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Post-Traumatic Stress Reactions in Ebola Virus Disease Survivors in Sierra Leone

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Abstract

Introduction: The current Ebola outbreak represents the largest in history. Understanding psychological reactions among EVD survivors may provide relevant information about post-treatment adjustment and possible psychological preventative measures. We therefore studied the psychological reactions in Ebola Virus Disease survivors following their discharge from an Ebola treatment centre in Sierra Leone.

Methods: Immediately following discharge, survivors met with the psychologist to discuss their experiences in the case management centre and the challenges they may face returning to their communities. Of 74 survivors discharged in the study period, 24 were followed up at home for a psychological consultation three to four weeks after discharge. During the home visit the psychologist applied an adaptation of the trauma screening questionnaire and explored number of family deaths from Ebola Virus Disease, stigma, the meaning they attached to the causation of their illness and general post illness adjustment.

Results: All survivors had lost immediate family members to Ebola Virus Disease. Most (16; 67%) had also witnessed their deaths. Eight (32%) survivors had experienced stigma when returning to their communities. Seventeen (71%) survivors experienced arousal and re-experiencing reactions during the first two days post discharge. Five (21%) reported clinically important post traumatic reactions between three and four weeks post discharge predicting a risk of developing post-traumatic stress disorder.

Conclusion: Although this study represents a snapshot of post-traumatic stress reactions observed in Ebola survivors, it does demonstrate the need to consider the likelihood of psychological sequelae in EVD survivors. Long term follow-up of is needed to understand psychological care needs of Ebola survivors.

Keywords: Ebola virus disease; Ebola survivors; Post-traumatic stress reactions; Cognitive behaviour therapy

Introduction

This Ebola Virus Disease (EVD) epidemic represents the largest in history [1]. Survivors were defined as those patients admitted to the Medecins Sans Frontieres (MSF) case management centre (CMC) who was confirmed positive for Ebola virus by polymerase chain reaction (PCR), recovered from the disease, and were discharged with a negative PCR result. Understanding psychological reactions that are characteristic of EVD survivors may provide relevant information about post-treatment adjustment and possible psychological preventative measures.

It is not surprising that the extent and the description of psychological effects are not well known. EVD outbreaks are relatively rare and the emphasis of medical interventions is on physical care, with survival and discharge typically seen as the successful completion of required care [1,2]. However, EVD survivors are significant in number and their illness experience is potentially traumatizing [3]. They have faced a life threatening event, been exposed to death and extreme suffering and most have witnessed the death of family members, other community members, and patients admitted in the CMC. During admission they were separated from their loved ones. Survivors were also hospitalized for a significant length of time in the CMC (mean length of stay of 12,5 days) compared to non-survivors (mean length of stay of 4 days) [2,4]. Most survivors regard discharge as a time for celebration and relief, but it can also be a time when they begin to process distressing memories of their inpatient experience. They are also confronted by the realities of lost loved ones and may face discrimination and stigmatization on returning to their communities. Accumulating evidence suggests that not only in Western settings but also in culturally diverse settings (such as sub-Saharan Africa), those exposed to catastrophic events are at risk of developing symptoms of depression, anxiety (including post-traumatic stress reactions), and behavioral, mental, psychosomatic and social problems. There is increasing evidence supporting the cross-cultural validity of trauma related diagnostic psychological disorders and post-traumatic reactions can be ameliorated, if not prevented [5].

Little is known about how to operationalize psychological care for EVD survivors. There has been considerable debate regarding the role of humanitarian organizations in how best to respond to the burden of

psychological distress in resource poor settings [6]. We therefore studied program data to obtain a snapshot of post trauma psychological distress observed three to four weeks following discharge from the CMC.

Methods

This is a retrospective study of program data on psychological care provided to EVD survivors. The period under investigation was from 15 June 2014 to 01 September 2014.

The CMC consisted of an 80 bed tent facility constructed by MSF in Kailahun, Sierra Leone in June 2014 [7]. The CMC provided inpatient care for suspected, probable and confirmed cases of EVD. There were 424 patients admitted during the investigation period, of these 281 (67%) were confirmed cases of EVD. Among the confirmed EVD cases 169 (60%) died and 112 (40%) survived.

Psychosocial services at the CMC were provided by an expatriate psychologist and two national staff lay counsellors. A psychological first aid approach was adopted to meet the psychosocial needs of patients at the CMC [8]. This included providing general emotional support, optimising personal safety and comfort, connecting with social support systems, providing emotional support to families, and organising interim care for discharged children. Although traditional burials were not allowed body and burial viewings were facilitated.

Immediately following discharge, survivors met with the psychologist to discuss their experiences in the CMC and the challenges they may face returning to their communities. A cognitive behaviour therapy (CBT) approach was used to help prepare survivors for their return home [9]. This included the provision of information about common reactions to trauma and the natural recovery process. The supplied information acknowledged the magnitude of their trauma and reassured survivors that it was normal to experienced post trauma distress, such as re-experiencing and arousal reactions during the aftermath of their hospitalisation. They were encouraged to adopt adaptive skills to enhance recovery, such as activating social support, goal setting aimed at gradual resumption to pre-illness functioning, and dealing with stigma and loss. Additional information included the negative effects of adopting behaviours such as withdrawal and avoidance which tends to retard recovery. They were given the counsellor's telephone number should they require assistance in the future.

