

INTERACTIVE RADIO PROGRAM REPORT

AN INTEGRATED APPROACH TO ADDRESSING THE ISSUE
OF YOUTH DEPRESSION IN MALAWI AND TANZANIA



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EXECUTIVE SUMMARY

Anxiety and depressive disorders among youth are increasingly recognized as a health care policy priority need in low-income countries such as Malawi and Tanzania. However, there is a dearth of mental health care available for young people with Depression throughout Sub-Saharan Africa, as well as poor mental health literacy, high levels of stigma and discrimination, and weak capacity at the community level to address these needs. These challenges are significant barriers to accessing needed mental health care for young people. Here we discuss a unique and innovative radio-based approach to improving mental health literacy and creating a demand for mental health services—part of a larger project called An Integrated Approach to Addressing the Issue of Youth Depression in Malawi and Tanzania. Grounded in theories of social and behavior change communication and edutainment, and leveraging participatory methodologies, Farm Radio International and partners Teen Mental Health and Farm Radio Trust in Malawi worked with local radio broadcasters in Malawi and Tanzania to design and deliver weekly, interactive youth radio shows about mental health. Ongoing engagement with the content, and deliberation over the messages, was facilitated through SMS feedback mechanisms, and mobile polls and quizzes delivered through the radio stations, along with school-based radio listening clubs that met weekly to listen to the programs and discuss the themes in a group. Over the course of the 45-month project, the radio shows gained immense popularity, in large part because they talked about issues that are important to youth, and incorporated the language youth use and music they prefer. The programs attracted an average of 500,000 listeners each week, and received tens of thousands of text messages and Facebook posts by young people giving feedback, telling the radio hosts about what topics they would like to hear about, and asking questions about mental health or requesting to be connected with a mental health expert.

The impact of the radio was measured according to whether and to what extent the interactive media programs play a role in triggering or facilitating drivers of the process of change. These drivers include bringing about improvements in knowledge and attitudes, mobilizing a social movement, and facilitating greater social and public support to put mental health on the agenda as a topic of conversation, grounded in new understandings and new knowledge. Our findings demonstrate that an interactive radio campaign can have a marked effect on improving knowledge, decreasing stigma, and increasing demand for mental health services among youth in sub-Saharan Africa. Youth who listened to the radio programs fare better than their peers in understanding the signs and symptoms of mental health disorders and in knowing where to go if they or someone they know needs help. Further, interactive radio programs can have a direct impact on reducing stigmatizing attitudes, frequently recognized as a crucial element in promoting improved access to care. Finally, our findings suggest that greater exposure leads to greater improvements in all areas, suggesting that this approach may provide a scaleable and potentially sustainable method for catalyzing a social movement around mental health by enhancing public discourse and deliberation, and establishing avenues for advocacy, thereby creating a demand for, and in turn improving access to, mental health care.

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INTRODUCTION

[Farm Radio International \(FRI\)](#) is a Canadian not-for-profit, non-governmental organization (NGO) that builds the capacity of African rural radio broadcasters to research, design, produce, air and evaluate interactive radio programs that reach millions and result in measurable changes in behavior, demand for services and products, and the uptake of innovations and practices. In 2012, in collaboration with Dr. Stan Kutcher of [teenmentalhealth](#), [Farm Radio Trust](#), and the [World University Services of Canada \(WUSC\)](#), we launched a 4-year global mental health program called “An Integrated Approach to Addressing the Issue of Adolescent Depression in Malawi and Tanzania¹” with funding from Grand Challenges Canada. Using a multi-sector approach that combined school-based mental health curriculum integration, a radio-based mass media campaign, and capacity-building for primary care providers, the initiative aimed to improve knowledge and attitudes related to mental health with a focus on Depression, create demand for mental health services, and improve access to mental health care for young people suffering from Depression in Malawi and Tanzania.

This report is a summary of the design, implementation and evaluation of the interactive radio campaign. The results are derived from a research study that employs a counterfactual approach to assess the differential effect of the radio program on knowledge, attitudes and practices over time in young people who were exposed to the radio program versus those who were not. The quantitative study is combined with a sustainability study that tested a possible business model for the radio programs. The robustness of the quasi-experimental dose-response analysis of program exposure, combined with a sustainability analysis, lends credibility to the program results reported here.

BACKGROUND

In many countries in sub-Saharan Africa (SSA), mental health issues are poorly understood. They are often attributed to laziness, and in severe cases spiritual possession or bewitchment. There are very few services available to help people struggling with mental health issues, and the ones that are available often focus on the most severe mental illnesses with little attention given to common mood disorders such as Depression, bipolar, and anxiety disorders. In many cases, even where there are services or trained mental health professionals available, most people do use them due to a lack of knowledge or a feeling of shame. Misconceptions about mental health and illness, along with self-stigma, are identified as significant factors that hinder many people from seeking mental health services at all, and leading others to seek help from traditional healers (Udedi, 2016). The small percentage of people who do obtain help for mental disorders are often forced into care by family or members of the community due to a perceived or real threat of harm. A number of studies examining perceptions of mental health and illness have found that stigma and misinformation about causes of mental health issues and treatments are substantial barriers to help seeking. Stigma is pervasive in most countries in SSA, and plays a major role in the persistent suffering, disability and economic loss associated with mental illnesses (Kakuma et al, 2010). A loss of support from

¹ The impact regions are Lilongwe, Salima and Mchinji in Malawi and Arusha and Meru in Tanzania

friends and family, few employment opportunities, and a lack of access to mental health services often means people are not treated in the early stages of illness, and often their illness worsens over time and they are at increased risk of substance abuse, severe poverty and criminal activity (ibid).

Despite the challenges, mental health is increasingly recognized as an important health and development issue in SSA (Kakuma et al, 2010). Depression is the leading cause of disability worldwide and is a major contributor to the overall burden of disease (WHO, 2016). For this reason, the international community has begun to prioritize mental health as a global health goal, as important and as urgent to address as any other non-communicable disease. These efforts are fragmented, and are challenged in many low and middle income (LMIC) countries by low budget allocation and a limited mental healthcare workforce. Due to these constraints, efforts tend to focus on the most severe mental illnesses, with few interventions that focus specifically on mood disorders. Even fewer interventions target awareness-raising, mental health promotion and stigma reduction as essential pathways to care (Udedi, 2016).

