Introduction

In March 2014, West Africa experienced an outbreak of Ebola virus disease (EVD). In Sierra Leone, there were over 14,000 cases, resulting in almost 4,000 deaths (CDC, 2016). Following the UN declaration of an international public emergency, countries across the world began to respond and send support to West Africa. The UK Department for International Development (DFID, 2014) published the ‘UK action plan to defeat EVD in Sierra Leone’ outlining their intent to work with non-governmental organisations (NGOs) to build six Ebola Treatment Centres (ETCs), providing 700 beds for infected patients.

Although some of the staff who worked in the treatment centres came from clinical backgrounds, there was a significant number of non-clinical staff involved. Most were at risk of exposure to the disease (Gulland, 2014), the psychological sequelae of experiencing and/or witnessing traumatic scenes (Brooks et al., 2015) and a concern for their own and others’ safety (Thormar et al., 2013; West et al., 2008). Additionally, since they were national staff, many had seen family and friends suffer with EVD, which may have increased their level of identification with the patients they treated in the ETCs, a risk factor for development of mental health difficulties (Brooks et al., 2015).

Entrenched poverty, poor infrastructure and lack of education about hygiene procedures among the general population led to confusion about methods of transfer for training peers to treat Ebola centre workers with anxiety and depression in Sierra Leone

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Abstract

Background: Following the 2014 Ebola virus disease (EVD) outbreak in West Africa, the UK Department for International Development funded South London and Maudsley National Health Service (NHS) to develop a psychological intervention that ex-Ebola Treatment Centre (ETC) staff could be trained to deliver to their peers to improve mental health in Sierra Leone.

Aim: The two key aims were to assess the feasibility of training a national team to deliver a cognitive behavioural therapy (CBT)-based group intervention, and to evaluate the effectiveness of the overall intervention within this population.

Methods: UK clinicians travelled to Sierra Leone to train a small team of ex-ETC staff in a three-phased CBT-based intervention. Standardised clinical measures, as well as bespoke measures, were applied with participants through the intervention to assess changes in mental health symptomology, and the effectiveness of the intervention.

Results: The results found improvements across all factors of mental health in the bespoke measure from phase 1 to phase 3. Additionally, the majority of standardised clinical measures showed improvements between phase 2 and the start of phase 3, and pre- and post-phase 3.

Conclusion: Overall, the findings suggest that it is possible to train staff from ETCs to deliver effective CBT interventions to peers. The implications of these results are discussed, including suggestions for future research and clinical intervention implementation within this population. The limitations of this research are also addressed.

Keywords

Ebola, psychological intervention, Sierra Leone, anxiety, depression, CBT
the virus, which contributed to the fear and stigma surrounding EVD (Brown, Arkell, & Rokadiya, 2015; Buseh, Stevens, Brombrg, & Kelber, 2015). The preference of use of traditional healers and ethnomedicine further increased the transmission, as traditional West African burial procedures involved a lot of contact with the body, which remained contagious after death (Buseh et al., 2015). False rumours were common throughout the country at the height of the outbreak, for example, that the government was spreading the disease in order to decrease the number of opposition supporters for the upcoming census (Garoff, 2015). These factors not only increased the risk of transmission, but also increased the risk of mental health difficulties faced by those involved in ETCs, as they were often ostracised from their communities and their families due to fear of the virus being spread. Psychosocial effects of the EVD outbreak include the stigma, fear and anxiety surrounding the virus, as well as more long-term effects such as trauma, grief and a significant loss of support or coping resources (Van Bortel et al., 2016).

There are few published figures available regarding the prevalence of mental health difficulties among the population of Sierra Leone since the EVD outbreak. A recent study used the Symptom Checklist 90-items Revised to measure psychological symptoms of healthcare workers from Sierra Leone compared to Chinese healthcare workers seconded to Sierra Leone and found that mental health symptom severity was higher in the national staff than the Chinese teams. Higher level of education was associated with lower prevalence of psychological symptoms (Dong et al., 2017).

