usual clinical care to youth referred from schools, led to generally favourable clinical outcomes. To our knowledge this is the first demonstration of a clinically feasible intervention that results in positive outcomes for young people with Depression in Malawi and if replicated in similar settings may provide a useful model for other jurisdictions in Sub-Saharan Africa.

Introduction

Neuropsychiatric conditions (including depression) account for almost 15% of the global burden of disease with over 70% of the burden being in low- and middle-income countries (LMICs).[1,2] Furthermore, neuropsychiatric conditions are one of the leading causes of disability accounting for almost 40% of years of life lost due to a disability among those aged 15 and older worldwide.[2] Depression is the leading cause of illness and disability globally in youth populations with suicide, often associated with untreated Depression, being the third most common cause of death.[3,4] In Malawi, a low-income country in sub-Saharan Africa, Depression is the fourth leading cause of disability, after HIV/AIDS, cataracts, and malaria.[5,6,7] Depression, if left untreated, can; have a significant negative impact on quality of life and future vocational achievement, lead to increased morbidity, can contribute to early mortality, and is recognized as a potential risk factor for other illnesses.[8,9] Depression, for which effective treatments are available, often onsets during the adolescent years[10,11] with most cases of mental disorders being diagnosed by the age of 25[12–15]; in low-income countries, where young people make up the largest proportion of the population this can have significant negative population health impact. As about 70% of the 18 million people in Malawi are below age 25,[16] there is a need to effectively address this health challenge.

Although research about adolescent mental health is scant in Malawi, available studies indicate that Depression is a common disorder encountered in community health clinics. Stewart[17] found a prevalence of nearly 30% amongst women attending an antenatal clinic, Kauye[18] found a prevalence of almost 30% amongst those attending primary health care clinics and Udedi[6] found a prevalence rate of roughly 30% in attendees visiting the Matawade Health Center in Zomba. However, existing mental health specialty services are under-developed and under-resourced[19,20] and community health clinic staff have not been trained in the identification, diagnosis, and treatment of Depression in young people. As a result, the necessary mental health care for adolescents is not available.

Malawi's public health system follows a three-tiered system of medical facilities: 1) urban center hospitals and other specialized hospitals (tertiary), 2) district hospitals (secondary) and 3) health posts, health centres and community and rural hospitals (primary). However, the health budget prioritizes allocating resources to the top tier of health services; other tiers are often without supplies – particularly primary care facilities.[21,22] Furthermore, there are fewer than 100 registered doctors and 3000 nurses to service all three tiers of the health system, and there are no doctors and few nurses at the district tier. For this reason, rural health services have fewer resources than urban health services even though many people will only ever receive care from rural hospitals and other rural primary care facilities.[21] In relation to Depression having a high prevalence and being a leading cause of disability in Malawi, there is a dearth of health care professionals adequately trained to treat mental

disorders. According to the most up-to-date Ministry of Health report there are only two full-time psychiatrists and 39 psychiatric nurses working in mental hospitals in Malawi[23]; this translates to just 0.01 psychiatrists and 0.22 psychiatric nurses per 100,000 people.[20] Consequently, mental disorders often go undetected and misdiagnosed. For example, Udedi[6] found low detection rates for mental disorders among primary health care clinicians, which were in many cases misdiagnosed as physical disorders. In Malawi, as in many countries in SSA, Depression is frequently misdiagnosed and treated as Malaria according to many studies.[6,7,20] These diagnostic and treatment challenges have the potential to tie up the limited mental health services available as patients struggle with complications from incorrect diagnoses and treatments, thereby requiring more visits to receive proper treatment, ultimately leaving many people without proper mental health care. The paucity of resources and training of health care providers (HCPs) in Malawi demands not only a scale-up of mental health services in the country, but also highlights the need for HCPs to have the necessary competencies needed for the provision of mental health care at the community level.