A FOCUS ON YOUTH

The age of onset for most mental illnesses is between ages 14 – 25, making the adolescent years a critical window for early identification and treatment. Mood disorders in particular commonly onset during youth, making adolescence critical years for mental health promotion and early diagnosis and treatment (Kutcher & Venn, 2008; Kessler, et al., 2005; Prince, et al., 2007). If left untreated, mental health issues can have significant and long-lasting impacts on quality of life, including emotional wellbeing, social development and future vocational opportunities for young people (McKewan, K, et al., 2007). While there remain significant challenges to meeting the mental health care needs of young people in high-income countries, they are much greater in low-income settings, such as most countries in sub-Saharan Africa (SSA) (World Health Organization, 2014; Patel, Flisher, Hetrick, & McGorry, 2007; Patel & Saxena, 2014). Crabb et al. (2012) report that there is poor understanding of mental health and mental illness throughout Africa, and, in many countries in SSA mental illness is often not generally recognized as a disorder (Crabb, Stewart, Kokota, Masson, Chabunya, & Krishnadas, 2012; Hugo, Boshoff, Traut, Zungu-Dirwayi, & Stein, 2003).

MENTAL HEALTH LITERACY

The World Health Organization (WHO) defines health literacy as “the cognitive and social skills which determine the motivation and ability of individuals to gain access to, understand and use information in ways which promote and maintain good health” (WHO, 2009). There is a general agreement that improvements in health literacy increase demand for services and ultimately improve health outcomes. The WHO further argues that by improving people's access to health information and their capacity to use it effectively, health literacy is critical to empowerment (ibid). Defined this way, health literacy goes beyond a narrow concept of health education and individual behaviour-oriented communication, and addresses the environmental, political and social factors that determine health. Health education is achieved therefore, through methods that go beyond information diffusion and entail interaction, participation and critical analysis. Kwan, Frankish and Rootman (2006) identify personal or internal and external factors that influence the health

information context, which in turn influences the acquisition of health knowledge and subsequent health decisions and actions. They correlate improved health literacy with improvements in health outcomes, quality of life, and health system outcomes. Palwak (2005) similarly argues that health literacy is influenced by a variety of determinants, and that health literacy in turn is a determinant of health. Pawlak's model of health literacy directly links improvements in health literacy to improved health outcomes.

The same arguments for correlating improvements in health literacy with improved health outcomes can be found within the field of mental health. Scholars and practitioners argue that mental health literacy is foundational for improving access to care and reducing stigma related to mental illness (Jorm *et al.*, 1997; Reavely and Jorm, 2011; Jorm, 2012; Wei *et al.*, 2013; Kutcher and Wei, 2014; Kutcher *et al.*, in press). "Mental Health Literacy" was initially defined by Jorm as "knowledge and beliefs about mental disorders which aid their recognition, management and prevention" (Jorm *et al.*, 1997). In recent years, this definition has been expanded to include four components: 1) enhancing capacity to obtain and maintain good mental health; 2) enhancing understanding of mental disorders and their treatments; 3) decreasing stigma related to mental illness; 4) enhancing help-seeking efficacy (Kutcher and Wei, 2014; Kutcher *et al.*, 2016). Based on the arguments found in the literature on health literacy published by the WHO and others, we are resting on the assumption that improvements in mental health literacy both stimulates demand for mental health services and directly improves health outcomes and quality of life.

RADIO AND MENTAL HEALTH PROMOTION

Mass media campaigns have been used to translate public health messages for decades. In most countries in sub-Saharan Africa, radio remains the dominant form of mass media due to its ability to transmit information to hundreds of thousands of people at very low cost, even in areas with little electrification. Even in the poorest countries in Africa, over 75% of households own a radio (EFA, 2012). Furthermore, radio is able to surpass barriers to information transfer that are repeatedly noted (Myers, 2009)—such as illiteracy and the prevalence of multiple non-dominant languages in a region, both of which are major challenges to knowledge uptake in many African countries. These qualities of radio, combined with its ability to tap into oral traditions and storytelling modes of public education, make it uniquely suited to the African context, despite the rapid proliferation of new information and communication technologies (ICTs). While new ICTs are not projected to replace the dominance of radio on the African continent anytime in the near future (Gilberds and Myers, 2012), the rapid penetration of mobile phones is transforming the ways in which radio broadcasters interact with listeners, fact-check content, conduct audience research, and evaluate their programs (Hampson *et al.*, *in press*).

A lack of awareness about mental health disorders and their symptoms, combined with pervasive stigma about mental illness, is cited as a significant barrier to help-seeking in SSA (Crabb *et al.*, 2012; Mbatia *et al.*, 2009; Kauye and Mafuta, 2011). In order to raise awareness of mental health issues and reduce stigma on a mass scale by reaching a wide number of youth living in both urban and rural areas in Malawi and Tanzania with information about mental health, we worked with established radio stations to design and implement interactive, weekly radio programs that combined radio soap operas, quizzes, polls, and 'ask the expert' phone-ins. The design of the radio

programs and soap operas is based on formative research with young people to assess their current level of knowledge, awareness and attitudes, as well their radio listening habits and preferences. A total of 2,500 youth in Malawi and 1,800 youth in Tanzania completed the survey. Based on the results of the survey, the radio program incorporates input from local mental health experts, scriptwriters, youth and local radio broadcasters to ensure content is accurate, appropriate and attractive for the target audience. Called 'Nkhawa Njee' in Malawi and 'Positive Mood' in Tanzania, the programs airs on radio stations that are popular with young people. Other than a serialized, short (approx. 4 – 5 minutes per episode) soap opera, the weekly program is a freestyle show hosted live every week.

Following Farm Radio International's mission to build the capacity of local broadcasters to design and produce high-quality radio programs, we avoided being overly prescriptive as to the tone and content of the weekly program. Instead, the radio teams in each country help broadcasters design the program, and conduct ongoing monitoring and assessment of program quality, with feedback and suggestions sent to broadcasters after each weekly program. Interactive elements of the program are facilitated using a mobile phone software that allows young people to call free of charge by "flashing" (calling and hanging up) an Interactive Voice Response (IVR) system that automatically calls them back and stores their number in a database. Participation is incentivized through competitions and prizes, where young people have an opportunity win t-shirts or mobile airtime by participating in surveys or polls. Survey and poll data allows the team to assess program popularity and uptake of messages on an ongoing basis, and to make course corrections when necessary. The radio program is linked to the school through radio listening clubs that meet weekly in each of the target schools to listen to the program together. Teachers trained in the mental health literacy (MHL) curriculum and trained peer mental health educators facilitate discussions about the issues raised by the radio program. The radio program evaluation consists of comparing baseline scores for knowledge, attitudes and mental health seeking practices with endline scores, and correlating frequency of exposure to the radio program with level of improvement. Listeners are grouped according to their level of interaction—most active, which are students who are members of listening clubs to least active, which are young people outside of the target intervention area who listen to the program—as well as how often then tune into the program.

