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Cluster randomised controlled trial of a problem-solving, Story-bridge mental health literacy programme for improving Ghanaian community leaders' knowledge of depression

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ABSTRACT

Background: Low levels of mental health literacy about depression in the community impact negatively on attitudes towards people with the disorder and their help-seeking.

Aims: The aim of this study was to assess the effectiveness of a problem-solving, Story-bridge mental health literacy programme, in improving community leaders' knowledge about helpful interventions for, and recognition of, depression.

Methods: A cluster randomised controlled trial involving 140 assembly members, intervention ($n = 70$) and control ($n = 70$) groups. The intervention group received a three-hour mental health literacy programme. The control group received a plain language basic brochure about mental health issues. Data were collected at baseline and 12-week follow-up.

Results: The intervention group demonstrated greater improvement in knowledge about helpful interventions for, and recognition of, depression compared to the control group at follow-up; however, the differences in both measures were small and not statistically significant.

Conclusion: The programme has the potential to improve participants' knowledge about helpful interventions for, and recognition of, depression. Positive outcomes have public mental health implications as they might enhance early help-seeking and contribute to better outcomes for individuals with mental health problems.

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Cluster randomised trial; mental health literacy; knowledge; Story-bridge; recognition; depression

Introduction

Depression is the leading contributor to the overall global disease burden (WHO, 2018). Global estimates of depression exceed 300 million people and this prevalence is increasing (WHO, 2018), affecting more women (5.1%) than men (3.6%) (WHO, 2017a). The incidence of depression extends to low- and middle-income countries, including Ghana. Conservative estimates in Ghana suggest that about 2.8 million people have a psychiatric disorder, about 23% of which are characterised as a severe form (WHO, 2017b), and with the majority being women (Ghanaweb, 2014). In addition, between 2005 and 2015, depression was ranked as the third leading cause of disability in Ghana (WHO, 2017a), compounded by treatment gap exceeding 90% (Roberts et al., 2014). Commonly cited reasons for treatment gaps globally include inability to access specialists, poor quality of care, lack of knowledge of professional support, inadequate treatment resources, stigma and low levels of mental health literacy in particular (Acharya et al., 2017; Corrigan, 2004; Mfoafo-M'Carthy & Sossou, 2017).

Mental health literacy refers to “knowledge and beliefs about mental disorders which aid their recognition, management or prevention, and includes the ability to recognise specific disorders; knowing how to seek mental health information; knowledge of risk factors and causes, of self-treatments, and of professional help available; and attitudes that promote recognition and appropriate help-seeking” (Jorm et al., 1997, p. 182). Concerns about the need to improve the general public's mental health literacy have heightened because of negative attitudes towards people with mental disorders (Atilola, 2015; Mfoafo-M'Carthy & Sossou, 2017). In Ghana, negative attitudes associated with low mental health literacy contribute to delayed help-seeking, hiding the condition, exclusion from social activities, hesitation to form relationships, and disinterest in pursuing lifelong ambitions by affected individuals (Barke et al., 2011; Dako-Gyeke & Asumang, 2013; Gyamfi et al., 2018). Furthermore, this knowledge gap has influenced the general public to stigmatise and discriminate individuals with mental disorders in various ways such as denying them accommodation, social

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inclusion, education, employment and access to healthcare (Gyamfi et al., 2018; Tawiah et al., 2015) An important factor in minimising these experiences by individuals with mental disorders is improving mental health literacy of the general public (Atilola, 2015; Dako-Gyeke & Asumang, 2013).

High mental health literacy is associated with favourable attitudes towards people with mental disorders, better recognition of a mental health problem linked with early help-seeking and better outcomes (Jorm, 2012; Tay et al., 2018; Waldmann et al., 2020). Intervention studies have sought to improve knowledge about, and attitudes towards, people with mental disorders in groups such as health professionals (Blair Irvine et al., 2012), teachers (Yamaguchi et al., 2020), university students (Lo et al., 2018; Reavley et al., 2014), college students (Ojio et al., 2015), pharmacy students (O'Reilly et al., 2011), university employees (Ashoorian et al., 2019; Reavley et al., 2014), parents (Lubman et al., 2014) and rural communities (Morgaine et al., 2017). Overall, there was evidence of enhanced knowledge, decreased stigma, confidence to talk about mental health problems, and improved help-seeking (Ashoorian et al., 2019; Lo et al., 2018).

