Integrating psychosocial support at Ebola treatment units in Sierra Leone and Liberia

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Abstract

The Ebola virus disease (EVD) epidemic killed almost 12,000 people across Sierra Leone, Liberia and Guinea, causing significant psychological distress and suffering. This paper describes International Medical Corps’ innovative and comprehensive model for integrating mental health and psychosocial support (MHPSS) considerations and activities into Ebola treatment units (ETUs) across Sierra Leone and Liberia. This includes staff capacity building as well as psychosocial considerations and activities to address needs and challenges at the ETUs. This model was aimed at reducing patient and family distress and promoting healthy behaviours and recovery. We also include data describing mental health-related symptoms reported by our ETU patients, as well as psychosocial support interventions utilised. We discuss recommendations and lessons learnt and conclude that in line with global guidelines, MHPSS considerations and activities should be integral to all aspects of EVD care.

Keywords: Ebola virus disease, Liberia, mental health and psychosocial support, Sierra Leone

BACKGROUND AND CONTEXT

Ebola virus disease (EVD) is an acute haemorrhagic fever with an average case fatality of around 50% in humans (World Health Organization, 2016a). The recent epidemic rapidly evolved from the first recorded case in Guinea (23 March 2014) to become the largest and most complex Ebola outbreak since the virus was first discovered in 1976, infecting nearly 30,000 and killing nearly 12,000 people in West Africa (Sierra Leone, Liberia and Guinea) (World Health Organization, 2015). The epidemic overburdened health systems, which were already weakened by long periods of conflict and instability (Roshania et al., 2016). There have been limited and occasional flare-ups of cases in both countries since Sierra Leone and Liberia were declared Ebola free in 2015 (CDC, 2016).

Beginning in September 2014, International Medical Corps (IMC) operated two Ebola treatment units (ETUs) in Liberia and three in Sierra Leone, which cumulatively admitted over 2500 patients with over 470 patients who screened positive for EVD [Figure 1] (Roshania et al., 2016). The goal of this case study is to describe IMC’s approach to integrating psychosocial support (PSS) considerations and services in ETUs across Sierra Leone and Liberia and to present our experiences and data on mental health and psychosocial support (MHPSS) needs and interventions. The importance of a comprehensive approach to mental health and psychosocial well-being in line with global Inter-Agency Standing Committee (IASC) MHPSS Guidelines in response to the EVD epidemic has been highlighted by several authors (Baingana, 2008; Mohammed, Sheikh, Poggensee, et al., 2015; Shultz, Baingana, & Neria, 2015). To date, recommendations for this approach have focused on community level

KEY IMPLICATIONS FOR PRACTICE

- Patients admitted to ETUs face several stressors and challenges related to the ETU environment and procedures, separation from families and effects of EVD
- Mental health and psychosocial support considerations should be an integral part of all aspects of care provided at the ETU
- Paraprofessional psychosocial support workers can play a key role in meeting patient needs at the ETU in line with global mental health and psychosocial support guidelines.

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Psychosocial stressors in the context of Ebola

The EVD epidemic contributed to various stressors among affected communities. IMC conducted a 2014 assessment in Lunsar, Sierra Leone, utilising key informant interviews and focus group discussions with affected communities to assess specific problems and sources of stress related to EVD (International Medical Corps, 2014). General community stressors included fear and misinformation, disruptions in normal activities (education, employment and social/recreational opportunities), poor access to needed services such as health care, boredom and high risk behaviours among young people, and deterioration of social networks. Families of EVD affected patients reported separation from loved ones, fear and uncertainty, grief and inability to perform traditional burials and community stigma. EVD survivors were affected by loss and grief, guilt, isolation and stigma. Health care staff responding to the EVD epidemic also experienced anxiety, isolation from their families and communities as well as being confronted with death and suffering (Cooper, 2015) [Box 1].