"I think the program is really cool. We are the youth and they talk about us. They talk about how we live our life and how we can make it better. They talk about how we should avoid stress in our life so we can live longer."

Achmed, 17 years old, Malawi

METHODOLOGY

SETTING

The United Republic of Tanzania is a low-income country of about a 45 million people located in the eastern part of SSA (The World Bank, 2014a; The World Bank, 2014b; World Health Organization [WHO], 2011), currently listed as one of the 49 least developed countries in the world (Development Policy and Analysis Division (DESA). Mental health expenditures comprise approximately 7% of the total health budget (ibid). A mental health policy and plan (2006) is available and currently undergoing revision. Very few primary health care providers have received training in mental health care in the country. Psychiatric nurses provide most of the mental health services with a ratio of 2/100,000 people but with limited training in youth mental health. Mental health coordinators with no training in youth mental health are assigned to Districts, with 94% of the 121 districts having mental health coordinators (Jenkins, 2011). While the Ministry of Health and Social Welfare (MOHSW) along with a few small NGOs such as the Arusha Mental Health Trust, have implemented some mental health prevention and promotion campaigns, they have not, to this study's knowledge, used radio in a systematic and evidence-informed way. Further, there have not been any radio programs that have focused specifically on adolescent mental health.

Malawi is a low-income country of about 16 million people in Eastern SSA with about 2% of the overall health budget spent on mental health services (World Bank, 2014; WHO, 2011). Mental health legislation was revised in 2005, and there is no mental health policy. Rather, mental health priorities are incorporated into the health sector strategic plan (ibid). Some health providers have had some training in mental health care in the past five years, none in youth mental health. The ratio of mental health professionals to population is about 2.5/100,000 with the majority being psychiatric nurses (Crabb, 2012). The Ministry of Health (MOH) in Malawi has been dedicated to mental health promotion and awareness, identifying school-based mental health and mass media campaigns as priorities in their Mental Health Strategy 2012 – 2017 (Udedi, 2016). However, as is the case in Tanzania, there have not been any long-running radio campaigns specifically focusing on mental health, and no radio campaigns designed with a focus on youth mental health.

While the overall project selected targeted intervention areas, both radio programs were broadcast nationally—In Malawi on MBC Radio, the public broadcaster, and in Tanzania on Radio 5, a commercial radio station based in Arusha that has national reach. Radio station partners were selected based on: capacity to produce and implement an entertaining radio program for youth; youth preferred stations as determined in a formative survey; and the station's willingness to undergo the technical and subject-matter training to ensure the programs would air accurate information and have high-quality programming.

STUDY METHODOLOGY

Qualitative and quantitative data on outcomes were gathered through a process evaluation, and an outcome evaluation survey among a representative sample of listeners and non-listeners in Malawi and Tanzania. The field team used a smartphone-based survey tool, called Mobenzi, to collect data at baseline and endline using a structured enumerated survey. In Malawi, a sample size of 2,407

randomly selected individuals completed the survey at baseline, and 921 randomly selected individuals completed the same survey at endline. For both surveys, respondents were selected equally from intervention and non-intervention communities. In Tanzania, 601 randomly selected individuals completed the survey at baseline and 825 at endline, selected from intervention and non-intervention communities. At endline, communities were categorized according to their level of potential exposure:

1. **“Active” listening communities**—respondents who were involved in school-based mental health activities or who were part of a listening club.
2. **“Passive” listening communities**—respondents who had no direct involvement with mental health activities in schools, but had access to the radio signal and listened to the radio program.
3. **“Quasi-Control” communities**—youth who were outside the reach of the radio stations’ broadcasts, or otherwise never listened or were unable to understand the broadcasts.

In the absence of strict experimental controls given the national reach of both radio programs coupled with the logistical impossibility of finding the exact same individuals at baseline and endline, we employed a difference-in-difference evaluation methodology to assess changes in knowledge, attitudes and mental health-seeking practices prior to and after exposure to the radio campaigns. Using this counterfactual approach, we are able to compare the before-and-after difference for youth who listened to the radio program to the before-after difference for those who did not listen to it. Further, we segmented respondents according to their level of listenership and interaction with the radio programs so as to measure the dose response of improvements in knowledge, attitudes, and practices (KAP) against level of exposure to the programs.

RADIO PROGRAM DESIGN

The 30-minute, weekly radio program that aired in each country (*Nkhawa Njee* in Malawi and *Positive Mood* in Tanzania) leveraged the “edutainment” model of public health communication, which gained prominence and is still widely used as a tool for raising awareness and changing behaviours to curb the spread of HIV/AIDS in sub-Saharan Africa. Tufte (2008) defines edutainment as:

The use of entertainment as a communicative practice crafted to strategically communicate about development issues in a manner and with a purpose that can range from the more narrowly defined individual marketing of social behaviours to the liberating and citizen-driven articulation of social change agendas (p. 329).

At the core of the edutainment model is the assertion that people do not want to be preached to, that through a process that is both entertaining and grounded in accurate and evidence-based messaging, people will be equipped to make positive decisions about their health. Most edutainment programs are modeled under theories of social and behavior change communication (SBCC), which suggest that change happens through a number of key processes: scrutinizing behavior through an event or personal experience; feeling the impact of certain behaviours through messages that have an emotional appeal; witnessing and examining the results of desired behaviours. For the person exposed, these encounters often result in questioning existing

assumptions (Darnton, 2008; Jackson, 2005). While behaviour change communication initially emphasized changes at the level of the individual, this has shifted to SBCC in recent years with a growing understanding that behaviours are grounded in a particular context, and change usually requires support from multiple levels of influence in the social ecosystem (Leclerc-Madlala, 2011). Social determinants that affect behaviour include factors such as knowledge, attitudes, community norms, cultural practices, access to power, economic status and social policies and structures. What is important from the perspective of SBCC and edutainment media analysis, and is therefore central to our evaluation of the mental health radio programs, is to ascertain whether a person's exposure to the media programs plays a role in triggering or facilitating drivers of the process of change. This includes improvements in knowledge and attitudes, social movement mobilization, and greater social and public support to put mental health on the agenda as a topic of conversation, grounded in new understandings and new knowledge.