To address this need in Malawi, a Grand Challenges Canada funded intervention entitled "An Integrated Approach to Addressing the Challenge of Depression among the youth in Malawi and Tanzania" (IACD)" was applied by Canadian and Malawian collaborators. This approach utilized a "Pathway Through Care" model that simultaneously addresses mental health awareness through youth radio programs, mental health literacy through teacher curriculum resource training and school-based radio listening clubs, and enhancement of clinical competencies in community health providers (HCPs) through an education/training program developed in Canada by one of the authors (SK) and certified by the Canadian College of Family Physicians (http://www.cfpc.ca/Home/). The clinical training program has previously been successfully adapted in other low-income countries where it has demonstrated positive outcomes in health provider knowledge, confidence, attitudes, and personal help-seeking behaviors.[24–26] For Malawi, this program was adapted and translated into Chichewa by a group of mental health professionals that included psychiatrists; psychologists; nurses, counsellors and health educators under the authority of the mental health lead (MU) from the Ministry of Health, Malawi.

Previous reports have described the school mental health literacy approach and the impacts of this intervention in Canada and elsewhere.[27–32] As part of this process, teachers were trained in the use of a mental health literacy curriculum resource – the African Guide – and applied it in their classrooms. In addition, teachers received training in how to identify youth who may be showing signs and symptoms of Depression and how to refer them to their local community health clinics. Concurrently, community health clinic staff received training in the youth Depression identification, diagnosis and treatment program identified above. This study reports on the outcomes achieved as determined by HCPs who systematically identified, diagnosed and treated Depression in a sample of youth who were referred by teachers to a community health clinic for a possible mental disorder.

Methods

Design

This is a cross-sectional survey that reports on the clinical application of a standardized tool-based youth Depression screening, diagnosis and treatment intervention applied over the course of six months. The surveys measured the outcomes of youth referred, diagnosed and treated for Depression by trained HCPs in various community health clinics in Malawi.

Participants

Participants were community based HCPs located in various community health clinics in the Central Region of Malawi. As part of the IACD project, and with the support of the Malawi Ministry of Health, each district identified a group of representative HCPs from community clinics who were then trained by a national youth Depression training team (the group who had participated in the adaptation of the Canadian resource) on a comprehensive adolescent Depression screening, diagnosis and treatment program. After the training, participants returned to regular practice in their community clinics. Concurrently, a number of schoolteachers in these communities received the mental health literacy training described above. Standardized clinical data was collected from adolescent community health clinic attendees who were referred from their schools at the study sites.

Procedure

A Canadian-developed youth Depression training program was adapted and modified for use in Malawi by mental health experts and educators as described above. Educators and HCPs were trained using workshops followed by a period of clinical application all totaling a duration of approximately eight months. The clinical application of the training conducted with educators and HCPs, reported herein, was observed over the course of six months. Participants were trained on the use of a psychotherapy and counseling based clinical intervention (Effective Helping – EH), initially developed for use by HCPs by one of the study authors (SK), and adapted by the same expert team for application in Malawi. Standardized patient data collection forms (Youth Depression Assessment and Outcomes Measure Tool (see Appendix) were created and provided to clinicians who had received the training program. Fluoxetine, an antidepressant medication with demonstrated positive effect in adolescents,[33–35] was made available by the government of Malawi for use in this study and HCPs were trained in its effective application. HCPs were also trained on the use of the 6-item Kutcher Adolescent Depression Scale (KADS-6), Teen Functional Assessment (TeFA), Tool for Assessment of Suicide Risk Adolescent Version Modified (TASR-A), and the Chehil-Kutcher Side Effects Scale (CKS) for SSRIs (a number of the assessment tools used in this study can be found at http://teenmentalhealth.org/toolbox/). The Clinical Global Impression (CGI) scale[36] was chosen as the primary clinical outcomes evaluation measure and HCP's were taught to use it to evaluate patient outcomes.