Intervention studies to improve mental health literacy, particularly among Ghanaian community leaders, are lacking (Read & Doku, 2012; Wilson & Somhlaba, 2017). Given that mental disorders and problems are evident in the community, intervening with community-specific programmes is worthwhile (Mehrotra et al., 2018). For example, Hossain et al. (2009) conducted a study to improve the knowledge and skills of indigenous extension officers for farmers to deal with mental health issues in a rural Australian farming community. Similarly, in Australia, Pierce et al. (2010) used a Mental Health First Aid programme to train football coaches to identify and support young males with mental health issues. Outcomes of both studies highlighted significant positive impacts, as participants utilised the acquired knowledge and skills to help appropriately in various ways in their communities (Hossain et al., 2009; Pierce et al., 2010).

The objective of this study was to assess the effectiveness of a mental health literacy programme in improving community leaders' knowledge about helpful interventions for, and recognition of, depression.

Methods

A cluster randomised controlled trial design was used to evaluate the effectiveness of a mental health literacy programme.

Ethics approval and consent to participate

Ethics approval was obtained from Victoria University Human Research Ethics Committee (HRE 16-140) and the Ghana Health Service Ethics Review Committee (GHS-ERC 09/05/16). Written consent was obtained from participants.

Settings and participants

The study was undertaken in the Brong Ahafo Region of Ghana, comprising 27 similar districts, with each administered by its own district assembly. Participants were elected and appointed as assembly members (similar to local councillors), with considerable influence in their catchment area for security, education, health and development projects (Government of Ghana, 1993). They are identifiable and well-respected community leaders who are usually contacted first about difficult communal issues, including mental health issues, and are expected to facilitate interim or sustainable solutions. Targeting them to support and change attitudes towards people with mental disorders is an efficient and cost-effective strategy because they have access to their community and its resources (Corrigan & Shapiro, 2010; Theall et al., 2015). Knowledge acquired from a mental health literacy programme may be used to encourage help-seeking attitudes and decrease public stigma towards individuals with mental disorder and their families (McCreary et al., 2013). Inclusion criteria were districts assemblies and current assembly members within the region. Exclusion criteria were a district assembly unit and/or assembly member that/who had received prior training about mental disorders, and with current or previous work experience as a mental health professional.

Sample size calculation

The study was planned with equally sized control and treatment clusters, with individuals clustered within districts, and each district comprising an average of 29 assembly members. For the control cluster, we anticipated a difference of five points in mental health literacy scores from baseline to week 12 follow-up (as assessed by the Attitudes and Beliefs about Mental Health Problems: Professional and Public Views questionnaire) (Jorm et al., 1997), and for the intervention cluster we estimated a difference of 10 points between these time-points. We anticipated data variability across both groups to be 10 points. To account for lack of independence in intervention outcomes by participants within a cluster, we also anticipated the intra-class correlation coefficient to be 0.03, of approximately medium magnitude (Auplish et al., 2017). Hence, about 3% of total data variability was anticipated to occur between clusters; corresponding to a clustering design effect of 1.56.

At a 5% level of significance and a power of 80%, a total of 128 participants (64 intervention and 64 control cluster participants) was needed to be able to reject the null hypothesis that the population means of the intervention and control clusters were equal without clustering. Hence, we aimed to recruit 2–3 district assemblies as the intervention cluster and another 2–3 as the control cluster.

Recruitment

A letter requesting permission to conduct the study was sent to 10 district assemblies, and permission was granted.

Key officials who dealt directly with assembly members were asked to pre-inform them about the study. Contact details of those expressing interest in participating were forwarded to the researcher who, in turn, contacted prospective participants to arrange a meeting. At this meeting, the purpose, methods and conditions of consent were explained. Written consent was obtained from participants.

Randomisation

A cluster randomised controlled trial parallel group design was undertaken adhering to the CONSORT guidelines for cluster randomised trials (Campbell et al., 2012; Schulz et al., 2010). Simple computer-generated randomisation to intervention and control cluster was concealed and done off-site by another researcher independent of the recruitment process. The control group received a plain language basic brochure about mental health issues.