Edutainment programs are typically designed to integrate instructive or best practices into a fictional narrative, often a soap opera style serialized drama (Tufte, 2008). FRI integrated the edutainment model into the design of the mental health radio programs, which followed a magazine format incorporating a serialized soap opera with short episodes (approx. five minutes) each week, the latest popular music, interviews with celebrities, first-person storytelling about youth who suffered from mental health problems, phone-in question and answer with experts, and polls, quizzes and debates. Importantly, the radio programs were designed very closely with the radio broadcasters themselves, which is different than the approach many organizations take where content is centrally produced then aired on local radio stations. FRI's approach is to build the capacity of the local broadcasters to design an accurate and entertaining radio program for their listeners by integrating the tools and training that FRI provides. For this reason, the two radio programs, while grounded in the same overall approach and same strategic objectives and outcomes, were very different in terms of what they sounded like, and how they talked to youth. The radio programs were designed in each country through a process that involved: 1) formative research to identify radio listening preferences, and baseline knowledge, attitudes and mental health seeking practices; 2) focus groups and interviews with youth about their desires, hopes and fears; 3) message development with mental health experts and representatives from the ministry of health; 4) development of a storyboard for the soap opera and pilot-testing scenes and scenarios with youth; 5) in-station training with the radio partners on how to integrate FRI's methodologies and tools. In order to ensure that the approach was firmly grounded in the contextual and cultural factors at the core of theories of SBCC, the design incorporated participation and feedback from the target audience—namely youth aged 15-34—at every stage of design and implementation. Ongoing interaction with listeners throughout the duration of the program in each country ensured the radio shows engaged in ongoing adaptive programming and mid-course corrections, and were thereby responsive to what listeners wanted to hear, to the level of uptake, as well as to the social and environmental factors that affect behavior change.

INTERACTIVITY

A central component of all of FRI's radio programs is interactivity. Leveraging the steadily increasing mobile penetration through SSA, FRI's "The Hangar: Radio and ICT Innovation Lab" in Arusha, Tanzania has developed tools to help radio broadcasters better interact with their listeners

through mobile phones. These tools can be used to request further information, to be put in touch with a specific service, or to respond to listener polls or particular questions. For example, radio hosts can request listeners to ‘beep’, or leave a missed call, if they would like more programs on a particular topic, thus helping the station to gauge the popularity of different themes (Sullivan et al., 2011). As part of FRI’s methodology, broadcasters are trained to use an Interactive Voice Response (IVR) platform to get ongoing, rapid feedback from listeners, data that is visualized for them in real-time on an in-station dashboard. This tool enables radio hosts to poll listeners every week about what they would like to hear on the program, and whether they agree or disagree with what is presented. It also allows broadcasters to assess audience uptake of key messages and make ongoing adaptive modifications to programs based on whether listeners are truly understanding the information or not. The feedback tool both enhances audience engagement and enjoyment because listeners can participate free of charge and give their feedback about the program, and allows experts to assess whether or not the messages are reaching the intended outcomes and, if not, why not. This approach to adaptive program management using ongoing feedback is especially important when giving health information about sensitive and highly stigmatized or taboo subjects such as mental health, where there is likely to be a lot of confusion and resistance to the health information. Further, there is a significant body of evidence that utilizing ICTs that enhance the interactive nature of the radio experience promote further interpersonal dialogue (i.e. stimulating meaningful discussion of the programs with others), thereby reinforcing the impact of information dissemination and makes behaviour change more likely (Hampson et al., *in press*; Myers, 2009).

SCHOOL-BASED LISTENER CLUBS

Radio listening clubs (RLCs) are widely acknowledged as a structure that deepens engagement with mass mediated information and facilitates social mobilization, movement building, and behavior change. Inspired by the collective radio listening clubs that sprung up throughout SSA in the 1990s with the boom in liberalized airwaves (FAO, 2011), today’s RLCs are much more than platforms for collective listening. Many RLCs today offer a mechanism for opening up dialogue, and stimulating mobilization, collaboration and action among participants (*ibid.*). In the field of public health in SSA, mass media campaigns have historically had inconsistent outcomes (Hornick and McAnany, 2001, Asp et al., 2014). Such unreliable outcomes are often attributed to: media messages do not address cultural and practical barriers to behaviour change; inappropriate media platforms; there is a focus on one issue in the face of other related problems (Collins et al., 2016). In short, most of the mass media interventions do not sufficiently engage the target audience (Sood et al., Collins et al., 2016). RLCs facilitate improved engagement by enabling listeners to actively participate in the health promotion process through raising their own key issues, discussing them publicly, exploring options and seeking external support for possible solutions (Siantombo, 2013).

FRI and partners leveraged the power of RLCs to improve the engagement and participation of youth in the radio programs and to facilitate social mobilization and social movement building around issues of mental health. This was particularly important for a highly stigmatized topic, as the RLCs both helped ensure the radio programs attracted listeners in the first place, and also helped the subject of mental health gain legitimacy as a topic of public conversation. We set up RLCs in 35 primary and secondary schools, and 15 out-of-school clubs in Malawi, and 35 secondary

schools in Tanzania. The number of participants in the Malawi clubs ranged from 20-40, and in the Tanzania clubs from 20 to more than 100 club members in some schools. The RLCs also served to link the radio programs with the school mental health literacy curriculum activities—teachers trained in the MHL curriculum and trained peer mental health educators facilitated discussions about the issues raised by the weekly radio program. Finally, the RLCs helped bolster the radio programs’ interactivity and popularity as each school-based club participated in inter-school debates, polls and quizzes that were aired on the radio program. The most active RLCs won radio program t-shirts or even a visit by one of the program’s celebrity hosts.

RESULTS

MALAWI RESULTS

Nkhawa Njee was on air in Malawi for a total of 24 months. A new program aired every week, with one repeat for a total of two broadcasts per week on each station that aired the program. For the first 10 months, three distinct radio programs were broadcast on three different stations—MBC Radio 2 (the public broadcaster), Mudzi Wathu (a community radio station), and Zodiak FM (a commercial broadcaster with national reach). After the initial program ran for 10 months and was slated to end, the program team decided to continue the broadcast as a result of high demand from youth across Malawi. Given limited resources, Farm Radio Malawi did a rapid assessment to determine which of the three stations was the most popular and had the best quality program. MBC Radio 2 was determined to be the best and most popular program, and it continued to air *Nkhawa Njee* for an additional 14 months. The program has been extraordinarily popular among youth due to its edgy style and ability to talk about taboo subjects such as suicide, teenage pregnancy, exam stress, Depression and HIV/AIDS in an open and frank manner. One testament to the popularity of the program is its Facebook page, which has more than 15,000 followers. Mental health experts and the radio hosts regularly interact with the listeners on the Facebook page, notifying them of upcoming shows and giving them important information related to mental health and wellbeing. The Facebook page has also become a defacto service to connect youth suffering from mental health problems with trained health providers as youth can send requests for help through the site’s private messaging service.