HCPs used their previous training in the identification of Depression in adolescent populations in conjunction with the aforementioned assessment tools to determine if Depression should be diagnosed. As indicated on the questionnaires, clinicians were asked to conduct screening of all youth who attended clinics for any health concern. The questions used

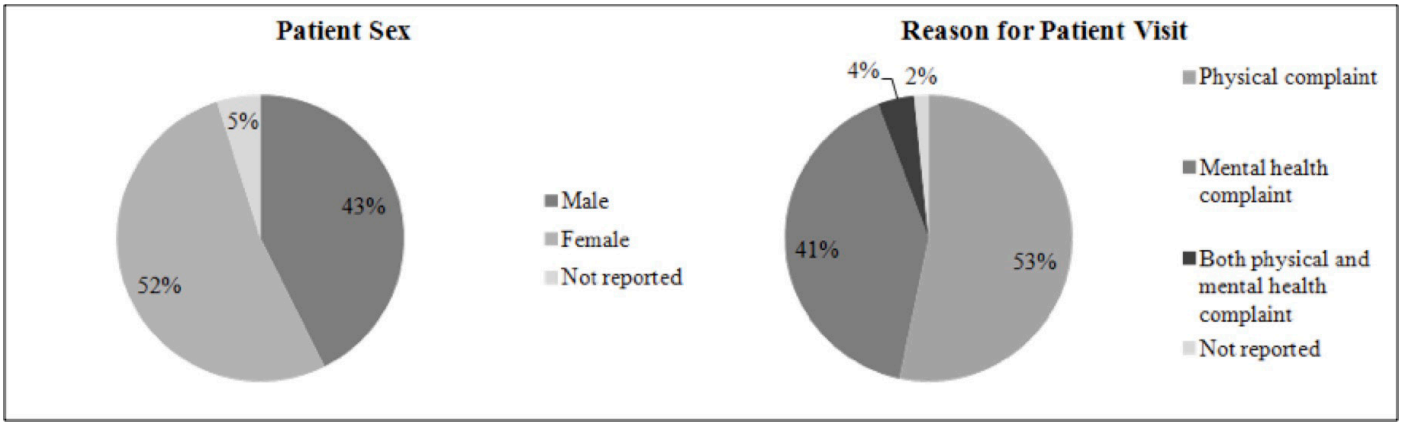

Figure 1: Patient demographics

for screening were: 1) Over the past few weeks have you been having difficulties with your feelings, such as feeling sad, down, or blah most of the time? 2) What about feeling irritable most of the time, even when you know you should not be? 3) Can you tell me more about how you are feeling inside? If Depression was suspected HCPs were instructed to complete the KADS-6 and a diagnostic interview that included a mental status examination to determine the presence or absence of Depression (using DSM 5 criteria). If Depression was diagnosed clinicians applied treatments as per their training experience using EH, fluoxetine or both depending on their clinical judgment. For youth diagnosed and treated for Depression, clinicians were also requested to complete the patients' CGI score at each treatment visit to track and score their clinical outcomes over time.

Statistics

Descriptive statistics were used to report the responses from the Youth Depression Assessment and Outcomes Measure tool. The data was entered and analyzed using SPSS statistics software for Windows, version 22.0.

Results

Sample characteristics

A total of 122 questionnaires, completed by 25 different HCPs were received from nine different community clinic locations: Annie Chinuluwe (n=1; 0.82%), Anthony Herbal (n=1; 0.82%), Area 18 Health Centre (n=13; 10.66%), Bwailia (n=83; 68.03%), Kawale Health Centre (n=12; 9.84%); Maganga Health Centre (n=2; 1.64%), Mchinji District (n=3; 2.46%), Salima District Hospital (n=5; 3.28%), and Senaga-Bay Baptist Clinic (n=2; 1.64%).

The mean age of patients seen was approximately 19 years (M=19.28, SD= 3.67), with the majority being female (64 females (52.5%); 52 males (42.6%); 6 (4.9%) no information recorded. Most patients primarily reported a physical complaint (n=65; 53.3%, see Figure 1).

Clinical use of screening and diagnostic assessment tools

Screening questions were recorded for 121 (99.2%) of the 122 patients. Of this group, 107 (88.4%) screened potentially positive for Depression. Most HCPs then applied further diagnostic and assessment tools including: the Kutcher Adolescent Depression Scale (KADS; 97.5%), the Tool for Assessment of Suicide Risk: Adolescent Version Modified (TASR-Am; 91.7%) and the Teen Functional Assessment (TeFA; 78.5%).