International Medical Corps’ approach to mental health and psychosocial support integration in Ebola treatment units

Given the psychosocial impact of EVD, it is crucial to integrate MHPSS considerations at all levels of the response (Mohammed, Sheikh, Gidado, et al., 2015). The IMC model for integration was designed to be consistent with global guidelines, such as the IASC Guidelines on Mental Health and Psychosocial Support in Emergency Settings (2007) and the Guidelines on Psychological First Aid for Ebola Affected Settings (World Health Organization, CBM, World Vision International, & UNICEF, 2014). The model also built on IMC needs assessments of EVD affected patients and families (International Medical Corps, 2014) and initial experiences and observations of the stressors and needs at the ETUs. Based on this, the IMC model included: (a) training and capacity building of staff including general ETU staff (e.g. Water, Sanitation, and Hygiene, WASH and medical staff), paraprofessional PSS officers (PSOs) attached to ETUs under the supervision of MHPSS specialists, and EVD survivors; (b) integrating psychosocial considerations into aspects of the ETU environment and procedures to minimise distress and enhance well-being, dignity and social connections; and (c) offering psychosocial activities and interventions to EVD patients and family members.

Training and capacity building of staff

IMC provided basic training to ETU staff (e.g. medical staff, WASH staff) in basic PSS, including psychological first aid (PFA) adapted to the EVD context (World Health Organization, CBM, World Vision International, & UNICEF, 2014). This helped staff to understand common signs of distress, supportive communication and self-care principles, as well as the roles and approaches of IMC PSS staff in line with global guidelines.

IMC ensured that one MHPSS specialist (expat) was based at each of the ETUs in Liberia and Sierra Leone. The MHPSS specialists provided training and job supervision and support to national paraprofessional PSOs. The PSOs had relevant and varied background (e.g. teachers, previous education in psychology or social work). Training for PSS staff included PFA adapted to the EVD context, principles of providing basic PSS and relevant principles of IASC Guidelines on Mental Health and Psychosocial Support in Emergencies (IASC, 2007) as well as staff self-care. The PSS teams worked closely together on a day-to-day basis and MHPSS specialists were available to discuss difficult cases, provide on the job mentorship and created a positive and supportive team environment. MHPSS specialists were able to discuss approaches and training with and received feedback from the IMC Technical Unit MHPSS Advisor who was based at IMC headquarters. The IMC Technical Unit MHPSS Advisor also conducted technical support visits to Liberia and Sierra Leone.

PSS training was also provided to survivors of EVD, who returned to provide care in the ETUs after their discharge. The advantage of involving survivors is that they can go into the high risk zones without personal protection equipment (PPE), allowing them to have close and frequent interactions with patients who need continued caregiving such as children. In both Liberia and Sierra Leone, each ETU PSS team involved between 3 and 10 EVD survivors. They were trained in PSS, infection prevention and control and given basic medical knowledge to then provide 24 h care for sick children. They provided vital care and palliative support to the most unwell patients and played games and entertained patients. In Sierra Leone, these survivors worked in communities with the rest of the PSS team to inform families about imminent discharges and to promote reintegration. They often chose to share their powerful stories with communities and with family members of patients who were refusing care [Box 2].

Integrating psychosocial considerations into aspects of the Ebola treatment unit environment and procedures

Many aspects of ETU procedures and environment were stressful for patients as well as families. IASC MHPSS...
guidelines highlight the need to integrate psycho-social considerations into all aspects of responding to needs and to not solely focus on clinical interventions. Our approach focused on identifying PSS-related needs and challenges at each step of the ETU process and found ways to respond to needs and minimise distress to the extent possible. The following describes common needs and challenges, and the way they were addressed by the PSS team.

Ambulance pick up

PSS needs: The process of being picked up in the community by the ambulance to be transported to the ETU can be very stressful for patients and their families. Fear, concerns about separation and uncertainty about the future, combined with a lack of trust in health care providers and limited knowledge about procedures, was common. Part of the process for ambulance pick up was that IMC staff in protective clothing would spray the house and belongings of the patient and family with disinfectant. However, some people thought that the sprayers were bringing Ebola and death into the house. Family members were also concerned that they would be separated from their loved ones without knowing where they would be taken and what would happen.

Response to needs: The ambulance pick up provided an opportunity to connect and build trust with families and communities. IMC PSS staff accompanied ambulance teams to provide information, listen to and address any concerns and fears and to get contact information from family members so they could be updated on their loved one’s health status and visit them at the ETU.

