Title:

Training Peers to Treat Ebola Centre Workers with Anxiety and Depression in Sierra Leone

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<u>Abstract</u>

<u>Background</u>

Following the 2014 Ebola Virus Disease outbreak in West Africa, the UK Department for International Development funded South London and Maudsley NHS to develop a psychological intervention that ex-Ebola Treatment Centre staff could be trained to deliver to their peers to improve mental health in Sierra Leone.

<u>Aims:</u>

The two key aims were to assess the feasibility of training a national team to deliver a CBT based group intervention, and to evaluate the effectiveness of the overall intervention within this population.

<u>Method:</u>

UK clinicians travelled to Sierra Leone to train a small team of ex-Ebola Treatment Centre staff in a 3-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.

<u>Results:</u>

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.

<u>Conclusions:</u>

Overall, the findings suggest that it is possible to train ETC staff 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.

1. 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 4000 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) published the 'UK action plan to defeat EVD in Sierra Leone' (DfID, 2014) 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 sequalae 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 these 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 the virus which contributed to the fear and stigma surrounding EVD (Brown et al, 2015; Busah et al, 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 (Busah 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 Ebola outbreak include the stigma, fear and anxiety surrounding the virus, as well as more long term effects such a 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 Ebola 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 Ebola survivor sample by International Medical Corps (IMC) in December 2014 showed that many participants reported a lack of psychosocial support following the Ebola 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 Organisation 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 six million (WHO SL, 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 Ebola within Sierra Leone. Ebola 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.
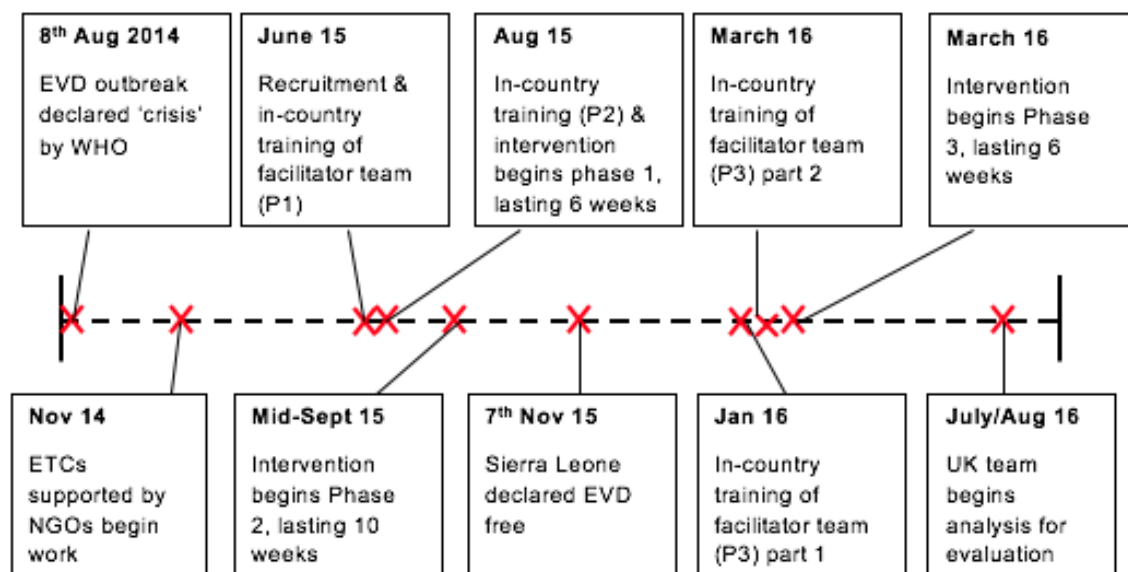
Figure 1 – Timeline of Intervention and national EVD status in Sierra Leone

2. **Aims and Hypotheses**

This paper describes a study which trained ETC staff to provide a 3-phase CBT based intervention for common mental health problems to fellow ETC staff and explored the effectiveness of this intervention. The hypotheses were:

1) It will be possible to train ex-ETC staff to deliver effective CBT interventions to their peers.