Diagnostic reporting and treatment

Following application of diagnostic assessment tools plus history and mental status examination, a total of 92 (75.4%) patients received a mental health related diagnosis – 85 (71.4%) youth were primarily diagnosed with Depression and 26 (28.9%) youth were diagnosed with another mental disorder. Among other mental disorders, 6 patients were diagnosed with a substance use disorder; 3 with epilepsy, and 6 with various undisclosed mental disorders. Ten HCPs did not provide this information. Nineteen cases were diagnosed with Depression plus another mental disorder. See Figure 2 for a flow chart of results reported by clinic HCPs.

Of those diagnosed with Depression, 79 (92.9%) were recorded as having received treatment – 47 were treated with antidepressant medication; 78 were treated with Effective Helping; and 22 were given another type of treatment. Of the patients who received a diagnosis other than Depression, a total of 92.3% were recorded as receiving treatment – 11 were treated with an antidepressant medication; 22 were treated with Effective Helping; and 15 were treated with another treatment. Other treatments included, but were not limited to, Chlorpromazine, Fluconazole, Haldol, Magnesium, and various analgesics.

Clinic outcomes reporting

Complete patient outcome information (application of the CGI at clinic visits for at least 8 weeks of treatment duration), was only provided by 7 HCPs. After 8 to 12 weeks of treatment 1 HCP indicated the youth's clinical outcome as 'somewhat better'; 3 HCP's indicated the youth's clinical outcome as 'better'; and 3 HCP's indicated the youth's clinical outcome as 'much better'.

The same seven clinicians also completed a measure of functioning (the Teen Functional Assessment Score: TeFA). After 8 to 12 weeks of treatment 1 clinician indicated the youth's functioning as 'somewhat better'; 3 clinicians indicated the youth's functioning as 'better'; and 3 clinicians indicated the youth's functioning as 'much better'.

Discussion

To our knowledge this is the first study in Malawi to report on the screening, diagnosis, treatment, and clinical outcomes of young people referred by educators to trained community health providers for clinical assessment of possible Depression. The results described herein demonstrate that a Pathway Through Care approach that links schools to health care providers can be successfully applied in a low-income Sub-Saharan African setting and generate relatively positive results in a number of health system relevant domains.

