

Daily stressors, trauma exposure, and mental health among stateless Rohingya refugees in Bangladesh

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Abstract

The Rohingya of Myanmar are a severely persecuted minority who form one of the largest groups of stateless people; thousands of them reside in refugee camps in south-eastern Bangladesh. There has been little research into the mental health consequences of persecution, war, and other historical trauma endured by the Rohingya; nor has the role of daily environmental stressors associated with continued displacement, statelessness, and life in the refugee camps, been thoroughly researched. This cross-sectional study examined: trauma history, daily environmental stressors, and mental health outcomes for 148 Rohingya adults residing in Kutupalong and Nayapara refugee camps in Bangladesh. Results indicated high levels of mental health concerns: posttraumatic stress disorder (PTSD), depression, somatic complaints, and associated functional impairment. Participants also endorsed local idioms of distress, including somatic complaints and concerns associated with spirit possession. The study also found very high levels of daily environmental stressors associated with life in the camps, including *problems with food*, *lack of freedom of movement*, and *concerns regarding safety*. Regression and associated mediation analyses indicated that, while there was a direct effect of trauma exposure on mental health outcomes (PTSD symptoms), daily environmental stressors partially mediated this relationship. Depression symptoms were associated with daily stressors, but not prior trauma exposure. These findings indicate that daily stressors play a pivotal role in mental health outcomes of populations affected by collective violence and

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statelessness. It is, therefore, important to consider the role and effects of environmental stressors associated with life in refugee camps on the mental health and psychosocial well-being of stateless populations such as the Rohingya, living in protracted humanitarian environments.

Keywords

daily stressors, mental health, refugees, Rohingya, South East Asia, stateless, trauma

Introduction

The Rohingya of Myanmar are one of the most persecuted minorities in the world, and one of the largest groups of stateless people (Kiragu, Rosi, & Morris, 2011). Many Rohingya currently reside along the Myanmar/Bangladesh border, in camps for the internally displaced, or in refugee camps in Bangladesh. Since 1948, Bangladesh has hosted Rohingya refugees from northern Rakhine State in Myanmar (United Nations High Commissioner for Refugees [UNHCR], 2007a), with more than 250,000 refugees arriving in the 1990s (UNHCR, 2012a, 2012b) and a recent influx of more than 70,000 Rohingya new arrivals since October 2016 (UNHCR, 2017).

Today, over 29,000 registered refugees from Myanmar's northern Rakhine State still reside in these two camps in southeastern Bangladesh, with very limited prospects for any sustainable solutions (UNHCR, 2012b). Continuing ethnic violence in northern Rakhine State prevents voluntary repatriation from being a viable option (Azad & Jasmin, 2013; Human Rights Watch, 2013; Szep & Grudgings, 2013). Inadequate food aid, limited access to education, and movement restrictions are among the major challenges contributing to high levels of daily stressors (Kiragu et al., 2011; Knight, 2013; UNHCR & Action Contre La Faim [ACF], 2011; World Food Programme (WFP), Government of the People's Republic of Bangladesh (GOB), & UNHCR, 2012). In desperation, many Rohingya have paid brokers to take them on dangerous voyages to Thailand or Malaysia (Barry, 2015; UNHCR, 2016). While there are clearly some studies that touch on the situation of the Rohingya (e.g., Parnini, 2013; Ullah, 2011), the mental health consequences of persecution, war, and historical trauma, combined with daily environmental stressors that are associated with continued displacement, statelessness, and life in refugee camps, have not yet been thoroughly researched.

Many of the Rohingya have resided in the camps in Bangladesh for more than two decades with limited humanitarian aid (Azad & Jasmin, 2013; Kiragu et al., 2011). Minimal psychosocial services and lack of specialized mental health interventions have left camp staff with virtually no means of supporting individuals' mental health needs (UNHCR, 2007b). Underscoring this point, a joint assessment mission to the camps in 2012 emphasized concerns over potentially high rates of depressive and other symptoms, and a lack of associated services (WFP et al., 2012).