Intervention

The intervention was a mental health literacy programme using a problem-solving, Story-bridge approach underpinned by Knowles' andragogy theory of adult education (Knowles, 1968). Andragogy fitted well with the problem-solving, Story-bridge approach because it encouraged active participant involvement (Bennetts et al., 2012) and tapped into the diverse experiences of the assembly members in the learning process (Knowles, 1968). The programme was an interactive three-hour session for each intervention group occurring at participants' routine meeting places. It was delivered face-to-face, using a combination of small and large group discussions, Power-Point presentations, videos and printed material about people with depression and schizophrenia. The programme was adapted from the Lubman et al. (2014) study and the concept was a good fit for group discussion, drawing on participants' knowledge and experiences of dealing with people with mental health problems. The programme promoted engagement among participants, consistent with the Ghanaian cultural approach of engaging family members to deal with a wide range of issues (Tsai & Dzorgbo, 2012). The two-part programme comprised the following:

Part one

1. Pre- and post-discussion of a video exploring beliefs and myths about people with mental disorders.
2. Video of real-life experiences of individuals with depression and subsequent discussion of confronting issues in the video.
3. Discussion of participants' prior knowledge and experiences of knowledge of depression and treatment options.
4. Presentation and discussion about the signs, symptoms and treatment options for depression.
5. Repeat of stages 2–4 but with a focus on a person with schizophrenia.

Part two – problem-solving, Story-bridge exercises

Two vignettes and Story-bridge exercises were used to harness participants' experiences and acquired knowledge to address mental health problems.

1. Each of the six scenes in the vignette (depression) were shown to participants (using a data projector) in the order in which they appeared in the vignette (Figure 1). They were asked to discuss sequentially what was happening in, and the story underpinning, each scene. Participants were asked to comment about how the scenes linked together and worked as a complete story.
2. Participants were divided into small groups and were provided with printed copies of the vignette for their reference and exercise sheets (Appendix 1). Each group was asked to draw on knowledge acquired from the programme to suggest strategies to address the mental health problem portrayed in the vignette. Strategies were written in blank spaces on exercise sheets until all the spaces were filled, thus bridging the gaps in the story.
3. The larger group reconvened, and each group leader fed back his/her group's suggestions. Discussion was also used to identify common themes in their strategies.

Measures

Socio-demographic questionnaire: Gender, age, marital status, occupation and highest level of education.

Attitudes and beliefs about mental health problems: Professional and Public Views questionnaire (Jorm et al., 1997) measures knowledge of, beliefs about effectiveness of several treatments and attitudes towards people with depression. The instrument is well-validated and widely used (Reavley et al., 2014). It presents a hypothetical vignette of "Yaw" who meets the ICD-10 (WHO, 2000) and DSM V (American Psychiatric Association, 2013) criteria for depression with suicidal thoughts.

Regarding recognition of depression, participants were asked what they thought, if anything, was wrong with Yaw described in the vignette. Open-ended responses were coded, and the term "depression" was recorded as correct.

Knowledge about helpful intervention for depression was assessed using the Jorm et al. (1997) and Kitchener and Jorm (2002) approach, with each item comprising a three-point Likert-type scale response: "helpful" (1), "neither" (2) and "harmful" (3). The authors developed a criteria reference scale in line with expert views of health professionals to measure knowledge about helpful interventions for depression. Within the scale, indication of general practitioners, psychiatrists, clinical psychologists, antidepressants, counselling and cognitive behaviour therapy as helpful interventions for depression were regarded as representative of knowledge of depression. An indication of each of these interventions as "helpful" was scored "1" and if the response was "neither" or "harmful" it was scored "0". Hence, participants' scores on this scale ranged from 0 to 6, with higher scores indicating higher level of knowledge. Cronbach's alpha was used to measure the reliability of the knowledge about helpful interventions sub-scale and was 0.53.



Figure 1. Depression vignette for the problem-solving, Story-bridge exercise (used with permission).

Statistical analysis

Data were analysed using IBM® SPSS® Statistics, Version 24 (Chicago, IL, 2016). Intent-to-treat principles were used for the main analyses; analysis was confined to those who had completed baseline data collection. Socio-demographic data were summarised using frequencies and percentages. Chi-squared test was used for the association between socio-demographic characteristics of the intervention and control cluster groups at baseline. Logistic regression analyses were carried out to identify significant predictors of missing data at follow-up. Generalised linear mixed models (GLMMs) were used to analyse data because outcomes were binary, and the cluster variable was included in the model as a random effect. Intra-cluster coefficients of the outcome measures were calculated from the estimates of covariance parameters of the model. Results were reported as odd ratios (ORs) and 95% confidence intervals (CIs). A two-sided p value of <0.05 was considered statistically significant. As the knowledge data were highly skewed, the subscale scores were dichotomised using a cut-off point of 5, with scores ≥ 5 represented as “1” and <5 as “0” as the scoring method. Selection of the cut-off point was based on the median of the scores over the two time-points.