A mental health needs assessment conducted with a community and EVD survivor sample by International Medical Corps (IMC) in December 2014 showed that many participants reported a lack of psychosocial support following the EVD outbreak (International Medical Corps, 2014). Mental health difficulties in Sierra Leone were often attributed to causes such as witchcraft, ancestral curses or demonic influences, creating barriers to accessing mental health support (World Health Organization Sierra Leone, 2015) and adding further stigma to an already isolated population. While there are guidelines in place to support aid workers following humanitarian crises (Antares Foundation, 2012), countries such as Sierra Leone do not have the infrastructure to provide the necessary support with less than 100 trained mental health professionals in a country of 6 million (World Health Organization Sierra Leone, 2016).

As a result, a system of psychological support for those who worked in ETCs was required, which could be rolled out immediately for several thousand staff, and which could be delivered by staff members who did not have substantial experience or training in mental health. Before embarking on this process, the research team spoke to 138 national staff involved in the EVD response in Sierra Leone, who volunteered to join focus groups, to establish the impact of their work and what they felt would be beneficial in terms of psychological support. In this study, we describe the development and evaluation of the intervention which was then put in place.

Figure 1 illustrates the timeline of this study alongside the timeline for EVD within Sierra Leone. EVD was still present in Sierra Leone when this intervention began, but cases had significantly reduced. By the final phase of the intervention, Sierra Leone had been declared Ebola free for over 5 months.
**Aims and hypotheses**

This article describes a study, which trained ETC staff to provide a three-phase cognitive behavioural therapy (CBT)-based intervention for common mental health problems to fellow ETC staff and explored the effectiveness of this intervention. The hypotheses were as follows:

1. It will be possible to train ex-ETC staff to deliver effective CBT interventions to their peers.
2. Each phase of the three-phase intervention for depression and anxiety will be effective in reducing mental health symptoms in ETC staff.

**Methods**

**Participants**

All ETC staff from the six (DfID funded) ETCs across Sierra Leone were invited to attend the intervention. The in-country team advertised the workshops through their ETCs, and contacted all staff by phone via their team managers.

**Training national workshop facilitators**

A UK clinician (EH) went to Sierra Leone to train 13 ETC workers to deliver phases 1 and 2 to their peers before the intervention began; UK clinicians (E.H., A.B., K.L.) went to Sierra Leone for two further training periods at a later date to train the team on delivering phase 3 (see Figure 1 timeline).

The ETC staff team who were trained as workshop facilitators did not have a specific background in psychosocial interventions; one team member had previously trained as a health professional, and some members had psychosocial training from previous roles. All team members had been recommended by their employing NGOs.

The team were trained together using a package specifically developed for the study, which included pre-prepared PowerPoint workshops. The UK trainers worked collaboratively with the in-country facilitators to make cultural adaptations as required, and although the materials were in English, which is the official language of Sierra Leone, the facilitators presented workshops in a combination of English and the local language of the staff, usually Krio. Following this training, each set of facilitators conducted observed sessions and were given feedback from their peers and the UK clinicians about what they needed to improve.

Moreover, during phases 1 and 2, the Sierra Leonean facilitators had access to the UK clinician if they required any support. In phase 2, a Sierra Leonean Project Manager was introduced to oversee the project delivery in country, and this manager liaised closely with the UK team. At phase 3, facilitators were paired up by the UK clinicians in order to ensure the strongest teams, and every facilitator was paired with a UK-based psychologist or psychotherapist who acted as their ‘coach’.

Coaches in the United Kingdom were given copies of the manualised session plans and materials, and could support their facilitator over Skype both before and after each session, to reflect on any problems and offer advice and support.

**Interventions and measures**

A group-based intervention, delivered by peers, was developed for the purpose of this study. All phases were based on psycho-education and simple CBT principles, which have been shown to be beneficial within UK adult population for the treatment of anxiety and depression (Whitfield, 2010).

CBT-based interventions have been shown to be effective in improving mental health and functioning with 18- to 24-year-olds affected by the civil war in Sierra Leone (Betancourt et al., 2014; Zuilkowski et al., 2016). Due to the range of mental ill-health severity, a phased intervention has been recommended when working with responders in disaster situations (NATO Joint Medical Committee, 2008). Figure 2 demonstrates the process of the phased intervention.

**Phase 1**

**The phase 1 intervention.** Phase 1 began in August 2015 (see Figure 1), by this time there was a decline in new cases of Ebola: Sierra Leone was reporting up to three cases per week (WHO, 2015, August) and the ETC work had also reduced.