It is pertinent to any understanding of the situation of the Rohingya people to highlight their exposure to war-related traumatic events, including loss of family

members, witnessing extreme violence, and injury or loss of property. These events have been associated with posttraumatic stress disorder (PTSD) and other forms of psychological distress, such as depression, across numerous studies (Hall, Murray, Galea, Canetti, & Hobfoll, 2015; Neuner et al., 2004; see also Miller & Rasmussen, 2010, for a review). As many of the Rohingya refugees have experienced these potentially traumatizing events, it can also be inferred that a substantial number of people exposed to such events are expected to experience psychological distress (World Health Organization [WHO], 2010). In addition to examining symptoms typically associated with PTSD and depression, it is also important to consider cultural idioms of distress, somatic symptoms, and functional impairment in this particular group, as a way of further understanding symptomology and illness experiences (Kirmayer & Pedersen, 2014; Prosser, 2006).

In recent years researchers have also begun to focus on the role of daily stressors on mental health, particularly in resource-poor humanitarian settings such as refugee camps (Miller & Rasmussen, 2014). It has been suggested that daily stressors may worsen mental health symptoms experienced by displaced and war-affected populations by limiting natural protective factors and undermining the potential for resilience (Hobfoll, 2014; Jordans, Semrau, Thornicroft, & Ommeren, 2012; Miller & Rasmussen, 2010; WHO, 2013b).

Daily stressors in a postemergency environment broadly include stressors *that are not* directly triggered by events experienced during the emergency, such as war-related torture or other forms of violence (Jordans et al., 2012; Miller & Rasmussen, 2014). Such environmental stressors may vary in intensity, and can include: lack of access to basic needs (e.g., food, water, shelter), insecure and/or overcrowded camps (Miller & Rasmussen, 2014), and lack of livelihood opportunities (Kiragu et al., 2011). As stated in the research cited, it has been clearly shown that daily stressors associated with poverty and insecure conditions have an adverse impact on mental health. What is less clear is how such daily stressors interact with trauma history to predict mental health outcomes (Hook, 2015; Miller & Rasmussen, 2014).

This consideration of daily stressors is particularly important for stateless populations such as the Rohingya, as ongoing chronic stressors can interfere with recovery and prolong symptoms. Additionally, for this particular population, statelessness is another highly important risk factor that increases exposure to human rights violations and inhuman living conditions (Drew, Funk, Pathare, & Swartz, 2004; Lewa, 2009). Stories shared by the Rohingya refugees underscore their frustration at having no identity or belonging in the legal sense: “if we aren’t Burmese, who are we?” (UNHCR, 2007b, p. 9). Notably, the group remains stateless to date, which challenges their struggle for survival (Abdelkader, 2014). Therefore, understanding the impact and consequences of statelessness is an essential aspect of identifying sustainable solutions (Goris, Harrington, & Köhn, 2009).

In order to better understand the relationship between historical trauma exposure and well-being among war-affected populations, a few recent studies have indicated that daily stressors may mediate the relationship between a history of

emergency-related trauma exposure and current mental health symptoms. In other words, daily stressors may largely explain the relationship between trauma history and mental health outcomes. For example, current perceived needs were found to mediate the association between past traumatic exposure and distress among displaced Iraqis in Jordan (Jordans et al., 2012). Evidence of this mediation has also been found among Bhutanese refugees in Nepal (Jordans et al., 2012), in Nepalese exposed to chronic civil conflict (Kohrt et al., 2012), among youth in Sri Lanka (Fernando, Miller, & Berger, 2010), and in Darfuri refugees in Eastern Chad (Rasmussen et al., 2010). This underscores the importance of moving beyond a trauma-focused model and considering the impact of displacement-related daily stressors on mental health outcomes among war-affected populations.