Admission to the ETU

PSS needs: Patients were initially triaged in safe areas and if EVD was suspected (based on a list of criteria) they were admitted to the suspect ward while being tested for EVD. If the test came back negative, they would be discharged and when it came back positive, they would be transferred to the confirmed ward. Arriving at the ETU is stressful because of new and sterile surroundings and separation from loved ones as well as feelings of uncertainty and fear as patients wait for test results. Figure 2 shows a map of an IMC ETU.

Response to needs: Soon after a patient was admitted, often within 1 h, a member of the PSS team spoke to the family, if they were present and to the patient, if health conditions allowed in order to relieve distress, orientate them to the
site and processes, ask about meeting any basic needs and answer questions. For children, the PSS team ensured that an adult caregiver was available (e.g. a parent or patient in light PPE and/or PSS staff and nurse in full PPE).

**Facilitation of communication**

*PSS needs*: The isolation from communities and family members while in the ETU is often a cause for additional distress.

*Response to needs*: IMC supported communication of patients with their families and friends by providing access to phones within the confirmed ward to connect patients with family members or with a religious leader or county health officer. IMC also traced relatives in the community and used tablets to convey video messages between patients and their families. When visitors came to the ETU, a safe space was provided for talking and providing needed items (e.g. clothes, toys, biscuits). This space often consisted of a window in the double-fencing around the ETU ward with a table between the two fences. Items could be placed on the table to be passed into the ward and patients and staff or family members could see each other and talk across the fence. When possible, ETUs were built with container housing to enable families to stay during the day or overnight in safe spaces with minimal physical barriers, right across the fence from their loved ones.

**Stay at the ETU: daily activities**

*PSS needs*: Patients often had to stay at the ETU for several weeks, which could lead to feelings of isolation and boredom, as well as psychological distress due to fear, uncertainty and exposure to other patients’ suffering or death.

*Response to needs*: PSS teams conducted daily rounds from the visiting areas (or in PPE for very sick patients in Liberia) where they spent time checking on patients, chatting, entertaining and initiating recreational activities and games. The PSS team made additional visits to patients identified as having specific needs such as those recently given a positive diagnosis, those showing signs of emotional distress, refusing to eat, showing withdrawal or disengagement in care and those resisting treatment. Additionally, varied items such as radios, books and games were made available in the wards and the PSS team organised regular activities such as movies shown with a projector for the patients at night. Patients were encouraged by PSS teams to engage in daily activities (e.g. washing, dressing, laundry) and the teams acted as a liaison with medical staff, hygienists and WASH staff to ensure dignity and well-being of patients. PSOs also led prayers (both Muslim and Christian) and facilitated visits by local religious leaders, which was especially helpful for very sick patients close to death and their family members. Patients also provided help and emotional support to one another during this difficult time [Boxes 3 and 4].

**Discharge from the ETU**

*PSS needs*: Discharge from the ETU can be a difficult transition for patients who may have lost loved ones and must take on new roles and who often face stigmatisation when returning to their community.
Response to needs: The PSS team informed the patient and supported the discharge procedure encouraging them to contact relatives, neighbours or their local support network (e.g. community/religious leaders) or they directly made contact on the patient’s behalf. Prior to and/or on the day of being discharged, the PSS team talked with the patient to discuss their concerns, plans and support that may be needed post-discharge. PSS staff conducted conversations with the family and the community in an effort to help acceptance and understanding as well as raise knowledge about EVD transmission and safe practices. The PSS team organised discharge ceremonies with singing, drumming and dancing to celebrate the person’s recovery. Post-discharge follow-ups (in person and/or via phone) were conducted after 24–48 h and again after 1–2 weeks to assess reintegration and link to resources where possible. Once patients were discharged, however, it was not always easy to follow up with them. Although PSS staff could call or visit many of the patients, others lived in more remote areas and continued to have needs including PSS and other services long after discharge.

Death and burials

PSS needs: Due to measures taken to prevent transmission of EVD, families and communities could not perform many aspects of traditional burial practices. Burial plots had been designated for EVD patients and were often far away and burials were performed by workers in protective clothing, often without the family present. This led to additional psychological distress, grief and guilt.