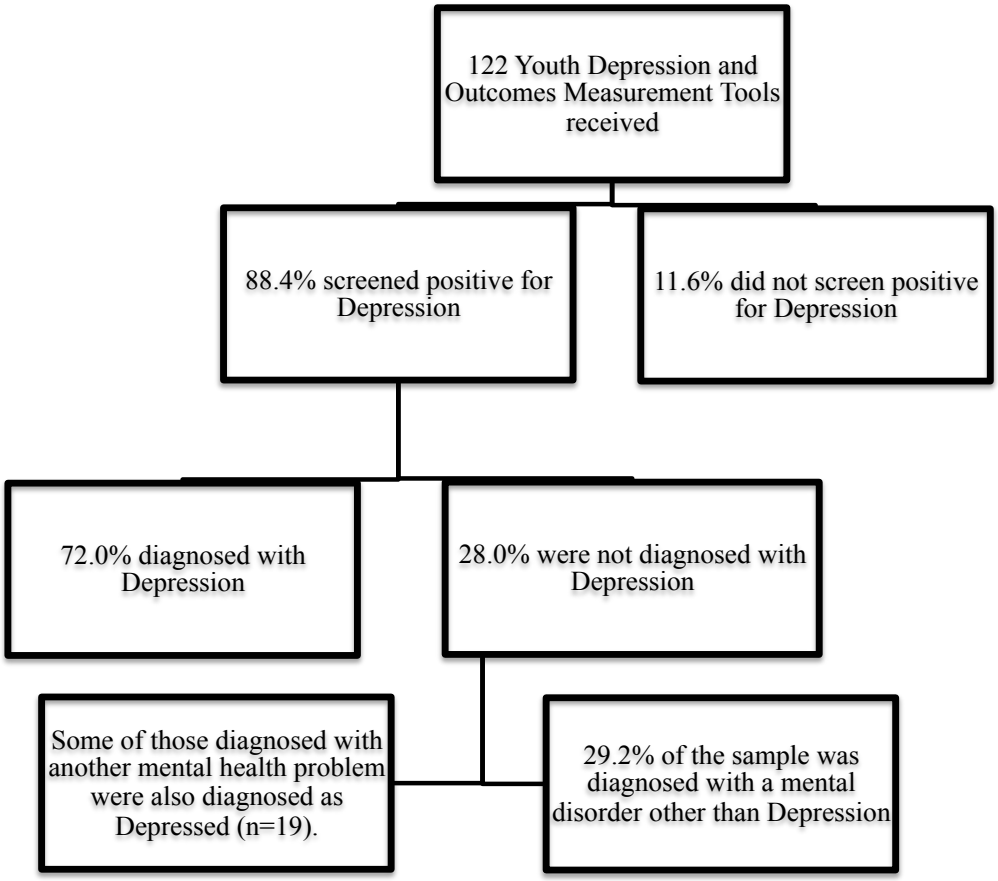

Figure 2: Flow chart of results reported by clinic healthcare providers

First, this study suggests that educators who are trained in a mental health literacy intervention can successfully identify Depression in young people, resulting in a significant proportion of youth (in this case 70%) referred for care who met the diagnostic criteria for Depression. This suggests that educators effectively learned how to identify and refer young people at high risk for having Depression. However, this consideration cannot be definitively concluded from this study as we did not apply an independent analysis of all students who may have potentially been considered for referral, thus we cannot determine neither the sensitivity nor specificity of this type of case identification approach. Nonetheless, the high proportion of youth referred who were subsequently diagnosed with Depression suggests that this type of intervention has merit. This case identification also requires a comparison with the number of students who had been identified and referred by these teachers prior to the intervention – there were none – as such a system did not exist previously and teachers neither were aware of Depression in young people nor did they refer any student for mental health assessment. Thus, the intervention's impact in terms of identification and referral of young people with Depression suggests that a school based mental health literacy approach that combines awareness with teacher training[29,30] may have merit in Malawi with respect to enhancing access to mental health care for young people with Depression.

Although students were referred by their teachers for a mental health concern, this data highlights that young people may frequently identify a physical symptom as their primary complaint. If HCPs were not systematically applying screening questions followed by a diagnostic assessment, some of these youth may have had a mental disorder undetected, undiagnosed and untreated. Alternatively, they may have been misdiagnosed as having a physical health problem and inappropriately treated, which has been previously reported by Udedi.[6] This presentation of a mental disorder with primarily physical complaints in young people is also consistent with what has previously been reported in adults.[6,7,20,37] This finding thereby extends this now well-accepted observation into the adolescent age group. With regard to clinical implications, this emphasizes that community HCPs should not assume a physical illness diagnosis when a young person attends with physical complaints, but rather should screen all youth attending a clinic for the possibility of a mental disorder, and follow-up positive screens with an appropriate diagnostic assessment. Further research is necessary to determine if there are any unique patterns of physical complaints voiced by youth who primarily present with a mental disorder compared to those who primarily present with another type of illness. However, this observation speaks to the necessity of training community HCPs to consider mental disorders in young people as a diagnostic possibility even in the presence of physical complaints.

The training program provided in this intervention was based on a Canadian adolescent Depression program, certified by the Canadian College of Family Physicians (http://www.cfpc.ca/Home/), and adapted for use as part of the IACD project. Thus, training HCPs in a systematic diagnostic process could significantly improve the identification, diagnosis and treatment of Depression and other mental disorders in adolescents attending community health clinics in Malawi and may be appropriate for application in other Sub-Saharan African settings.

This study also demonstrates a high level of acceptance among HCPs for applying a comprehensive and systematic diagnostic process using clinic tools in a low-income setting. The HCPs involved in this intervention demonstrate that after receiving training, they generally applied screening questions, clinical diagnostic interviews, mental status examinations, diagnostic tools (the KADS-6, TASR-Am, TeFA and a diagnostic checklist) in their clinical work. While this is encouraging, we cannot conclude from this data that a similar outcome would occur in all clinical settings, nor that such a comprehensive assessment protocol would be followed outside of a research driven intervention.