2) Each phase of the 3-phase intervention for depression and anxiety will be effective in reducing mental health symptoms in ETC staff

3. Method

3.1. 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.

3.2. Training national workshop facilitators

A UK clinician (EH) went to Sierra Leone to train 13 ETC workers to deliver phase 1 and 2 to their peers before the intervention began; UK clinicians (EH, AB, KL) went to Sierra Leone for two further training periodsat a later date to train the team on delivering phase 3 (see figure one 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 phase 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 liased 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 UK 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.

3.3.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 populations 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 18-24 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.

3.4 Phase 1

3.4.1 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 3 cases per week (WHO, Aug 2015) and the ETC work had also reduced.

The 2-hour workshop was based on the concept of Psychological First Aid (Alexander, 2015), a model of de-briefing 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.

3.4.2 The Phase 1 Measure

All participants completed a 7 item wellbeing screening tool designed for the purpose of this study. Items asked about difficulties faced in the past two weeks concerning stress, sleep, anxiety ("worry"), depression ("sadness"), relationship difficulties, behavioural changes (such as anger or substance use) and PTSD ("upsetting memories"). Participants responded using a 10-point Likert scale to rate their difficulty.

3.5 Phase 2

3.5.1 The 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 5 new cases per week (WHO, Sept 2015). Some participants were still working in ETC's, but ETC's 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 six different common mental health difficulties. Each of the Phase 2 workshops focussed on psychoeducation 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.

3.5.2 The Phase 2 Measures

At phase 2, along with the relevant clinical measures listed below for each workshop, the single item from the wellbeing 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 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 et al, 2002). This has been

validated in UK populations (Blanchard et al, 1996) and previously used in a West African

populations (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

et al, 1983). This has not been validated within an African population, but the measure has

been cross-culturally validated previously in a Jordanian population (Almadi et al, 2012).

Sleep workshop measure

Insomnia Severity Index (ISI) – 7-item measure used to screen for insomnia. It

measures the perception of current symptom severity, distress and daytime impairment.

Overall scores of 8+ indicate sub-threshold insomnia (Bastien et al, 2001). This measure has

been cross-culturally validated in Indian populations (Lahan & Gupta, 2011), but not

validated directly in an African population.

Anxiety workshop measure

Generalised Anxiety Disorder 7 (GAD7) – 7-item measure 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 et al, 2006). Validated in a West

African population (Chibanda et al, 2016).

Depression workshop measure

Patient Health Questionnaire 9 (PHQ9) – 9-item measure 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 et al, 2006; Monahan et al, 2009).

Relationship workshop measure

Relationship Questionnaire – 7-item questionnaire 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 5-point Likert scale (strongly disagree – 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 – 4 item questionnaire asking 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) – 5-item measure 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 not validated in

African populations.

B3 - Alcohol Use Disorders Identification Test-C – 3-item measure used to

identify hazardous alcohol consumption behaviours. Scores above 3 for women and 4

for men indicate problematic drinking (Bradley et al, 2007). Full AUDIT scale validated in African populations (Adewuya, 2005), AUDIT-3 deemed as effective as full AUDIT in Western populations (Gual et al, 2002).

3.6 Phase 3

3.6.1 The 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 wellbeing 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 they 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 7th 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, Feb 2016).

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 towards the cost of their travel to reach the sessions.

3.6.2 The Phase 3 Measures

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

Phase 1: Wellbeing Screening Workshop

2-hour workshop derived using aspects of Psychological First Aid Alexander, 2015). Wellbeing Screen completed.

81 sessions delivered over 6 weeks.

All staff who worked at a DfID funded ETC were invited to attend

Participants scoring above 7 on an item on the Wellbeing screen were referred to the corresponding phase 2 workshop.