Response to needs: Dying patients were supported by health and/or by PSS staff being physically present when possible, providing basic PSS (in line with PFA) and addressing the patients’ needs and wishes. In case of death, the PSS team contacted the family, shared with them memories of the patient’s last moments and organised safe burials. The PSS team worked closely with the families and with the WASH and burial teams to make sure the bodies were wrapped in white cloth before being placed in the body bags and that the burial was done as dignified as possible (e.g. viewing the body or a picture, including prayers and ceremonies). Burials took place in designated and safe areas. One of the ETUs in Liberia had a designated burial site nearby and organised appropriate marking of graves (with names, dates of birth and death) and planted flowers. Relatives often returned to the site after burial to visit and maintain the grave. IMC also organised a larger ceremony attended by hundreds of family members at the burial site to honour those who had passed away.

METHODS

Mental health-related symptoms and psychosocial activities and interventions

IMC PSS teams worked with ETU teams and monitored patients for mental health-related symptoms and provided psychosocial activities and interventions. IMC staff collected data as part of routine clinical care and program monitoring and evaluation. The PSS data collected was part of a larger study for which ethical approval and exemption from informed consent was provided by the Sierra Leone Ethics and Scientific Review Committee, the University of Liberia-Pacific Institute for Research & Evaluation Institutional Review Board and the Lifespan (Rhode Island Hospital) Institutional Review Board.

Data analysis

PSS data were collected starting from 28 October 2014 to 7 September 2015. Of the 470 admitted patients diagnosed with EVD, 303 patients had available PSS data (Table 1 for demographic data; Roshania et al., 2016 for a full description of clinical patient data).

Basic descriptive statistics were employed to analyse frequency outcomes on demographic data, including age (categorised as well as continuous), sex, outcome (survived vs. died), mental health symptoms and PSS activities and interventions. Statistical tests included independent samples t-tests and analyses of variance. Missing data was excluded from analyses. Absence of symptom data was treated as absence of the symptom in all figures and tables. Missing data was noted in the tables. Analyses were conducted in Excel and R version 3.2.1. Statistical significance was established at $P < 0.05$.

Data variables available on PSS forms varied depending on the ETU. Variables common to all PSS forms across the five ETUs include: (1) one-to-one PSS, (2) patient’s participation in group activities, (3) health promotion sessions and (4) family or caregiver sessions. The most recent PSS
form used in Sierra Leone detailed a specific, itemised list of mental health symptoms and PSS interventions, which was collected daily.

**RESULTS**

Of the 303 patients included in the main analysis, 62.4% were female, and approximately 44% recovered from the EVD infection. Among those who recovered, 63% were females and 65% were between the ages of 19–54 years old [Table 1]. The average length of stay in the ETU was 4.7 days for all admitted patients. The average length of stay for EVD+ patients who recovered was 14.7 days; the average for EVD+ patients who died was 5.6 days (Roshania et al., 2016).

**Mental health-related symptoms**

Many patients developed symptoms of anxiety, depression or suicidal thoughts after contracting EVD. Some patients also became angry, frustrated and agitated at times. These kinds of symptoms were common and generally considered a normal response to a very stressful and frightening situation. Several patients in the late stages of EVD displayed symptoms of delirium and became agitated and confused. Very few patients had pre-existing mental health problems.

Patient symptoms were tracked daily using a simple tracking sheet with a list of symptoms and a space for a checkmark to indicate, whether the symptom was present or not. We investigated patterns in symptoms, which could be mental health-related including low mood, anxiety/worry, anger, problems sleeping and no appetite. The latter two items were included because they can be related to EVD and/or to the patients’ psychological state. Figure 3 shows the percentage of patients in Sierra Leone, for whom we have mental health symptom data (n = 55), who reported specific mental health-related symptoms at least once during their stay. Low mood was the most commonly reported symptom (78%), followed by appetite problems (69%) and anxiety/worry (64%).

The mean percentage of time that mental health symptoms were reported (calculated by dividing the number of days a patient reported a symptom by the total length of stay), is summarised in Table 2. Low mood was the most frequently reported symptom (44.2%) followed by anxiety/worry (37.5%) and no appetite (36.4%). Independent samples t-tests and ANOVAs examined associations between symptom measures and patient demographics including gender, age and survival. There were no differences in mean percentage of time that symptoms were experienced between males versus females. EVD positive patients who survived reported lower percentage of days with no appetite (26.6%)

### Table 1: EVD outcomes among all EVD positive, ETU-admitted patients with available PSS data across five ETU’s in Sierra Leone and Liberia from October 28, 2014 to September 7, 2015 (n = 303)