The care package included a follow-up consultation, three weeks post discharge. Therefore the patients that could be contacted, and that were willing to receive a home visit, were followed up at home for a psychological consultation. The psychologist provided home visits to 24 survivors. A lay counsellor conversant in local languages acted as translator. Themes that were routinely explored included stigma, the number of family deaths from EVD, and the meaning they attached to the causation of their illness and general post illness adjustment. Data were collected in the patient file, which included a trauma screening questionnaire (TSQ) and medical notes. The TSQ is a 10 item symptom screening instrument designed for use with victims of traumatic stress in different contexts [10]. Short screening instruments such as the TSQ have been shown to be equally effective as longer questionnaires in predictive validity [10]. It has demonstrated adequate psychometric properties and consists of five re-experiencing and five arousal response questions associated with post traumatic disorder (Table 1). Endorsement of at least 6 of the items experienced twice in the past week predicts those at high risk (85-95%) of developing post-traumatic stress disorder (PTSD). Survivors were also asked if they had experienced any of the items in the first few days following discharge from the CMC. For three EVD survivors who were younger than 18 years the guardian was present during the psychological consultation.

Please indicate whether you have experienced any of the following at least twice in the past week:
(1) Upsetting thoughts or memories about the event that have come into your mind against your will.
(2) Upsetting dreams about the event.
(3) Acting or feeling as though the event were happening again.
(4) Feeling upset by reminders of the event.
(5) Bodily reactions (such as fast heartbeat, stomach churning, sweating, dizziness) when reminded of the event.
(6) Difficulty in falling or staying asleep.
(7) Irritability or outbursts of anger.
(8) Difficulty concentrating.
(9) Heightened awareness of potential dangers to yourself or others.
(10) Being jumpy or being startled at something unexpected.

Table 1: Ten item trauma screening questionnaire applied during follow-up home visits of Ebola Virus Disease survivors, in Kailahun, Sierra Leone, in 2014.

Retrospective analysis was conducted on data retrieved from the patient files. Quantitative data were encoded in an Excel 2010 database using anonymous identifiers. Medians were calculated for numeric variables and proportions for categorical variables. The thematic analysis approach was employed for the medical notes recorded in the patient files. Codes were developed based upon identification of key words. Codes were grouped into categories, which were analysed for emergent theories. Data were anonymized, and confidentiality was maintained throughout. The study met the Médecins Sans Frontieres (MSF) Ethics review Board (Geneva, Switzerland) approved criteria for studies of routinely collected data.

Results

Of 74 survivors discharged in the study period, 24 (32%) were followed up at home. The median age of the 24 survivors followed up was 25 years, there were three children (under 18 years) and 11 (46%) were females. Of the survivors visited at home, four belonged to the same family (two were sisters, two were cousins). Their median length of stay at the CMC was 17 days and their median time since discharge was 28 days. Seventeen survivors (70%) reported experiencing arousal and re-experiencing reactions in the first few days following discharge from the CMC. Of these, 5 reported experiencing 6 or more arousal and re-experiencing reactions at least twice a week between 3 and 4 weeks post discharge (Table 2).

Applying the TSQ 21% of all survivors reported clinically significant post traumatic reactions that were indicative of future psychological sequelae. The most frequently endorsed responses were intrusive distressing thoughts about their experiences (particularly the exposure to death and dying), having distressing dreams about their experience, difficulty falling or staying asleep and experiencing arousal reactions

(racing heart, stomach churning, sweating and feeling dizzy) when reminded of their experiences.

	EVD survivors N = 24
Female, N (%)	11 (46%)
Age, in years, median (range)	25 (6-60)
Length of stay in the CMC, in days, median (range)	17 (9-35)
Had experienced death of a family member due to EVD, N (%)	24 (100%)
Experienced stigma upon return in the community, N (%)	8 (32%)
Experienced arousal and re-experiencing reactions during the first 2 days post discharge, N (%)	17 (71%)
Experienced 6 or more of the items of the TSQ twice in the past week, between 3 and 4 weeks post discharge, N (%)	5 (21%)
N: number; TSQ: trauma screening questionnaire	

Table 2: Characteristics of 24 Ebola Virus Disease survivors visited at home post discharge, in Kailahun, Sierra Leone.