Phase 2: Psycho-educational workshops

2-hour workshops, each with a specific focus. See table 1 for details of the content and the clinical measures used at the start of each session.

Participants were referred from phase 1, but could attend from 0-6 sessions maximum, as they were able to attend sessions on other topics if they wanted.

180 sessions delivered over 10 weeks.

Participants who had been the most symptomatic at phase 1 were re-screened using GAD7 and PHQ9 two months after the completion of phase 2. Those still scoring within the moderate – severe clinical range on either measure were invited to attend the phase 3 groups

Phase 3: Small CBT groups

6 sessions of a UK validated group CBT programme for anxiety and depression. See table 2 for details of the content of each session. Groups were capped at 14 members and participants had worked together in the ETCs previously. Groups were organised by literacy level.

Clinical measures were completed at the start of the phase 3 groups, and again two weeks after completion.
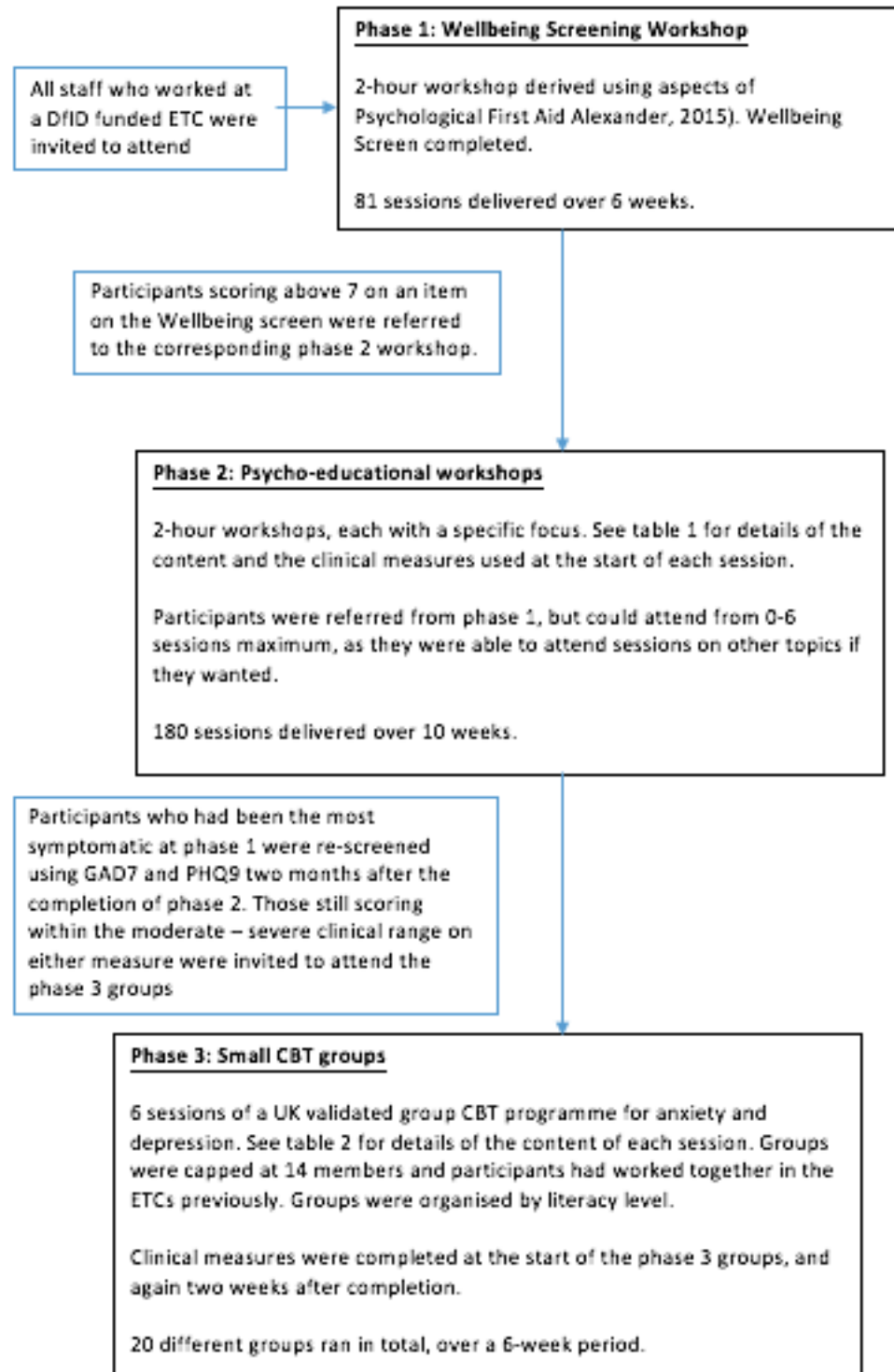
20 different groups ran in total, over a 6-week period.