Results

Sample characteristics

Figure 2 illustrates the flow of participants in the study. Ten district assemblies (clusters) were recruited and randomised to intervention and control groups. Due to time constraints, two clusters from each group were excluded from the trial. A total of 140 assembly members were recruited from six clusters, 70 in each arm of the study. Twenty-seven

participants were lost to follow-up activity. Most participants were male (87.1%), the modal age was 40–49 years and participants had at least a basic level of education, with the majority having completed tertiary level education (Table 1). Regarding marital and occupational status, 90% of participants were married, almost half were professionals and one-third worked in farming (Table 1).

Baseline socio-demographic characteristic comparison of intervention and control clusters

In Table 1, Chi-squared analysis revealed that the two groups were similar in gender distribution, age, occupation, marital status and educational level, and there were no significant differences between the groups.

Predictors of missingness post-intervention

Twenty-seven (19.3%) participants had missing data at 12-week follow-up data collection. The socio-demographic data of these participants were analysed using a logistic regression model to predict missingness in the data. Results indicated that participants' occupation was the only characteristic that predicted missingness (Table 2). In particular, “professionals” and “others” were more likely to miss follow-up data collection while “farmers” were less likely to miss follow-up data collection. Overall, there were significant differences between completers and non-completers in the study regarding group allocation (intervention or control), $\chi^2(1) = 5.55$, $p = .02$. A greater percentage completed the study in the intervention group (88.6%) compared to the control group (72.9%). In comparing knowledge scores, there was no significant difference between those who scored 1 and those who scored 0 between completers and