The 2-hour workshop was based on the concept of Psychological First Aid (Alexander, 2014–2015), a model of debriefing that allowed ETC staff the chance to discuss challenges of their work and the impact of this, their ways of coping and their achievements. The capacity per workshop was 50 participants. Participants completed the screening measure, which was used to assess mental health difficulties and refer people to the appropriate phase 2 workshops. During the phase 1 workshops, participants received a snack and a drink.

**Phase 1 measure.** All participants completed a seven-item well-being screening tool designed for the purpose of this study. Items asked about difficulties faced in the past 2 weeks concerning stress, sleep, anxiety (‘worry’), depression (‘sadness’), relationship difficulties, behavioural changes (such as anger or substance use) and post-traumatic stress disorder (PTSD) (‘upsetting memories’). Participants responded using a 10-point Likert scale to rate their difficulty.
Phase 2

Phase 2 intervention. Phase 2 began in mid-September 2015 (see Figure 1 timeline), by which time new cases in Sierra Leone were still low with a maximum of five new cases per week (WHO, 2015, September). Some participants were still working in ETCs, but ETCs had started to close down. By the end of phase 2, Sierra Leone had been declared Ebola free.

Participants were referred to phase 2 as necessary following completion of the screening questionnaire at phase 1, but they were also able to attend any other sessions if they so wished. Phase 2 consisted of 2-hour workshops, which focused on one of the six different common mental health difficulties. Each of the phase 2 workshops focussed on psycho-education about the specific problem, followed by discussion of a range of simple coping strategies based on behavioural and cognitive approaches that staff could use as self-help. During the phase 2 workshops, participants received a snack and a drink.

Phase 2 measures. At phase 2, along with the relevant clinical measures listed below for each workshop, the single
item from the well-being questionnaire relating to that session was repeated. For example, for the stress workshop, they were again asked to rate their stress on a 10-point Likert scale. All measures were applied at the start of the sessions.

**Stress workshop measures**

*Post-Traumatic Stress Checklist* – Civilian version (PCL-C) – 17-item measure used to assess the 17 *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; DSM-IV) symptoms of PTSD. A cut-off score of 30+ has been shown to indicate probable PTSD in a civilian primary care sample (Walker, Newman, Dobie, Ciechanowski, & Katon, 2002). This has been validated in UK populations (Blanchard, Jones-Alexander, Buckley, & Forneris, 1996) and previously used in a West African population (Okulate & Jones, 2006).

*Perceived Stress Scale (PSS)* – A 10-item measure used to assess the degree to which the person appraises situations in their life as stressful. Scores above 13 are considered to indicate moderate stress, and scores above 27 are considered high perceived stress (Cohen, Kamarck, & Mermelstein, 1983). This has not been validated within an African population, but the measure has been cross-culturally validated previously in a Jordanian population (Almadi, Cathers, Hamdan Mansour, & Moi Chow, 2012).

**Sleep workshop measure**

*Insomnia Severity Index (ISI)* – ISI is a seven-item measure to screen insomnia. It measures the perception of current symptom severity, distress and daytime impairment. Overall scores of 8+ indicate sub-threshold insomnia (Bastien, Vallieres, & Morin, 2001). This measure has been cross-culturally validated in an Indian population (Lahan & Gupta, 2011), but not validated directly in an African population.

**Anxiety workshop measure**

*Generalised Anxiety Disorder 7 (GAD7)* – The seven-item measure was used for screening and severity measuring of generalised anxiety disorder. The cut-off points of 5, 10 and 15 indicate mild, moderate and severe levels of anxiety (Spitzer, Kroenke, Williams, & Lowe, 2006). It was validated in a West African population (Chibanda et al., 2016).

**Depression workshop measure**

*Patient Health Questionnaire 9 (PHQ9)* – The nine-item measure was used for monitoring and measuring the severity of depression. The cut-off values of 5, 10, 15 and 20 reflect mild, moderate, moderately severe and severe depression (Kroenke & Spitzer, 2002). This measure has been validated within African populations (Adewuya, Ola, & Afolabi, 2006; Monahan et al., 2009).

**Relationship workshop measure**

*Relationship Questionnaire* – The seven-item questionnaire was designed for the purpose of this study, and therefore not validated. Items were statements about relationships and support available to the person, and about changes experienced following working in an ETC. Responses were given on a five-point Likert scale (strongly disagree to strongly agree).