However, there is no clear consensus among researchers. Some researchers suggest the impact postemergency daily stressors may have on mental disorders is relatively minor when compared to the role of prior trauma exposure during the emergency (e.g., Neuner, 2010). Understanding the role of daily or environmental stressors in mitigating mental health symptoms in humanitarian environments, such as protracted refugee settings, could have important implications for the distribution of scarce resources for mental health and psychosocial support services (Jordans et al., 2012; Miller & Rasmussen, 2014).

This current study aims to clarify the role of postemergency daily stressors in mediating the relationship between emergency-related trauma exposure and current mental health symptoms among stateless populations, including those in protracted refugee settings. As such, this study contributes to the evolving scientific discourse on the relative importance of trauma-focused, or more inclusive, ecological models (Kirmayer & Pedersen, 2014).

Methods

Participants

An a priori power analysis (using G*Power; Faul, Erdfelder, Buchner, & Lang, 2009), indicated the need for just under 150 participants in order to have 80% power, a medium effect size ($f^2 = .15$), using linear regression models with multiple predictors, and employing the traditional .05 criterion of statistical significance. A larger stratified random sample of 180 was selected from the UNHCR database of 12,876 registered adult refugees in the camps, aged 18–59, to allow for potential difficulty in finding participants or other factors contributing to attrition, as well as to ensure adequate representation by gender and camp. Households were the primary sampling unit.

Measures

Data was collected on demographics (e.g., sex/gender, age, camp location), daily environmental stressors, lifetime exposure to potentially traumatic events, standard

mental health symptoms (e.g., symptoms of PTSD, depression, other serious mental health concerns), local idioms of distress (e.g., distress associated with a belief that one is under a spell), somatic symptoms, functional impairment, preferred coping strategies, and social functioning. The instruments used to develop the questionnaire are listed and discussed below.

Checklist for Daily and Environmental Stressors. A 14-item Checklist for Daily and Environmental Stressors was constructed locally. Most items were initially taken from the Humanitarian Emergency Settings Perceived Needs Scale (HESPER), with some modifications to wording based on local context (WHO & UNHCR, 2012). The HESPER was developed to assist humanitarian agencies in measuring perceived needs of adults within various settings, including refugee camps. Additionally, as a result of key informant interviews with agency partners and internal staff, some new, researcher-developed items were included in the checklist. Participants were asked: “Do you have a serious problem with [...] that often causes you stress?” and to indicate a “yes” or “no” answer for each item. The 14 items included: problems with attaining food, water, shelter, fair access to services, safety or protection, legal services, harassment by police, harassment by the local population, healthcare services, sanitation facilities, employment, education, freedom of movement, and feeling humiliated or disrespected. A total daily/environmental stressors score was calculated by the total sum of the number of stressors endorsed (see Table 1).

Traumatic Events Inventory. A 32-item Trauma Events Inventory was constructed that contained 21 items derived from the Harvard Trauma Questionnaire (HTQ, Part I), with an additional 11 items—based on literature review and key informant interviews—such as forced abortion and beaten by spouse or family member (Abdelkader, 2014; Constantine, 2012; Human Rights Watch, 2013; UNHCR, 2007b). Researcher-added items included: trauma events particular to this humanitarian context and protection concerns (see questions below), in both Myanmar and Bangladesh (Abdelkader, 2014). The HTQ (Mollica et al., 1992; Mollica, McDonald, Massagli, & Silove, 2004) has been used to measure traumatic stress in diverse refugee populations, including refugees fleeing from Myanmar to Thailand (Cardozo, Talley, Burton, & Crawford, 2004). Participants were asked: “Have you experienced any of the following events?” Events included items such as: torture, police harassment, death of a family member while fleeing, property damage, physical assault, sexual assault, frequent gunfire, kidnapping. They were again asked to indicate a “yes” or “no” answer for each item. Lifetime exposure to multiple types of traumatic events was determined by the total sum of responses to yes/no items (see Table 2).