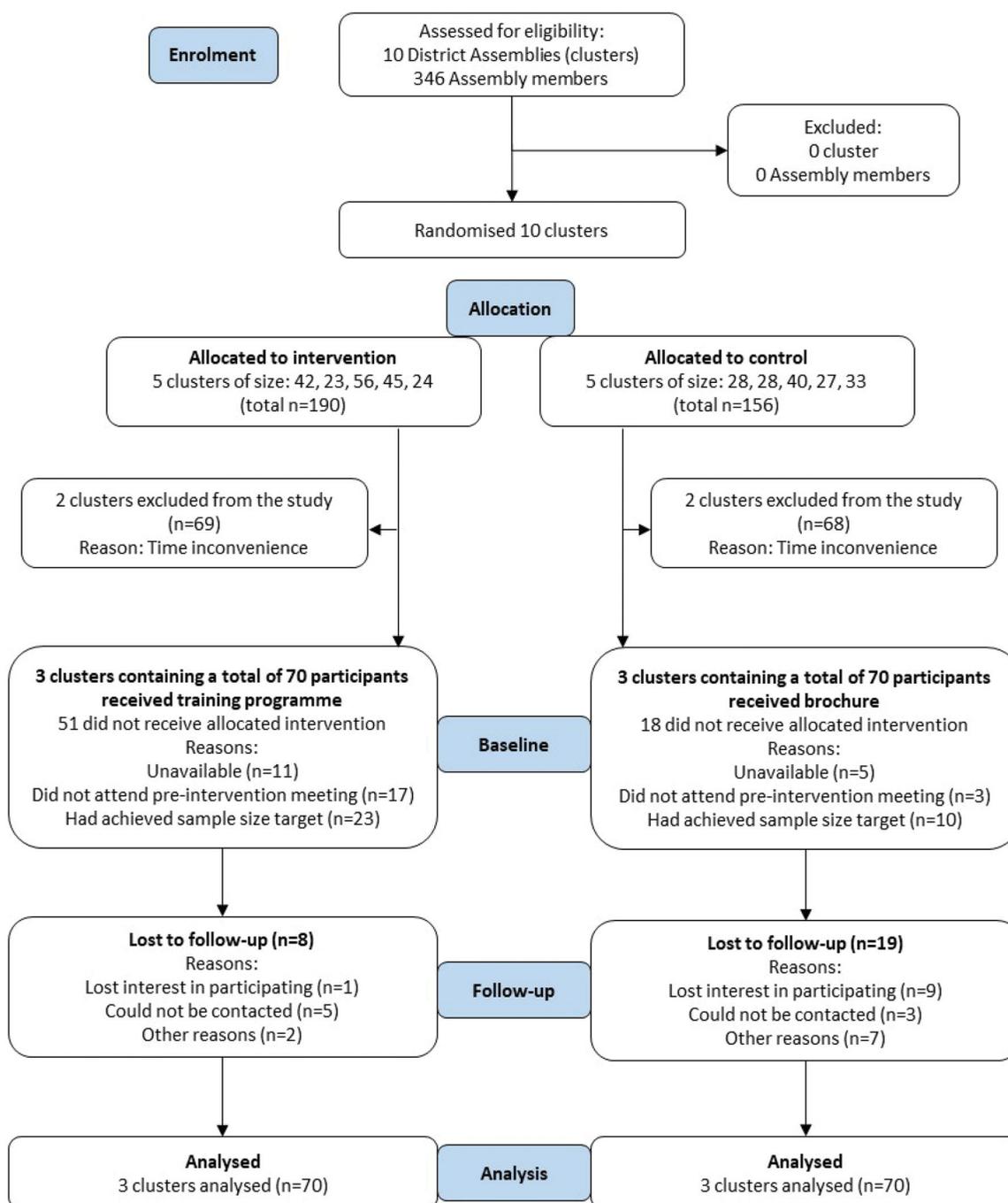


Figure 2. Flow diagram of participants at each stage of the trial.

non-completers, $\chi^2(1) = 0.53$, $p = 0.82$. Similarly, there were no significant differences between those who responded correctly or incorrectly to recognition of depression between completers and non-completers, $\chi^2(1) = 0.28$, $p = 0.60$.

Knowledge about helpful interventions for depression

Between and within groups: comparison of means

Measurement of knowledge about helpful interventions of depression at baseline indicated a high mean score in both groups: intervention group ($M = 4.69$, $SD = 1.28$) and control group ($M = 4.52$, $SD = 1.32$). At follow-up, each group showed a modest increase in mean knowledge scores,

although the increase was greater in the intervention group ($M = 5.66$, $SD = 0.65$) compared to the control group ($M = 5.39$, $SD = 0.94$) (Table 3). The results from the GLMM indicated that the main effect for time was statistically significant, $p = 0.00$; however, main effect for group was not significant, $p = 0.26$ and group by time interaction was also not significant, $p = 0.30$ (Table 4).

Recognition of depression

The model predicted that 4% of participants in the control group and 9% in the intervention group would respond correctly to this variable (Table 3). Table 4 shows that both

Table 1. Socio-demographic characteristics of the intervention and control cluster groups at baseline.

Variable	Overall		Intervention		Control		χ^2	p Value
	n = 140		n = 70		n = 70			
	n	%	n	%	n	%		
Gender							0.26	0.614
Male	122	87.1	62	88.6	60	85.7		
Female	18	12.9	8	11.4	10	14.3		
Age							1.36	0.716
18–39	47	33.6	25	35.7	22	31.4		
40–49	49	35.0	25	35.7	24	34.3		
50 and over	44	31.4	20	28.5	24	34.3		
Educational level							1.60	0.450
Basic	18	12.9	8	11.4	10	14.3		
Secondary	47	33.6	27	38.6	21	28.6		
Tertiary	75	53.5	35	50.0	39	57.1		
Marital status							0.067	0.796
Married	123	87.9	61	87.1	62	88.6		
Single	17	12.1	9	12.9	8	11.4		
Occupation							4.152	0.125
Farming	42	30.0	25	35.7	17	24.3		
Professional	67	47.9	34	48.6	33	47.1		
Other	31	22.1	11	15.7	20	28.6		

Table 2. Results of simple logistic regression analyses predicting missingness of data.

Predictor	Odds ratio	95% confidence interval	p Value
Gender			
Males	Reference		
Females	1.748	0.565–5.412	0.333
Marital status			
Married	Reference		
Single	1.338	0.399–4.481	0.637
Age			
18–39	Reference		
40–49	0.950	0.341–2.648	0.922
50 and over	1.086	0.387–3.046	0.876
Education			
Basic level	Reference		
Secondary level	1.171	0.214–6.417	0.856
Tertiary level	2.714	0.571–12.909	0.209
Occupation			
Farming	Reference		
Professional ^a	4.078	1.110–14.990	0.034
Others	4.522	1.089–18.771	0.038

^aProfessionals: teachers, administrators, secretaries, civil servants, etc. Significant values are represented in bold for easy identification.