**Behavioural changes workshop measure**

*Behaviour questionnaire* created for the purpose of this study, combining standardised measures and split into three sections:

*B1 – Behavioural problems* – The four-item questionnaire was about increases in specific negative behaviours: drinking, smoking cigarettes, taking drugs, becoming involved in promiscuity/infidelity. Participants responded using a yes/no scale.

*B2 – Dimensions of Anger Reaction (DAR-5)* – The five-item measure was used to assess anger as a result of trauma or a traumatic situation. A score of 12 or more indicates clinically significant difficulties. Validated in Western populations specifically who have experienced trauma (Forbes et al., 2013) but was not validated in African populations.

*B3 – Alcohol Use Disorders Identification Test-C* – The three-item measure was used to identify hazardous alcohol consumption behaviours. Scores above 3 for women and 4 for men indicate problematic drinking (Bradley et al., 2007). Full Alcohol Use Disorders Identification Test (AUDIT) scale was validated in an African population (Adewuya, 2005). AUDIT-3 was deemed as effective as full AUDIT in Western populations (Gual, Segura, Contel, Heather, & Colom, 2002).

**Phase 3**

**Phase 3 intervention.** Participants were screened for phase 3 in January 2016, 2 months after completion of phase 2. Participants who scored above seven in either the depression or anxiety items from the well-being screening questionnaire were contacted and they completed the GAD7 and PHQ9 over the telephone with a facilitator. If they met or exceeded total GAD7 and PHQ9 scores of 8 and 10, respectively, or if they had a combined score of 21 or above were considered eligible and were invited to attend phase 3.

Phase 3 began in February 2016, by which time Sierra Leone had entered a 90-day period of enhanced surveillance following the declaration of being Ebola free on 7
November 2015. During this period, there were 2 new cases in late January, but the majority of ETCs remained closed and in March 2016, before the end of phase 3, Sierra Leone was again declared Ebola free (WHO, 2016 February).

In phase 3, participants were in small groups and met on a weekly basis with their facilitators who guided them through a low-intensity CBT programme that included behavioural activation, minimising avoidance, problem solving and coping with anxiety. Attendees to the phase 3 workshops were given a nominal sum toward the cost of their travel to reach the sessions.

**Phase 3 measures.** All measures described above were repeated at the start of this phase, and again 2 weeks after its completion.

**Data analysis**

Participants entered and dropped out at different phases of the intervention; however, in order to assess the continuity of the whole three-phase intervention, the analysis was conducted on the subset of participants \(n = 75\) who had attended every phase of the intervention. Phase three is the only phase that can be treated as stand alone, and this will be assessed in more detail in a separate article.

The representativeness of this cohort was checked using a chi-square analysis to test for significant differences in demographics in comparison with the complete sample. In order to test the impact of the intervention across all phases, a one-way analysis of variance (ANOVA) on the descriptive Wellbeing Screening Measure completed at all phases of the intervention was conducted.

In order to test the effectiveness of phase 2, repeated-measure \(t\)-tests were used on the 75 participants who attended all three phases to compare scores along the stepped intervention and specifically comparing the clinical measures completed at phase 2, and again at the start of phase 3, before the group intervention. In order to test the effectiveness of phase 3, repeat-measure \(t\)-tests were used on the same sample to compare scores on the clinical measures completed pre- and post-phase 3 group intervention.

**Results**

**Participants**

The sample consisted of 3,273 Sierra Leonean nationals who said they had worked at one of the DFID funded ETCs during the EVD outbreak. The participants were aged between 16 and 63 years \((M=29.46, SE=7.40)\). Table 1 details the demographic information for the full sample, and Figure 3 outlines the number of attendees at each phase of the intervention.

**Effectiveness of the intervention**

**Chi-square analysis comparing groups.** There were no significant differences between gender \((\chi^2(1)=1.01; p>.05)\) or marital status \((\chi^2(2)=0.33; p>.05)\) in the cohort of 75 participants who attended all phases, when compared to those who had attended only one phase of the intervention.

**Impact of the stepped intervention across all phases.** There were significant improvements in scores of the items on Wellbeing Screening Measure from phase 1 to end of phase 3, relating to stress \((F(3, 51)=7.89; p<.01)\), depression \((F(3, 84)=11.68; p<.01)\), anxiety \((F(3, 78)=3.40; p<.05)\), behaviour \((F(3, 84)=6.08; p<.01)\) and relationships \((F(3, 69)=3.72; p<.05)\). There were no significant differences in sleep.