To assess the impact of the radio program on key project objectives related to improvements in mental health literacy, including improved knowledge of mental health disorders, symptoms, and treatments, a reduction in stigmatizing attitudes, and a greater willingness to seek mental health care when necessary, the project team conducted a baseline and endline survey. Using the difference-in-difference methodology described above, the team assessed the programs’ effectiveness in meeting these objectives, deemed to be key components of a successful pathway to care model for addressing mental health issues in SSA.

A one-way ANOVA was conducted to compare the effects of participation in school-based mental health listening clubs and frequency of listening to *Nkhawa Njee* on 1) respondents’ mental health knowledge; and 2) respondents’ attitudes toward mental health and illness, including stigmas. The data was disaggregated into four groups segmented according to potential level of exposure to

campaign elements: 1) Quasi-control group: not in a club and never heard of the radio program (N=396); 2) Passive Listeners: not in a club and listened to the program regularly (N=85); 3) Active Listeners: in a club and listen regularly (N=94); and 4) Passive MHL exposure: in a club and do not listen regularly (N=139). The results clearly demonstrate that listening to the mental health radio shows led to significant improvements in knowledge about mental health and a significant reduction in stigmatizing attitudes. Youth who listened to the radio program on a regular basis and belonged to mental health listening clubs in schools had greater improvements.

Knowledge

There is substantial evidence that mental health club membership and listening to *Nkhawa Njee* is positively associated with improvements in knowledge about mental health at the $p < .05$ level for the four groups [$F(3, 710) = 64.259, p < .001$]. Post-hoc comparisons using the Tukey HSD test indicates the mean score for group one ($M=18.84, SD=3.70$) is significantly different than the mean scores for groups two ($M=22.21, SD=3.16, N=85$), three ($M=23.50, SD=2.36$) and four ($M=22.27, SD=3.18$). There is also a significant difference between groups three ($M=23.50, SD=2.36$) and four ($M=22.27, SD=3.18$). There are no significant differences between any other groups.

These results show that the radio program combined with club membership, which incorporated MHL curriculum learning and discussions facilitated by trained teachers and peer educators, has a significant positive effect on knowledge about mental health and mental illness, including signs and symptoms of disorders and effective treatments. Respondents who do not belong to a listening club and have never listened to the radio program have the poorest mental health knowledge scores, demonstrating the positive impact of the radio program on a key marker of mental health literacy. Furthermore, young people who are members of the school listening club **and** who listen regularly—both as part of the club and on their own—have significantly better knowledge scores than club members who attended club meetings but did not listen to the radio program on a regular basis.

Attitudes

A one-way ANOVA was conducted to assess the effect of participation in mental health listener clubs and listening regularly to *Nkhawa Njee* on attitudes about mental health. There is a significant effect of club membership and radio listening at the $p < .05$ level for the four groups [$F(3, 710) = 15.211, p < .001$]. Post-hoc comparisons using the Tukey HSD test indicate that the mean score for group one ($M=31.71, SD=6.46$) is significantly different than the mean scores for groups two ($M=34.69, SD=5.49$) and four ($M=35.37, SD=5.68$). There is also a significant difference between groups three ($M=34.69, SD=5.49$) and four ($M=35.37, SD=5.68$). There are no significant differences between any other groups.

These results show an impressive positive effect on attitudes about mental health and illness as a result of participating in a school-based mental health club, especially when combined with listening to *Nkhawa Njee* on a regular basis. Specifically, those who do not belong to a listening club and have never heard of the radio program (group one) have the highest level of stigma related to mental health. Further analysis explored the effects of group 1 compared to those who were in a

mental health club (regardless of how frequently they listen to the radio program) using an independent t-test. There was a significant difference in the attitude scores between those in group 1 (M=31.71, SD=6.46, N=396) and those who are members of a mental health club (M=34.45, SD=5.65, N=233); $t(538.423) = 5.570, p < .001$. These results suggest that members of mental health radio listening clubs have better attitudes about mental health and mental illness than those who are not in a club and have never heard of the radio program. Another additional analysis was also completed to look at the effects of group 1 compared to those who listen to the radio program regularly, regardless of whether they were in a school listening club or not, using an independent t-test. There was a significant difference in the attitude scores between those in group 1 (M=31.71, SD=6.46, N=396) and those who listen to the program regularly (M=33.86, SD=5.47, N=176); $t(401.225) = 4.116, p < .001$. This result suggests that those who listened to *Nkhawa Njee* regularly have lower stigma and better attitudes about mental health than those who were not in a club and had not heard of the radio program.

Help-Seeking Practices

To understand whether or not listening (exposure) to the radio program is associated with help-seeking practices, we applied an odds ratio approach to analyze survey questions that asked whether or not listeners of *Nkhawa Njee* have sought help for mental health problems. In comparing baseline to endline scores in Malawi, the odds of people who listen to the radio program are 3.5 times more likely to get help for a mental health issue (95% CI: 2.718 – 4.496) than young people who have never heard the program.

Exposure status	Sought help (cases)	Did not seek help
Endline (exposed)	148	773
Baseline (unexposed)	125	2282

We also used an odds ratio approach to determine whether or not listening to the radio program had an impact on listeners in terms of whether they have advised friends or family members to seek help for mental health. In Malawi, the odds that someone who listened to *Nkhawa Njee* would suggest that someone they know get help for a mental health issue are 1.533 times greater (95% CI: 1.259 – 1.866) than someone who had never heard the program suggesting others get help.

Exposure status	Suggested help (cases)	Did not suggest help
Endline (exposed)	188	733
Baseline (unexposed)	345	2062

TANZANIA RESULTS

Positive Mood aired once a week from Arusha on Radio 5—a commercial radio station that has national coverage. The show also had one repeat each week, giving youth two opportunities to hear it every week. Modeled after the design of Malawi’s youth mental health radio show, the program consisted of a serialized short drama, interviews with experts, panel discussions with youth, music, interviews with celebrities, and mobile polls and quizzes. Broadcasters interacted with listeners by visiting schools to conduct interviews, conducting mobile polls, and by posting on the show’s Facebook page. The program page had more than 1,100 likes, although many more youth reportedly interacted with each other and broadcasters through the radio station’s main Facebook page. On average, between 200-400 youth participate in the mobile polls and quizzes each week. Many youth also listened to the program at school-based radio listening clubs that met weekly. Many club members reported that they enjoyed the show, and wished it were longer or aired more frequently. Positive Mood aired over 43 weeks, ending in October 2015. Plans to resume broadcast of the program in 2016 were interrupted with the Government of Tanzania shut down Radio 5 for political reasons.