Table 3. Group by time estimated means, standard error and confidence interval derived from the GLMM.

Outcome measures	Intervention			Control		
	χ^a	SE ^b	CI ^c	X	SE	CI
Knowledge						
Baseline	0.62	0.07	0.48–0.74	0.61	0.07	0.47–0.73
Follow-up (12 weeks)	0.94	0.03	0.84–0.98	0.86	0.05	0.74–0.93
Recognition						
Baseline	0.09	0.03	0.03–0.19	0.04	0.03	0.01–0.13
Follow-up (12 weeks)	0.32	0.06	0.16–0.53	0.14	0.05	0.06–0.28

^a χ : probability.

^bSE: standard error.

^cCI: 95% confidence interval.

groups improved recognition at follow-up, with no significant group by time interaction.

Discussion

The primary aim of this study was to evaluate if there would be improved knowledge about helpful interventions

for, and recognition of, depression by assembly member participants who undertook a mental health literacy programme compared to those who received a basic brochure. The socio-demographics characteristics of the participants were representative of the broader male-dominated assembly membership in Ghana (Asuako, 2017).

The main finding indicated an improvement in knowledge about helpful interventions, and recognition of, depression in both groups, with the intervention group demonstrating a small but non-significant greater improvement than the control group. In contrast, several intervention studies in Australia have reported a significant improvement in knowledge about helpful interventions for depression (Jorm et al., 2004; Kitchener & Jorm, 2002; O'Reilly et al., 2011). These studies used the same programme content (Mental Health First Aid), but their design, sample size and demographics were different. Our findings, of a small and non-significant improvement in knowledge about helpful interventions for depression, is similar to that of Svensson and Hansson (2014) and Jensen et al. (2016). Nevertheless, at follow-up in the present study the intervention group had a mean score of 5.66, close to the total score 6, suggesting participants had good knowledge about helpful interventions for depression. The majority of participants had tertiary-level education, and this might have been a contributing factor in the high mean scores at baseline and follow-up. Furthermore, a “ceiling effect” could help explain the small and non-significant improvements, in that participants' good knowledge about helpful interventions at baseline limited the scope for improvement at follow-up (Svensson & Hansson, 2014). Another possible reason was, within the twelve months prior to the present study, an increased spate of reported suicides (Hammond, 2017) prompted the Ghana Psychological Association to make recommendations to the media about how to report suicides responsibly and also provide straightforward actions that could be taken to support people who were suicidal and those with mental disorders (Myjoyonline.com, 2017). Consequently, being community leaders, participants might have been motivated to update their knowledge about helpful interventions for people with depression. It is also possible that the brochure provided to the control group might have been useful in improving their knowledge.

Regarding recognition of the disorder, both groups demonstrated an improved ability to recognise depression at follow-up, but the intervention group demonstrated a greater improvement than the control group. Various levels of improvement in recognising a disorder following an educational intervention have been reported (Jensen et al., 2016; Reavley, et al., 2014). Accurate recognition of a disorder can differ by education (Reavley, et al., 2014), gender (Cotton et al., 2006; Haavik et al., 2019), age (Olsson & Kennedy, 2010) and country (Jensen et al., 2016). Although the overall ability to recognise the disorder was low in the current study, this may have been attributable to the participants' unfamiliarity with the western concept of depression contained in the vignette (Atilola, 2015). Nevertheless, 23.7% more participants in the intervention group were able to

Table 4. Estimates of main effects of group, time and interaction of group by time for measures of knowledge and recognition derived from the GLMM.

Outcome measure	F ratio	Numerator df ^a	Denominator df	p Value	Odds ratio	95% CI	ICC
Knowledge							
Group effect	1.264	1	181	0.262			
Time effect	21.697	1	181	0.000			
Group by time effect	1.070	1	181	0.302	2.228	0.483–10.270	0.00
Recognition							
Group effect	3.743	1	6	0.100			
Time effect	10.860	1	231	0.001			
Group by time effect	0.164	1	231	0.685	1.428	0.253–8.062	0.02

^adf: degrees of freedom.