**Effectiveness of phase 2.** Repeat-measure \(t\)-tests on the clinical measures previously listed between the start of phase 2 and the start of phase 3 showed there was significant improvement in measures of stress \((27.77\pm 7.63 vs 23.37\pm 6.02; t(29)=2.26; p<.05)\), anxiety \((16.88\pm 3.83 vs 13.76\pm 6.77; t(36)=2.55; p<.05)\), depression \((22.10\pm 4.31 vs 15.56\pm 9.16; t(33)=3.83; p<.01)\), behaviour problems \((1.30\pm 1.34 vs 0.53\pm 1.11; t(29)=3.16; p<.05)\) and alcohol usage \((3.69\pm 4.53 vs 1.54\pm 2.86; t(25)=2.48; p<.05)\). No significant differences were found on the measures for PTSD, sleep, relationship problems or anger.

**Effectiveness of phase 3.** Repeat-measure \(t\)-tests between the beginning and end of phase 3 found a significant improvement in the Wellbeing Screening Measure \((44.61\pm 16.05 vs 33.93\pm 15.75; t(73)=4.69; p<.01)\) and clinical measures for PTSD \((59.39\pm 17.86 vs 46.41\pm 19.53; t(70)=4.16; p<.01)\), stress \((23.58\pm 5.50 vs 20.58\pm 4.44; t(73)=3.66; p<.01)\), sleep \((24.23\pm 8.91 vs 19.60\pm 7.63; t(73)=3.38; p<.01)\), anxiety \((13.52\pm 6.35 vs 10.40\pm 6.48; t(72)=2.93; p<.05)\), depression \((15.32\pm 8.23 vs 13.52\pm 8.23; t(72)=2.93; p<.05)\), and relationship problems \((3.83\pm 1.61 vs 2.77\pm 1.49; t(73)=3.66; p<.01)\).

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Table 1. Sociodemographic factors for full sample.
12.60±7.70; \( t(72) = 7.14 \quad p < .05 \), anger (10.60±6.11 vs 7.43±5.87; \( t(73) = 3.40 ; \quad p < .01 \)) and relationship difficulties (27.61±5.87 vs 23.78±6.05; \( t(73) = 4.25 ; \quad p < .01 \)).

Discussion

The results of this study suggest that it is possible to train ETC staff to deliver effective CBT interventions to peers. Each phase of the three-phase intervention for depression and anxiety appears to have been effective in reducing mental health symptoms in ETC staff, as demonstrated by the improvements across the majority of aspects in the Wellbeing Screening questionnaire from phase 1 to phase 3. This is supported by improvements on the clinical measures between the start of phase 2 and the start of phase 3, and from the start to the end of phase 3.

As the first phase of the intervention was primarily a screening phase to identify mental health need and did not involve pre- and post-measures, it is not possible to comment on the effectiveness of the intervention. However, between the start of phase 2 and the start of phase 3, reduction of symptoms was demonstrated on validated clinical measures for stress, anxiety, depression and alcohol usage. The separate impact of phases 2 and 3 was demonstrated with phase 3 being associated with improvements in symptoms of PTSD, stress, sleep disruption, anxiety, depression and anger, across all clinically validated self-report measures.

These results overall suggest that brief CBT-based interventions targeting depression and anxiety among healthcare workers providing emergency response in Sierra Leone can be beneficial in reducing clinical symptoms. The uptake seen throughout the intervention also demonstrates the willingness of staff to attend a mental health intervention, which had been a concern prior to conducting the study given the high levels of mental health stigma in Sierra Leone. Additionally, this research demonstrated the feasibility of delivering this type of intervention by training in-country staff as facilitators.

An important aspect of this crisis that separates it from others is the destruction of social connectedness caused by the fear and stigma of the virus, leading to isolation and increasing citizens’ risk of mental ill health (McMahon et al., 2016). Betancourt et al. (2016) surveyed Sierra Leonean citizens at the height of the EVD outbreak and they found that individuals reporting greater intensity of depression symptoms, and higher rates of PTSD symptoms also reported higher rates of risk-taking behaviours that could lead to the spread of EVD, showing the importance of support for mental health difficulties throughout disease crises. Additionally, Kahn et al. (2016) conducted a qualitative study evaluating the benefit of support groups for the Ebola hotline workers in Sierra Leone and, similar to this study, found that participants benefited from having a space to discuss their experiences with their peers and promote their capacity for self-care.