<table>
<thead>
<tr>
<th>EVD+ recovered</th>
<th>EVD+ deceased</th>
<th>EVD+ transferred</th>
<th>EVD+ total</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>132 (43.6%)</td>
<td>166 (54.8%)</td>
<td>5 (1.7%)</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>49 (37.1%)</td>
<td>62 (37.3%)</td>
<td>3 (60.0%)</td>
</tr>
<tr>
<td>Female</td>
<td>83 (62.9%)</td>
<td>104 (62.7%)</td>
<td>2 (40.0%)</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0–18</td>
<td>34 (25.8%)</td>
<td>50 (30.1%)</td>
<td>1 (20.0%)</td>
</tr>
<tr>
<td>19–54</td>
<td>86 (65.2%)</td>
<td>85 (51.2%)</td>
<td>4 (80.0%)</td>
</tr>
<tr>
<td>≥55</td>
<td>12 (9.1%)</td>
<td>31 (18.7%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Country</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Liberia</td>
<td>23 (17.4%)</td>
<td>7 (4.2%)</td>
<td>0 (0%)</td>
</tr>
<tr>
<td>Sierra Leone</td>
<td>109 (82.6%)</td>
<td>159 (95.8%)</td>
<td>5 (100%)</td>
</tr>
</tbody>
</table>

### Table 2: Mean percentage of days that mental health symptoms were reported over the length of stay by age and sex in Sierra Leone from October 28, 2014 to September 7, 2015 (n = 55)

<table>
<thead>
<tr>
<th></th>
<th>n</th>
<th>Low mood</th>
<th>No appetite</th>
<th>Anxiety/worry</th>
<th>Problems sleeping</th>
<th>Anger</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>55</td>
<td>44.2%</td>
<td>36.4%</td>
<td>37.6%</td>
<td>17.0%</td>
<td>3.1%</td>
</tr>
<tr>
<td>Sex</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>33</td>
<td>43.4%</td>
<td>31.5%</td>
<td>40.2%</td>
<td>13.3%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Male</td>
<td>22</td>
<td>45.3%</td>
<td>43.7%</td>
<td>33.5%</td>
<td>22.4%</td>
<td>3.7%</td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0–18</td>
<td>16</td>
<td>57.0%</td>
<td>31.4%</td>
<td>33.1%</td>
<td>7.9%</td>
<td>4.1%</td>
</tr>
<tr>
<td>19–54</td>
<td>30</td>
<td>39.5%</td>
<td>39.9%</td>
<td>35.4%</td>
<td>21.9%</td>
<td>1.6%</td>
</tr>
<tr>
<td>≥55</td>
<td>9</td>
<td>37.2%</td>
<td>33.3%</td>
<td>52.7%</td>
<td>16.7%</td>
<td>6.4%</td>
</tr>
<tr>
<td>Outcome (not including transferred, n = 2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Survived</td>
<td>25</td>
<td>39.6%</td>
<td>26.6%*</td>
<td>36.2%</td>
<td>8.3%*</td>
<td>4.1%</td>
</tr>
<tr>
<td>Died</td>
<td>28</td>
<td>49.1%</td>
<td>44.2%</td>
<td>37.9%</td>
<td>22.4%</td>
<td>2.5%</td>
</tr>
</tbody>
</table>

*Independent samples t-test, P < 0.05.
vs. 44.2%, \( P = 0.02 \)) and fewer problems sleeping (8.3% vs. 22.4%, \( P = 0.05 \)) compared to patients who died.

The percent of patients reporting specific symptoms by admission day and outcome is shown in Figure 4a and b. The percent of a cohort of the same patients \((n = 18)\) reporting specific symptoms up until day 12 of admission is presented in Figure 5. Low mood (56%) and appetite problems (50%) were the highest during the first week of ETU admission and declined over time. A decline in the number of patients who reported anxiety/worry over time was not observed.

In Sierra Leone, in the time leading up to June 2015, at least 10 admitted individuals were reported with suspect mental health and/or developmental disorders. In Liberia, EVD patients with substance abuse problems, intellectual disability, depression, anxiety and epilepsy were reported. This group of patients were very vulnerable and struggled to comprehend what was happening to them; many of them were highly suspicious of the help offered and needed a lot of time and attention devoted to them.