Additionally, not all tools were applied with equal frequency. Screening questions were asked of all clinic attendees and diagnostic tools were applied for those who screened positive. However, tools that assessed functioning (the TeFA) and suicide risk (TASR-Am) were much less consistently applied. Furthermore, the data collection forms indicated that while most clinicians applied most tools at the time of assessment, there was a marked decrease in record-taking with respect to the tools applied and their respective outcomes during treatment. It was not possible to determine whether this is because the tools were not applied or the application data was not recorded.

While this study did not systematically collect data from HCPs about their decisions regarding which tools to routinely apply, some informal feedback was received as part of the program evaluation. It was suggested that since the KADS-6 already addressed suicide risk, it was not deemed essential by HCPs to conduct additional formalized risk assessment unless a positive endorsement was noted on the KADS-6. Assessment of functioning (the TeFA) was also not considered as a necessary assessment of symptoms by HCPs. The CGI was more frequently applied than other outcome assessment tools due to the ease of its application. Further research is necessary to determine which clinical tools should be considered essential for use by HCPs use in community settings.

Although the patient improvement information was only available for a small subset of youth (n=7) who completed 8 to 12 weeks of treatment, the outcomes were generally positive according to HCPs' CGI ratings. This small number of cases was due in part to the limited assessment period (six-month) for this intervention, thus many young people who were beginning treatments late in the assessment cycle may not have completed a minimum of 8 weeks treatment by the time data collection ended. However, the quality of ongoing clinical record keeping was such that we could not determine how many patients had their treatment course consistently monitored and how many dropped out of treatment prior to the 8 week treatment point. For these reasons, while these outcomes are encouraging, we are unable to extrapolate this number to the entire sample. In order to reach such conclusions, this finding requires replication in additional populations, and future interventions will require more attention to improvement of clinical record keeping by HCPs to allow for appropriate determination of treatment outcomes.

Limitations

Although this study had a relatively large sample size of young people referred from school settings, it is not reflective of the usual identification and community treatment of Depression in adolescents in Malawi. Thus, outside of the unique intervention model applied herein, its findings cannot be extrapolated to the wider population. This was not a controlled study so we cannot conclude that the results described above were solely the result of the intervention provided. However, both the historical and concurrent lack of knowledge about and treatment provided to adolescents with Depression outside of this intervention suggest that the positive findings reported are likely to be the outcome of the application of the Pathways Through Care approach.

Data collection challenges from participating clinics may have resulted in findings that are not completely reflective of the impact of the program on patient outcomes. Many of the data collection forms were not completed as requested with numerous data fields left blank. However, given the design of this intervention, we cannot determine the causes of this lack of completion. Further study of the process of clinical care will be necessary both to determine the reason for the challenges in record keeping observed and how to develop strategies for improvement.

An additional challenge was the loss of some data due to the extreme transportation conditions in Malawi. Many of the clinics were located in isolated rural areas with very poor access to main roads, thus the collection of data in a timely manner was not always possible. Furthermore, we experienced damage to some of the data forms during transportation due to adverse weather conditions. Better data collection procedures are also needed in future studies. One possible solution is to integrate additional training on the importance of systematic data form completion in the training model, and to provide hands-on opportunities for participants to practice it their clinical settings. Nonetheless, these data collection challenges are not unique to this intervention. Extensive field experience in Malawi and other low-income countries has led members of our team to appreciate the numerous challenges related to effective record keeping in rural health centers for all medical data. For this reason, larger, more systemic interventions related to general principles and infrastructure needs for patient data collection and storage may be necessary to effectively address this issue.

Conclusions

The application of a Pathways Through Care framework that links school based mental health literacy with teacher identification and referral of young people to trained HCPs has demonstrated numerous positive outcomes with respect to identifying and treating adolescent Depression. First, teachers have successfully learned to identity and refer youth who meet the diagnostic criteria for Depression to local HCPs. Second, training community based HCPs has demonstrated its effectiveness in equipping them to systematically and successfully screen, diagnose and treat adolescents with Depression. Given that similar results were found in the application of this approach in Tanzania[25,38] this Pathway Through Care approach may have the potential to effectively address the burden of Depression among youth in sub-Saharan Africa. Further scale-out evaluations of this intervention in other sub-Saharan African or low-income countries are warranted.

Acknowledgements

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Competing interests

The authors declare that they have no potential conflicts of interests.

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