However, there were a number of limitations to this research. First, since the aim was to set up and then evaluate a service, a control group was not identified for this study and the results may represent natural improvements over time rather than a response to the intervention. Relatedly, the absence of a control group makes it difficult to identify the core ‘active ingredient’ within our intervention – it is possible, for example, that simply having the opportunity to meet and speak with other ETC staff about their experiences was the key factor aiding in the resolution of people’s distress.

Our analysis was limited to a subsample of participants who attended every phase and could therefore be mapped throughout the intervention. As we did not complete clinical measures following phase 2 alone, we do not have follow-up information on participants who were not referred to phase 3, and therefore our sample represent the most...
unwell within this population. Additionally, Sierra Leone was declared EVD free during the second phase of our intervention, so by phase 3 the risk within the country itself had dramatically reduced, which may have led to a natural improvement in peoples’ mental health. Nonetheless, participants did comment that the intervention was helpful and provided them with new coping strategies.

At the time of this study, the literacy rate in Sierra Leone was 65.72%. Although materials were adapted to be more appropriate for a lower literate population, validated adaptations of CBT materials for low-literacy populations in general are lacking (Kuhajda, Thorn, Gaskins, Day, & Cabbil, 2011). This likely must have impacted on participants’ ability to engage with the sessions, and may therefore have reduced the effectiveness of the intervention overall. Most of the measures used were validated in Western cultures and only a minority had been validated within African populations, therefore the sensitivity of these measures to reliable change within a sub-Saharan population is unclear.

Furthermore, the Anglo-centric nature of the intervention cannot be ignored. Despite making cultural adaptations to the materials, the intervention was delivered independent of other care systems and without collaboration with traditional healers. Research has demonstrated that in Sierra Leone up to 88% of citizens with mental health difficulties will seek help from a traditional healer before any other resources (Jones et al., 2009), and traditional healers often command more respect than trained health personnel who are less familiar. It should however be noted that a unique barrier to engaging with traditional healers was present during the EVD crisis; as a result of their practices, which often involved close contact with bodily fluids of the unwell, many traditional healers contracted the virus themselves, and passed it on to others. In fact in Guinea, people were actively dissuaded from engaging with traditional healers in an attempt to halt the spread of the virus (Manguvo & Mafuvadze, 2015). Nonetheless, involving traditional healers in the development and delivery of mental health interventions in the future may provide more holistic care for the clients, as well as promoting engagement through sources they trust.

Finally, there is an ongoing debate regarding the value and effectiveness of post-disaster psychological interventions. While there is evidence to suggest that early interventions after disasters can be effective, both by psychological practitioners (Chemtob, Tomas, Law, & Cremniter, 1997 – adults; Newman et al., 2014 – children and adolescents) and health workers without professional mental health training (Fox et al., 2012), there is also a body of evidence that argues it provides no observable benefit (Rose, Bisson, Churchill, & Wessely, 2002), and in some cases can actually prove detrimental to clients’ mental health (Hobbs, Mayou, Harrison, & Worlock, 1996). While the intervention described here suggests psychological input can be beneficial following a disaster, and is more multifaceted than the typical crisis ‘debriefing’ model of a one-off session that has previously shown to be more effective (Everly & Mitchell, 2000), we acknowledge that our follow-up period was short, and further assessments of the attendees mental well-being would be required to assess the long-term effects of this type of intervention following a disaster. However, it is our understanding that no other mental health research projects have been conducted in Sierra Leone on such a large scale. This study therefore represents an important contribution to the literature.

**Conclusion**

Overall, although there are a number of limitations to this research, it is a very large-scale stepped intervention and among the first to be delivered in Sierra Leone following a disease crisis. The evidence suggests that it is feasible to train local staff to deliver CBT-based interventions with promising positive effects evident on a large scale. While further studies are required to determine whether the intervention is indeed effective, these preliminary results should be seen as encouraging.

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**References**

Adewuya, A. O. (2005). Validation of the alcohol use disorders identification test (AUDIT) as a screening tool for alcohol