**Psychosocial activities and interventions**

The PSS team supported nonpharmacological management of some of the symptoms (e.g. pain, sleeping problems) including adaptations to the environment (e.g. positioning) along with stress management approaches such as relaxation exercises. PSS was particularly essential for patients with anxiety and/or confusion, for which psychological approaches should be the first line of intervention (World Health Organization, 2016b). Family members, when present, were a key supportive resource. Those requiring psychotropic medication were referred to trained medical staff at ETUs and to mental health nurses at secondary health facilities after discharge.

Table 3 summarises the activities provided by PSOs that are common to both Liberia and Sierra Leone \((n = 303)\). Of the activities presented, one-to-one PSS was most the most frequently provided activity and family or visitor interactions was the least. All patients with available PSS data in Liberia \((n = 30, 100\%)\) received at least one PSS interaction with a PSO per day versus 66.3% \((n = 273)\) of patients with available PSS data in Sierra Leone. A sub-analysis was conducted on patients whose intervention \((n = 51)\) and daily symptom data \((n = 55)\) were available on the revised PSS form in Sierra Leone [Tables 3 and 4].

**Figure 3:** Percentage of patients who reported a mental health-related symptom at least once during their stay at the ETU in Sierra Leone from October 28, 2014 to September 7, 2015 \((n = 55)\)

```
Low mood
No appetite
Anxiety/worry
Sleeping problems
Anger
```

<table>
<thead>
<tr>
<th>Symptom</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low mood</td>
<td>78.2%</td>
</tr>
<tr>
<td>No appetite</td>
<td>69.1%</td>
</tr>
<tr>
<td>Anxiety/worry</td>
<td>63.6%</td>
</tr>
<tr>
<td>Sleeping problems</td>
<td>40.0%</td>
</tr>
<tr>
<td>Anger</td>
<td>14.5%</td>
</tr>
</tbody>
</table>

**Figure 4:** (a) Percentage of patients who survived reporting PSS symptoms by admission day in Sierra Leone from October 28, 2014 to September 7, 2015 \((n = 55)\). (b) Percentage of patients who died reporting PSS symptoms by admission day in Sierra Leone from October 28, 2014 to September 7, 2015 \((n = 55)\).
LESSONS LEARNED AND RECOMMENDATIONS

This case study highlights and supports the integration of PSS aspects into an EVD response, which is particularly important for several reasons. EVD results in multiple stressors for patients, families and communities, leading to psychological stress reactions and increased risk for developing mental disorders such as depression or anxiety. Minimising environmental stressors, offering PSS and strengthening social connections can serve as important protective factors. Second, the strong links between mental and physical health have been demonstrated in various studies of patients with infectious diseases such as Human Immunodeficiency Virus (HIV)/Acquired Immune Deficiency Syndrome (AIDS) and tuberculosis (TB). Depression for example has been associated with decreased adherence to HIV and TB medication (Patel, DeSouza, & Rodrigues, 2003; Rahman, Patel, Maselko, & Kirkwood, 2008). In turn, disability resulting from infectious diseases such as HIV have been linked with subsequent psychosocial difficulties (Collins, Holman, Freeman, & Patel, 2006). Patients with HIV/AIDS or TB also have a higher prevalence of depression (45%) compared to the general population (10%) (World Health Organization, 2003). The inclusion of psychosocial considerations and support in the management of infectious diseases can positively impact patient recovery and mortality rates, through treatment compliance and adherence to other medical interventions, and this appears likely to be the case with EVD as well. Therefore, inclusion of PSS

![Figure 5: Percentage of patients reporting PSS symptoms by admission day in Sierra Leone from October 28, 2014 to September 7, 2015 (n = 18).](image)

<table>
<thead>
<tr>
<th>Table 3: Psychosocial support activities to EVD positive patients common to the five ETU’s in Liberia and Sierra Leone from October 28, 2014 to September 7, 2015 (n = 303)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Activities</strong></td>
</tr>
<tr>
<td>One-to-one PSS interventions</td>
</tr>
<tr>
<td>Health and hygiene education sessions participated</td>
</tr>
<tr>
<td>Group sessions participated</td>
</tr>
<tr>
<td>Family/visitor interaction</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Table 4: Mean percentage of days psychosocial support interventions were provided over the length of stay by age and sex in Sierra Leone from October 28, 2014 to September 7, 2015 (n = 51)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>n</strong></td>
</tr>
<tr>
<td>All</td>
</tr>
<tr>
<td>Sex</td>
</tr>
<tr>
<td>Female</td>
</tr>
<tr>
<td>Male</td>
</tr>
<tr>
<td>Age category</td>
</tr>
<tr>
<td>0–18</td>
</tr>
<tr>
<td>19–54</td>
</tr>
<tr>
<td>≥55</td>
</tr>
</tbody>
</table>