Posttraumatic stress disorder. The Harvard Trauma Questionnaire (HTQ) PTSD section was utilized for this study, and includes 16 symptom items based on DSM-IV PTSD criteria with response options ranging from: 1 (*not at all*) to 4 (*extremely*).

Table 1. Checklist for daily/environmental stressors

Do you have a serious problem with [...] that often causes you stress? Yes or No	<i>n</i>	%
Food	141	95
Ability to move about freely	122	82
Fair access to services (in the camps)	116	78
Safety or protection	114	77
Harassment by locals	106	72
Health care services	103	70
Shelter	99	67
Employment (income/livelihood)	85	57
Education	80	54
Access to legal services	77	52
Feeling humiliated or disrespected	76	51
Water	75	51
Harassment by police or security forces	75	51
Sanitation facilities	55	37

Note. The authors of the present study created the questionnaire, drawing on Humanitarian Emergency Settings Perceived Needs Scale (HESPER; WHO & UNHCR, 2012).

A symptom severity score was obtained by determining an average score across all items. Cronbach's $\alpha = .81$, indicated good internal consistency.

Depression. Symptoms of depression were measured through the 15-item Depression subscale from the Hopkins Symptom Checklist (HSCL; Derogatis, Lipman, Rickels, Uhlenhuth, & Covi, 1974) that has been used extensively with conflict-affected populations (Khuon & Lavelle, 1987; Kleijn, Hovens, & Rodenburg, 2001). This instrument uses response options ranging from: 1 (*not at all*) to 4 (*extremely*), which in turn is used to create an average score. The Cronbach's α (.76) indicated good internal consistency.

Other serious mental health symptoms. Researchers added five additional questions to assess symptoms of severe distress and impaired functioning that were not covered by the HTQ and HSCL. Researchers used the format of the WHO–UNHCR Assessment Schedule of Serious Symptoms in Humanitarian Settings (WASSS) with response options ranging from 1 (*none of the time*) to 5 (*all of the time*; WHO & UNHCR, 2012). The five items were: disabling fear and anxiety (“About how often during the last 2 weeks...did you feel so afraid that nothing could calm you down?”); uncontrollable anger (“...did you feel so angry that you felt out of control?”); auditory hallucinations (“...have you heard voices that were not real?”); visual hallucinations (“...have you seen things that were not real?”);

Table 2. Traumatic Events Inventory (lifetime exposure)

Have you experienced any of the following events? (lifetime)	<i>n</i>	%
Confiscation or destruction of personal property	111	75.0
Beating	83	56.1
Extortion or robbery	81	54.7
Forced to hide	77	52.4
Interrogation by soldiers or police	73	49.7
Threats made against you and/or your family	72	49.3
Someone was forced to betray you and placed you at risk of death or injury	64	43.5
Torture (in captivity, deliberate infliction of physical or mental suffering)	59	39.9
Verbal abuse (e.g., threats, abusive anger) by spouse or other family member	57	38.8
Forced evacuation under dangerous conditions	46	31.3
Disappearance or kidnapping of family member or friends	45	30.6
Exposure to frequent gunfire	45	30.6
Beaten by spouse or family member	44	29.9
Forced labor (like animal or slave)	39	26.5
Present while someone forcibly searched for people or things in your home	36	24.5
Other (frightening situation or time you felt your life was in danger)	26	23.6
Death of family or friend while fleeing/hiding, because of illness or starvation	33	22.4
Enforced isolation from others	31	21.1
Intentionally stabbed or cut with object (e.g., knife, axe, sword, machete)	28	18.9
Serious physical injury from combat (e.g., shrapnel, burn, bullet, landmine)	22	15.2
Sexual abuse, humiliation, or exploitation (e.g., coerced sexual favors)	19	12.8
Prevented from burying someone	18	12.2
Imprisonment	17	11.6
Kidnapped	16	10.9
Turned back from a country while trying to flee	14	9.5
Murder of family member or friend	13	8.8
Rape (forced, unwanted sex with a stranger, acquaintance, or family member)	12	8.1
Witnessed physical or sexual violence/abuse	9	6.1
Forced to betray someone, placing them at risk of death or serious injury	9	6.1
Forced to physically harm someone (friend, family, or stranger)	8	5.4
Forced abortion (only asked of women)	2	2.4
Forced to find and bury bodies	3	2.0

Note. The authors of the present study created the questionnaire, drawing on HTQ (Mollica et al., 1992).

delusions (“... have you been told by family or friends that your firmly held beliefs or suspicions were strange?”).