Figure 2 – Flow diagram detailing the 3-phase intervention

3.7 Data Analysis

Participants entered and dropped out at each different phase 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 a 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 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.

4. **Results**

4.1 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.

Variable	*n*	%
Sex		
Male	1497	45.74
Female	641	19.58
Did not specify	1135	34.68
Marital Status		
Single	1173	35.84
Married	909	27.77
Divorced/Widowed	65	1.99
Did not specify	1126	34.40

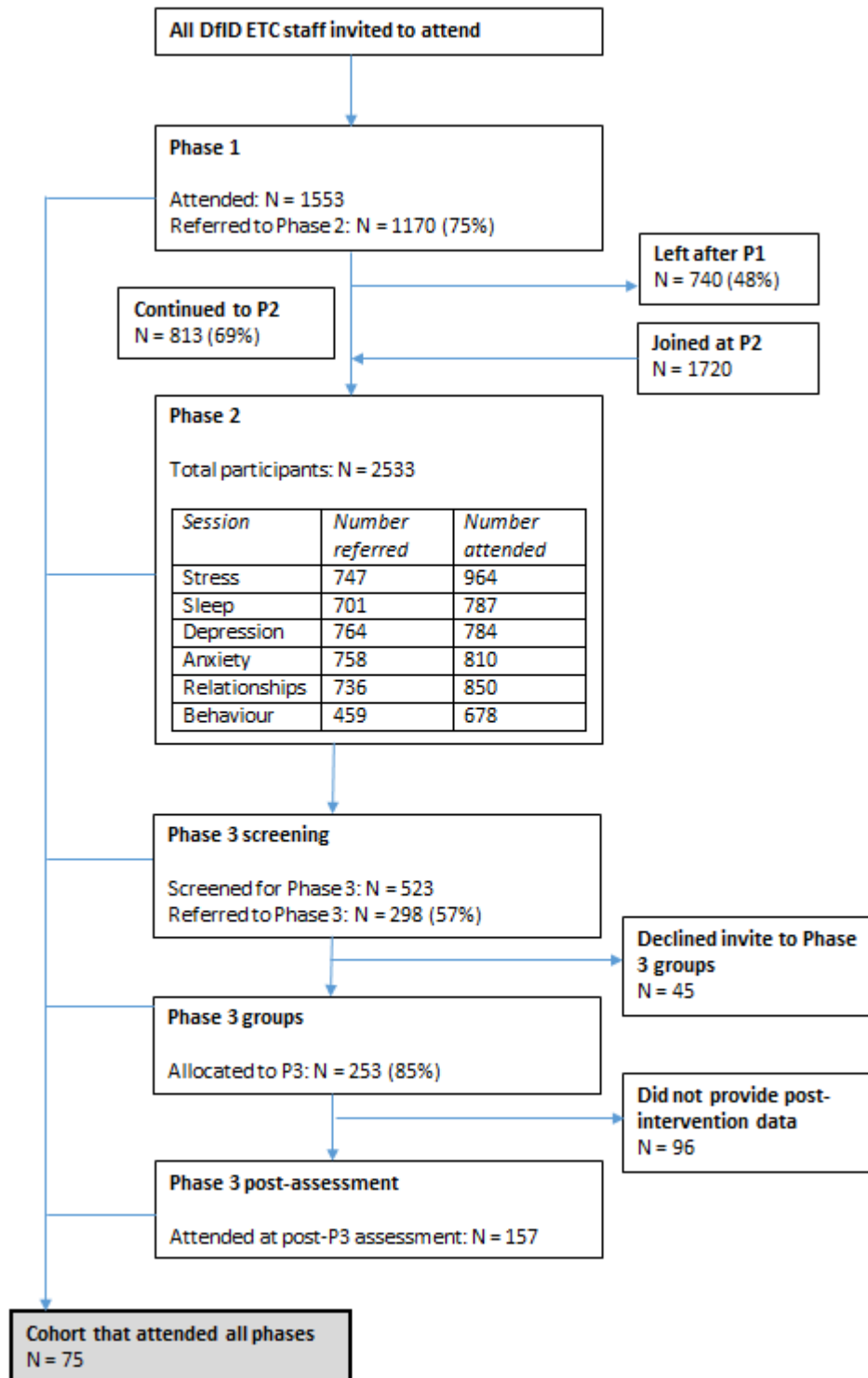*Table 1 – Socio-demographic factors for full sample*