*a n = 51 due to missing intervention data. **At least one daily check from a PSS officer.*
aspects into every aspect of EVD patient care in order to enhance patient quality of life and improve adherence and outcomes is strongly recommended in any future ETUs. This case study also demonstrates the need to include PSS-related considerations at every step of the process of care at ETUs. While some agencies argued that it would be sufficient to have a psychologist attached to ETUs who could provide counselling, it is critical to take a whole systems approach based on IASC MHPPS guidelines. This includes making modifications to the ETU environment and procedures in order to minimise patient distress and enhance well-being and social support. This case study showed that mental health-related symptoms are common among EVD patients admitted to ETUs. Low mood, appetite problems and anxiety were the most frequently reported symptoms while anger was least frequent. It is interesting to note that (according to IMC staff reports), government staff in charge of ETUs were especially concerned about the angry and agitated patients and were keen to put needed safety measures in place. However, it is also likely that anger and agitation among patients can be significantly reduced by having staff, including PSOs, attend to basic needs, maintain connections to family members and provide continued support. Indeed, during one instance in which an angry and agitated EVD patient wanted to leave the IMC ward, PSOs were able to listen and help the patient calm down. This also shows the importance in training staff in basic PSS and de-escalation techniques. Problems with appetite or sleep could be attributable to mental health-related problems and psychological distress and/or could also be directly related to underlying clinical symptoms. Regardless, a comprehensive approach to patient care including physical and mental health aspects of a patient’s well-being is especially important in this context.

Other studies of mental health-related symptoms have focused on Ebola survivors (Ji et al., 2017). One small study in Nigeria found that most survivors lost sleep due to being worried and half of survivors reported feeling depressed or unhappy (Mohammed, Sheikh, Gidado, et al., 2015). This is not surprising given the potential loss of relatives as well as continued stressors for survivors in communities such as stigma and discrimination. Our data suggests that while symptoms of low mood seemed to decrease over time, anxiety/worry only decreased slightly or not at all in a small subsample. This may suggest that even after recovering from EVD, anxiety and worry about life as a survivor with continued challenges and potentially limited social support (e.g. due to stigma, loss of relatives) remains. Indeed, in our experience, patients often expressed worry and anxiety about returning home and facing potential discrimination and a life without several of their close family members who had passed away from Ebola. Preparing communities for accepting survivors, follow-up calls and visits with survivors and communities often helped reintegration and recovery. This suggests that continued follow-up and attention to mental health aspects remains important for survivors and families.

This study found few demographic predictors of mental health symptoms except for a trend towards higher age being related to better mood scores. It could be the case that adults are better able to cope with EVD than younger persons and children. However, this study did not examine relationships between mental health symptoms and other key potential predictors such as loss of relatives.

Limitations
This case study has several limitations. The information collected was mostly from observation, experience and qualitative data, while quantitative data on PSS interventions was only available for a subset of patients and data on actual mental health symptoms was available for an even smaller subset. We also did not assess the full spectrum of potential symptoms of distress or potential mental health disorders. This was due to a variety of factors, including the emergent nature of the epidemic, the severe logistical constraints related to data collection in this highly contagious emergency setting and the lack of immediately available guidance documents on which data elements were the most important to collect. In the future, it would be important to include more universally agreed upon data collection forms and variables for PSS aspects that can be used across different countries and by different national and international organisations and agencies. Furthermore, it is not possible to draw conclusions about the effectiveness of interventions offered given that we did not have a control group which received no psychosocial interventions or considerations. This case study is also limited to the ETU context and did not follow patients over a longer period of time. Future research is needed to examine patterns of psychological distress and recovery among patients as well as families affected by EVD over time and to examine effective and inclusive intervention approaches.

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REFERENCES