All had lost immediate family members to EVD. Sixteen (67%) had also witnessed the deaths of immediate family members in the community or in the CMC. Although body and burial viewings were facilitated, losses were compounded by not being able to observe traditional funeral and burial practices (the burial of EVD victims followed strict infection control procedures as the body remains infectious following death). Eight (32%) survivors had experienced some stigma on returning to their communities. Six lived in rural areas around Koindu (east of Kailahun) in small village/ compounds or farm type properties; their stigma was predominantly expressed from people in Koindu when they visited the town. The others who experienced stigma were from Daru and Pendembu (west of Kailahun). Stigma mainly consisted of others, including some family members, maintaining a "safe" distance and some verbal abuse. All survivors, including Muslims and Christians, stated "God's will" as the reason for their illness and survival. They saw the EVD epidemic as a collective punishment (not an individual punishment) by "God" for their society's immoral behaviours.

Discussion

A psychologist visited 24 EVD survivors at home three to four weeks after discharge. All 24 survivors visited at home had lost immediate family members to EVD. Most had also witnessed their deaths. One in three survivors had experienced stigma, and one in five EVD survivors exhibited post trauma reactions similar to those observed in victims of more conventional traumatic events. Although the number of survivors in the study was low, the results suggest that the severity of post traumatic psychological distress experienced by EVD survivors was more likely to typify those responses seen in victims of conventional traumas rather than those experiencing other life-threatening illnesses. Rates of PTSD resulting from conventional traumatic events vary considerably, however they have been shown to be higher than those resulting from life-threatening illnesses, with the latter yielding prevalence rates of 5 to 10% [11]. Obviously many factors influence the likelihood of developing PTSD, however, the objective of this study was to obtain a snapshot of PTSD observed three to four weeks following discharge from the CMC. Past research has demonstrated that the single most important indicator of subsequent risk for developing PTSD is the severity and number of PTSD symptoms observed from about one to two weeks after the traumatic event [12]. The results therefore indicate that the EVD survivors in this study are at risk of developing PTSD.

The illness experience of EVD survivors meets the definitional criteria of a traumatic event as defined in the diagnostic category of PTSD in the Diagnostic and Statistical Manual of Mental Disorders [12]. Symptoms of PTSD have been reported in response to a variety of life threatening medical conditions, including cancer, heart disease and Human Immunodeficiency Virus (HIV). Increasingly, research has targeted serious or life-threatening illnesses as traumatic events, and a growing literature on PTSD among medical patients has developed [11]. In general, the relative prevalence of PTSD is lower among medical patients than those exposed to more conventional traumatic events (armed conflict, natural disasters and personal assault). Despite the outward similarities between medical events and more conventional traumatic events, important differences have been identified that may modify traumatic responses [11]. The psychological trauma associated with conventional traumatic events is typically focused on the past event, whereas most life threatening illnesses, such as cancer and HIV, have a future-oriented aspect in that they represent fears and worries about long term treatment, survival and recurrence. The experience of EVD survivors is somewhat different to other life-threatening illnesses in that they recover relatively quickly without risk of illness relapse or threat of imminent death. Although EVD survivors experience similar fears about their future during hospitalisation, their trauma experience is more similar to conventional traumas, with the focus more on the past event. Although the number of survivors in the study was low, the results suggest that the severity of post traumatic psychological distress experienced by EVD survivors was more likely to typify those responses seen in victims of conventional traumas rather than those experiencing other life-threatening illnesses.

Previous studies have shown that the level of post traumatic distress following conventional traumas tends to subside once conditions of safety are established as most people recover spontaneously [12]. However, some will continue to experience more persistent psychological problems and their needs can be easily overlooked. People with more persistent psychological distress tend to exhibit a significant decline in social functioning and require psychological care. The finding that 21% of survivors endorsed the re-experiencing and arousal items of the TSQ indicates that an important proportion of survivors are at risk of developing serious psychological problems. The normal trajectory of recovery in humanitarian contexts can be negated by the absence of adequate environmental and social conditions. The effects of loss of loved ones, social stigma and the impossibility of performing traditional burials may impact on the recovery of EVD survivors. A study of North Korean defectors found that witnessing trauma events inflicted on family members was more predictive of PTSD severity than personal trauma [13]. Furthermore, a study of Rwandan genocide survivors found that not being able to perform traditional burial rites on the dead compounded their sense of trauma and loss [14]. Additional research is required to determine the impact of such cultural variables on the trauma experienced by EVD survivors, and the possible mediating effects of belief systems on illness causation such as the shared belief among survivors that EVD causation and survival was an act of "God".

Data presented are program data and are subject to observation and selection bias. Furthermore the low number of survivors studied limits

the generalizability of the findings. Although this study represents a snapshot of PTSD observed in EVD survivors, it does for the first time demonstrate the need to consider the likelihood of post treatment psychological sequelae in EVD survivors. The study has also shown that the severity of the trauma experienced by EVD survivors may be more similar to conventional traumatic events rather than the trauma associated with other life-threatening illnesses. Despite the contextual limitations, given the emergency nature of the MSF intervention, the study has also demonstrated the potential for studying program data. Further research in similar contexts could investigate the longer term psychological effects on EVD survivors, the need to provide psychological care as part of a comprehensive medical follow-up of survivors, the place of CBT among other psychological therapies, as well as the possible mediating effects of grief and traditional belief systems.

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