Figure 3 – Attendance at each phase of the intervention

4.2 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) of the cohort of 75 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 ± 7.63 vs 23.37 ± 6.02; t(29) = 2.26; p < .05), anxiety (16.88 ± 3.83 vs 13.76 ± 6.77; t(36) = 2.55, p < 0.05), depression (22.10 ± 4.31 vs 15.56 ± 9,16; t(33) = 3.83; p < .01), behavioural problems (1.30 ± 1.34 vs 0.53 ± 1.11; t(29) = 3.16; p < .05) and alcohol usage (3.69 ± 4.53 vs 1.54 ± 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 ± 16.05 vs 33.93 ± 15.75; t(73) = 4.69; p< .01) and clinical measures for PTSD (59.39 ± 17.86 vs 46.41 ± 19.53; t(70) = 4.16; p < .01), stress (23.58 ± 5.50 vs 20.58 ± 4.44; t(73) = 3.66; p < .01), sleep (24.23 ± 8.91 vs

19.60 ± 7.63; t(73) = 3.38; p < .01), anxiety (13.52 ± 6.35 vs 10.40 ± 6.48; t(72) = 2.93; p <

.05), depression (15.32 ± 8.23 vs 12.60 ± 7.70; t(72) = 7.14 p < .05), anger (10.60 ± 6.11 vs

7.43 ± 5.87; t(73) = 3.40; p < .01) and relationship difficulties (27.61 ± 5.87 vs 23.78 ± 6.05;

t(73) = 4.25; p < .01).

5. 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 3-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 amongst health care 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 Ebola 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, similarly 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. Firstly, 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 three 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 et al, 2011). This will likely 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 Ebola crisis, since as a results of their practices which often involved close contact with bodily fluids of the unwell, many traditional healers contracted the virus themselves, and passed it 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 (Manguva & 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 et al, 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 et al, 2002) and in some cases can actually prove detrimental to clients mental health (Hobbs et al, 1996). While the intervention described here suggests psychological input can be beneficial following a disaster, and is more multi-faceted than the typical crisis "debriefing" model of a one-off session that has previously shown to be more effective (Everly et al, 2000), we acknowledge that our follow up period was short, and further assessments of the attendees mental wellbeing 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.

6. 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. Whilst further studies are required to determine whether the intervention is indeed effective, these preliminary results should be seen as encouraging.

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