Knowledge

A one-way ANOVA was conducted to compare the differential effects on knowledge of mental health signs, symptoms and treatments prior to start of the radio program airing (baseline) and after it ended (endline). Attempts were also made to compare the differential effects between the same listener groups identified in the Malawi sample—active listeners, passive listeners and quasi-control group respondents. However, given challenges in the field-level data collection during the endline survey, the team was unable to gather sufficient data to disaggregate according to the three levels of exposure. Given low levels of respondents due to enumerator sampling error, we collapsed the active and passive listenership categories into one, and compared “Listeners”—young people who report some level of exposure to the radio program—with “Non-Listeners”—young people who report they have never heard of the program. Collapsing categories in this way makes it impossible to assess the dose-response of the radio program, i.e. to measure frequency of exposure to the radio program against level of improvements in KAP in the Tanzania dataset.

Nonetheless, the results demonstrate a significant improvement in knowledge scores between the control (group one) and listening group (group two) based on an independent samples t-test. When compared with the baseline score (M=19.43, SD=4.12, N=601), the control group scored marginally higher than the baseline cohort (M=20.53), and the group who listened to the mental health radio program scored significantly higher (M=23.42). In addition to comparing baseline to endline results, an independent samples t-test was conducted to compare knowledge scores between the control group and intervention group’s scores at endline. There was a significant difference in the knowledge scores between group one (M=20.53, SD=4.02) and group two (M=23.42, SD=3.17); $t(571) = 5.928, p < .001$. This result indicates that listening to Positive Mood had a positive effect on mental health knowledge scores, even if respondents did not belong to a school-based mental health. As stated earlier, we are unable to compare improvements between school-based listening

club members and listeners who were not club members, nor measure the dose response of frequency of exposure with level of knowledge change. Further analysis is currently underway.

Attitudes

An independent samples t-test was also conducted to compare attitude scores from baseline to endline and between groups one and two at endline. Post-hoc comparisons using the Tukey HSD test indicate the mean score between baseline attitude scores (M=31.08, SD=7.81, N=600) was significantly improved at endline for both the intervention (M=34.29) and the control group (M=34.29). There was not a significant difference at endline between the mean scores for youth exposed to the radio program (M=34.09, SD=4.89) and those who were not (M=33.95, SD=5.84); $t(571) = 0.234, p > .05$. These results indicate that attitude scores were better at endline compared to baseline regardless of whether or not respondents had heard of the radio program; i.e. there was no difference in attitude scores between those who had heard of the radio program positive mood and those who have not. This result indicates that hearing *Positive Mood* did not have a substantial effect on respondents' attitudes towards mental health after a 9-month broadcast period. However, given significant improvements in attitudes between the baseline cohort and the endline cohort, further analysis is needed to assess whether this can be attributed to spillover effects between youth involved in the mental health activities in their schools and other youth in the same community.

Help-Seeking Practices

To understand whether or not listening (exposure) to *Positive Mood* is also associated with help-seeking practices in Tanzania, we applied an odds ratio approach to analyze survey questions that asked whether or not respondents have sought help for mental health problems. Similar to the findings in Malawi, we found that indeed listening to the radio program is a positive predictor of willingness to seek help for a mental health problem or disorder. In Tanzania, the odds of radio listeners getting help are 3.7 times greater (95% CI: 2.386 – 5.742) than the odds of people who have never heard the radio program getting help for mental health issues.

Exposure status	Sought help (cases)	Did not seek help
Endline (exposed)	117	699
Baseline (unexposed)	26	575

We also wanted to know whether listening to *Positive Mood* is a positive predictor for advising others to get help. We found that the people who listened to the program are 2.831 times (95% CI: 1.949 – 4.114) more likely to suggest others seek help for perceived mental health problems than those who have not heard it.

Exposure status	Suggested help (cases)	Did not suggest help
Endline (exposed)	134	682
Baseline (unexposed)	39	562

DISCUSSION

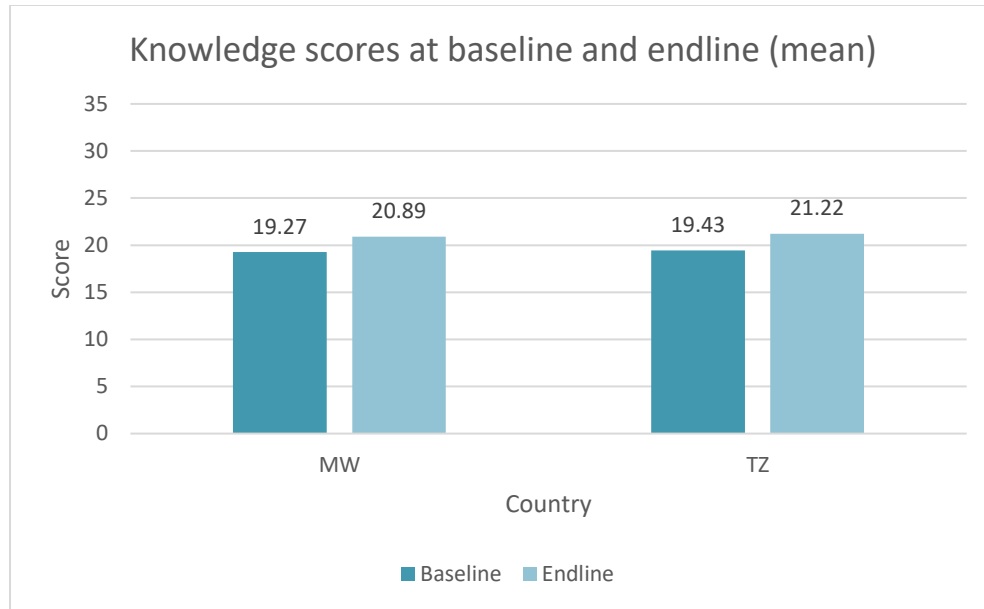
MECHANISMS OF CHANGE

As indicated above, we view improvements in mental health literacy—enhanced knowledge about the signs, symptoms, causes and treatments of adolescent mental health problems coupled with a decrease in stigmatizing attitudes—as a key *driver of change*. The WHO defines health literacy in terms of empowerment, which is widely understood as a driver of change and contributor of positive social outcomes in low- and middle-income countries. Further, we view improvements in mental health literacy as an important factor in stimulating demand for services, which in turn affects policy and puts pressure on governments to provide better mental health services for youth in the form of access to medicines and counseling services. Putting mental health on the policy agenda through increased demand for services by citizens is a crucial, and often overlooked, mechanism of change for improving mental health care and in turn improving health outcomes and saving lives.