Significant values are represented in bold for easy identification.

identify the disorder correctly at follow-up than in the control group, a percentage increase similar to that of Jensen et al. (2016) and Reavley et al. (2014).

Limitations

There were two limitations to the study. First, the higher attrition rate in the control group may have underpowered the study and made it harder to detect significant differences in study outcomes. Second, the researcher collecting data was not blinded to participant or cluster allocation. In our view, while this did not have an adverse effect on the findings, it is, nevertheless, a potential limitation.

Conclusion

Our findings indicate that the programme has the potential in improving participants' knowledge about helpful interventions for, and recognition of, depression. A mismatch of high knowledge about helpful interventions for depression and relatively low recognition of depression was an unexpected finding. While we expected similar levels of improvement in knowledge and recognition, the low level of recognition found was similar to other African studies of mental health literacy that used vignettes with western concepts of depression, resulting in inaccurate labelling (Atilola, 2015). Even though recognition of depression was low in our study, participants' high level of knowledge of helpful interventions for depression may be indicative of an undemonstrated similarly high level of recognition of depression. Notwithstanding this, our findings have implications for public mental health service utilisation because it is an important influence in help-seeking attitudes and appropriate responses to people with mental disorders (Thorncroft et al., 2016), considering that the ability to recognise depression and knowledge about helpful interventions for depression is associated with help-seeking behaviours (Jorm et al., 2006). While positive help-seeking attitudes and behaviours are emphasised, recognition is equally important, because incorrectly labelling of a disorder might affect a person's decision to approach a health professional and how this is done, in turn, might affect the accuracy of a diagnosis (Aluh et al., 2018; Ohene & Addom, 2015). Similarly, it might impact on management of the condition and outcome; hence, there is a need for better recognition of depression. Further research is warranted, incorporating a larger sample size, over a wider geographical area, and with a longer

duration of programme involving local concepts/labelling of depression.

Disclosure statement

No potential conflict of interest was reported by the author(s).

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Data availability statement

All relevant data are available in the paper.

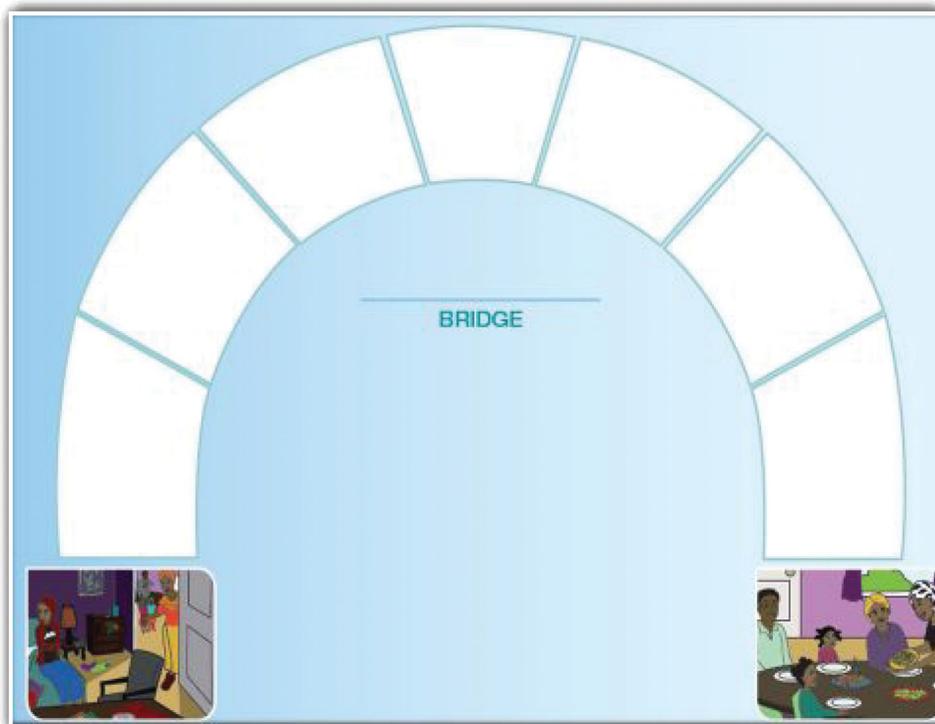
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Appendix 1



Problem-solving, Story-bridge exercise sheets for depression (used with permission).