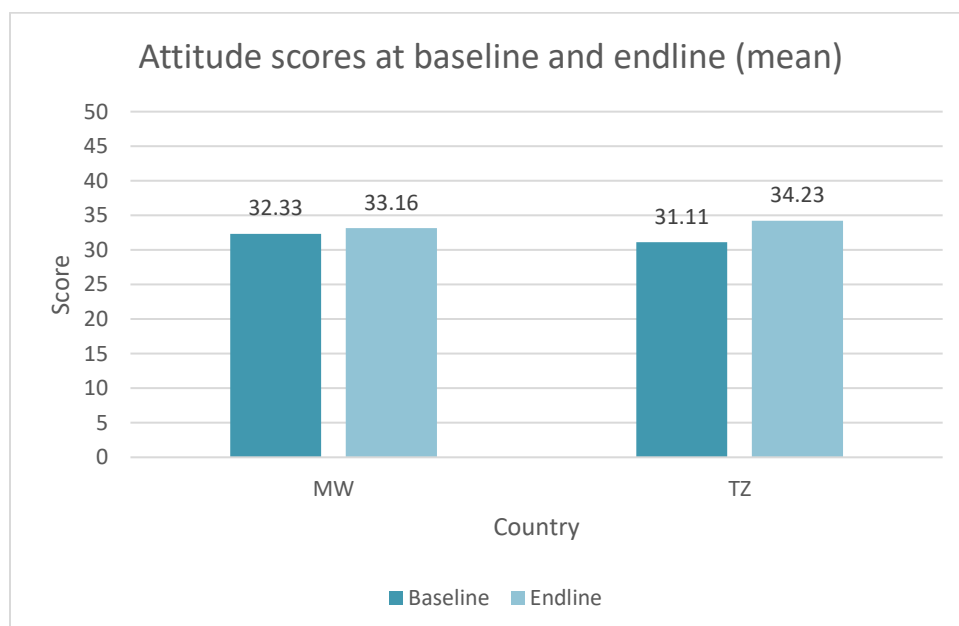
“Health literacy as empowerment: Strengthening active citizenship for health by bringing together a commitment to citizenship with health promotion and prevention efforts and involving individuals in: understanding their rights as patients and their ability to navigate through the health care system; acting as an informed consumers about the health risks of products and services and about options in health care providers, and acting individually or collectively to improve health through the political system through voting, advocacy or membership of social movements.”

World Health Organization, 2006

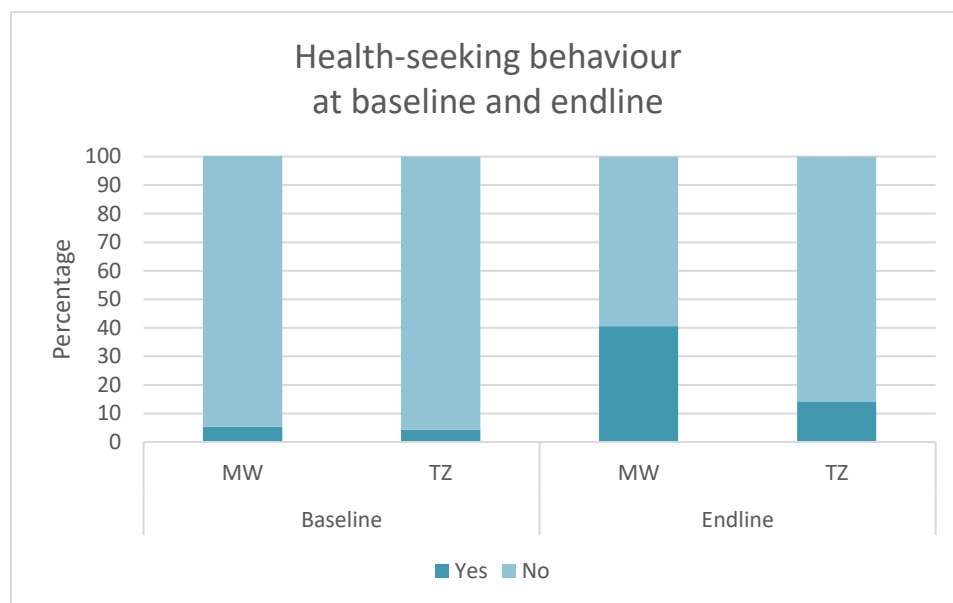
Our results demonstrate that in Malawi and Tanzania, radio programs that incorporate a rigorous and participatory design process, combined with ongoing interaction and feedback with the target audience, can help facilitate this process of change by improving knowledge, reducing the prevalence of pervasive negative public beliefs about mental illness, and in turn, creating an environment that supports both treatment seeking and recovery. As summarized in the results, in both Malawi and Tanzania, exposure to a radio program designed with and for youth that talks about mental health significantly improves knowledge about the signs of symptoms of mental disorders, and available treatments.



Although there are improvements in attitudes as a result of the radio programs, they are lower than we hoped for. While knowledge gains were impressive in both countries, our study demonstrates that stigmas are more resilient to change. We noticed greater attitude improvements from baseline to endline in Malawi than in Tanzania, likely due to the fact that the radio program in Malawi aired for 2.5 times longer than the Tanzania program. Also, given the longer duration, we conducted a midterm evaluation in Malawi, which helped identify gaps that were targeted in *Nkhawa Njee's* second season. At midterm, due to a lack of significant improvement in attitudes, stigma reduction was targeted as a priority for the second season of Malawi's radio program. We hypothesize that a second season of *Positive Mood* would replicate the findings of the Malawi study, where a first season focused broadly on knowledge and help-seeking followed by a second season with a more particular focus on stigma reduction, would result in greater overall improvements in all areas.



The duration of the radio program was also a significant factor in terms of creating demand for mental health services. Based on the odds ratio, the number of respondents in Tanzania who said they had previously received help for mental health care was 14.8 times higher than respondents in Malawi at baseline, likely due to greater availability of mental health services in Tanzania. While there were modest reported gains in help-seeking during the duration of the radio program in Tanzania, 1.4 times as many respondents in Malawi indicated they sought help for a mental health problem than in Tanzania at endline, despite higher odds among Tanzanians at baseline. These results demonstrate that health-seeking increases over time, and does not immediately follow an improvement in knowledge and attitudes. This corresponds to other findings in the field of social and behavior change communication, where it is well-established that improvements in knowledge and attitudes increase the extent to which someone deliberates over seeking help for a health concern, but that often deliberation does not immediately translate into improved health-seeking.



SUSTAINABILITY AND SCALABILITY

While both *Nkhawa Njee* and *Positive Mood* were extremely popular, reaching an estimated 500,000² young people across both countries, sustaining and scaling the approach after the end of the project remains an elusive goal. Many scholars have documented the challenges to sustainability of radio programs throughout Africa (Gilberds and Myers, 2012; Myers, 2011; Manyozo, 2008), including an overreliance on donor-sponsored programs, a lack of purchasing power to attract advertisers, and poor business models for revenue generation. Sponsorship by the Ministries of Health has also proven a challenge, given very low budget allocation for health promotion and awareness programs in general, and even lower funds allocated for mental health in

² Estimates are based on percentage of youth randomly sampled who had listened to the programs extrapolated to overall population of young people within the reach of the broadcast signal. Proxies for estimating listenership also include number of youth who participate in social media and mobile phone platforms for engagement.

comparison to other health priorities (WHO, 2014). Staff in both Malawi and Tanzania report there is potential for commercial sponsorship for the programs given their popularity, especially with large companies such as mobile telecoms, for whom youth is a target market for advertising. To date, such opportunities have not been successful, but efforts to secure sponsors are ongoing.

Nkhawa Njee

There is substantial evidence of the enormous popularity and extensive reach of *Nkhawa Njee*. An average of 1,000 young people per week participated in the radio program by answering polls or giving feedback via SMS. There are currently more than 22,000 people who actively follow the program's Facebook page. Given the resounding popularity of the radio program in Malawi³, combined with the fact that it is broadcast on the public broadcaster, our sustainability analysis suggests that it has greater potential for sustainability than the Tanzania program. This may also be the result of the longer duration of the program, which allowed it to recruit a large population of dedicated followers, and to establish a widely recognized brand throughout the country. Despite this success, sustainability remains a challenge, especially for a program whose core focus is mental health. The business environment for radio stations in Malawi is becoming increasingly competitive given that a proliferation of private radio stations, mostly focusing on youth and focusing primarily on music, has created stiff competition for *Nkhawa Njee*. Furthermore, there is a lack of strategies for integrating resource mobilization into marketing plans for MBC. This is partly due to the fact that it is a state owned station that is heavily dependent of government funding, which means the station managers do not have a strong incentive to secure other resources. There is also a lack of capacity for audience research to measure the size, characteristics and loyalty of listeners, which limits the ability of the station to attract sufficient advertisers. In summary, most radio stations in Malawi lack both the incentive and the capacity to sustain youth development shows that are educational and entertaining, due in large part to an overreliance on programs sponsored by NGOs, few advertising opportunities, and poor understanding of market research.

Positive Mood

Given that *Positive Mood* was on air for only nine months, it has had some notable successes. The program was very popular with listeners, as evidenced by the strong participation of youth in school-based listening clubs, feedback from listeners, participation in mobile polling, with an average of 400 youth answering polls each week, and high levels of engagement with the Facebook page, with over 1,100 active followers. The broadcasters also had regular engagement with their listeners when they traveled to schools to conduct interviews with youth that were then aired on the program. While *Positive Mood* was popular in the intervention areas (Arusha and Meru) in Tanzania, it did not reach the same level of popularity country-wide as Malawi's program. In addition to the shorter duration, this may also be due to the fact that Tanzania is a much larger and more culturally diverse country, and that Radio 5 was a commercial broadcaster that struggled to

³ A 2016 study of youth radio in Malawi conducted by Girl Effect found *Nkhawa Njee* to be the most popular show on the airwaves for a third consecutive year (personal communication with staff at Girl Effect).

sustain itself, eventually closing down after the Government of Tanzania pulled its funding from the station.

There are some indications that *Positive Mood* could be commercially viable. The program had a large audience in many districts in Tanzania, who interacted regularly with the program through SMS, phone calls, the radio Facebook page, and mobile polls. The program attracted listeners both because it dealt with a unique topic — mental health — and because it did so in a unique way, combining drama and entertainment to make a serious topic interesting. However, similar to Malawi, there are challenges in attracting sponsors, and government sponsorship of the program is unlikely. Furthermore, given that Radio 5 is currently off the airwaves, there are additional challenges beyond commercial viability in getting *Positive Mood* back on air. The broadcasters involved may have also moved on to other work or may have other interests. Finding new broadcasters to host the show is not a viable option because they would need to be trained to deal with the subject matter and manage the show's format. An interview with one of Positive Mood's broadcasters suggests there is some optimism that the mental health programming and formats will be integrated into another youth program once Radio 5 is back on air. There is also interest from other radio stations throughout Tanzania to re-air the radio drama, as a pre-packaged piece followed by a question and answer with mental health experts. Discussions for this are currently underway and, if successful, would mean that the serialized radio drama would live on and reach more young people in Tanzania with important information about mental health delivered in an engaging and entertaining manner.

CONCLUSIONS

Research consistently shows evidence-based communication programs can increase knowledge, shift attitudes and cultural norms and produce changes in a wide variety of behaviours. SBCC has proven effective in several health areas, such as increasing the use of family planning methods, preventing HIV and AIDS, and increasing uptake of vaccines or preventative techniques such as using mosquito nets. However, to date there have been very few organizations working in public health in low and middle-income countries (LMICs) who use SBCC methodologies in the field of mental health. In this regard, this study presents a pioneering approach to improving mental health literacy by leveraging established, evidence-based edutainment and SBCC methodologies. Results from this experiment suggest that the program achieved many markers of success in the field of SBCC, including: addressing social norms that affect demand for services; influencing perceptions, beliefs, and attitudes related to the health problem; increasing awareness of services to address the problem; advocating for supportive policies and investment to improve service delivery programs; and strengthening organizational relationships within and between health systems and services (HC3, 2015).⁴

In coordination with the other elements that made up the entire 45-month project, the results of which are documented elsewhere, the SBCC radio-based campaigns proved to be integral components for improving pathways to care for young people suffering from Depression and other

⁴ Taken from the Health Communication Capacity Collaborative (HC3) Implementation Kit. Retrieved from <http://bit.ly/2eJYXjW>

common mood disorders in Malawi and Tanzania. The radio programs in both countries are indeed acting as drivers of change, evidenced by differential improvements in knowledge, attitudes and health-seeking practices among young people who listened to the program vs. those who did not. Furthermore, our findings demonstrate that the most active listeners—those who participated in the school-based mental health listening clubs—have the greatest improvements in all areas, followed by passive listeners who heard the weekly radio program but did not participate in clubs, with little to no change among young people who were never exposed to the radio campaigns or the school-based initiatives. As a result, tens of thousands of young people started talking about mental health, and hundreds in each country self-referred or were referred to a trained health provider by teachers or peers for help with a mental health problem. By leveraging FRI’s participatory approach to radio design and dissemination, the communication campaign was able to go beyond simply delivering messages or slogans to encompass the full range of ways in which people individually and collectively convey meaning about health, thereby becoming a key driver of change—mobilizing a social movement around mental health, getting it on the agenda as a topic of conversation, and improving demand for and, in turn, access to mental health care.