Somatic Symptom Scale. A Somatic Symptom Scale was developed by the researchers based on key informant information from Ministry of Health (MOH) staff and mental health professionals working in the region. This information was consistent with some of the literature specific to this population (e.g., Prosser, 2006). Somatic symptoms were defined as “symptoms that cannot be fixed/resolved by a doctor or medication.” Symptoms were averaged into a five-item scale with response options ranging from 1 (*not at all*) to 4 (*extremely*.) Items were also examined individually and included: burning sensation in head, stomach, or all over the body; headaches; back pain; pain all over the body; and gastro-intestinal problems (i.e., digestive problem, chronic constipation). Cronbach’s α indicated good internal consistency (.74).

Local Idioms of Distress Scale. A measure for additional, culturally specific, expressions of distress—Local Idioms of Distress Scale—was developed by the investigators, based also on key informant interviews with the MOH staff, mental health care professionals in the region, and relevant literature (e.g., Constantine, 2012; Prosser, 2006). The scale was developed to assess distress that is not accounted for by a Western mental health approach in order to understand how the local community may conceptualize mental health symptoms. Prosser (2006) explored local idioms of distress concepts and proposed that possibly *ghosts* and *genies* were an acceptable way for the Rohingya to externalize their understanding of events beyond their control or responsibility. Three items were assessed: “About how often during the last month...did you believe or feel like you were under a spell?; “...did you believe or feel you were possessed by a bad spirit/demon?”; “... did you believe or feel you were controlled by an unidentified black shadow or black magic?” Response options ranged from 1 (*none of the time*) to 5 (*all of the time*). Items were averaged and were examined individually. Cronbach’s α indicated good internal consistency for the Local Idioms of Distress Scale (.74).

Function assessment. An investigator-developed Functioning Scale was used to determine whether refugees experienced impairment in their ability to complete daily tasks. A list of typical daily tasks was compiled for this specific setting based on input from national staff working regularly in the camps. Separate task lists were created for men and women based on local gender norms. Examples of daily tasks for men included: earning money outside of the camp, collecting needed materials (clothing, food, house-related items), and bathing. Examples of daily tasks for women included: cooking, childrearing, carrying water, daily cleaning, and washing clothes. This type of approach has been recommended by others to ensure that function scales fit the local context (see The Johns Hopkins University Bloomberg School of Public Health, 2013). In a single item, refugees were asked how difficult it was for them to perform these tasks from 1 (*not at all*) to 5 (*extremely*). For every

participant indicating difficulty, a follow-up question was asked: “To what do you attribute this difficulty: physical health, mental health, current living situation, or other” (with an option to explain).

Brief COPE. A modified version of the Brief Coping with Problems Experienced Scale (COPE; Carver, 1997) was used to examine common coping strategies. The Brief COPE is a 28-item scale that measures utilization of 14 types of coping strategies derived from both theory and research. The instrument has been translated into numerous languages (e.g., Kapsou, Panayiotou, Kokkinos, & Demetriou, 2010) and administered to refugees in Ghana and Nepal (Chase, Welton-Mitchell, & Bhattarai, 2013; Sarfo-Mensah, 2009). For the purposes of this study, the Brief COPE was modified to include items based on key informant interviews and focus group discussions such as: thinking about a better future for the children or participating in religious practices. These were common coping strategies emphasized during focus groups, of which many were consistent with existing Brief COPE items. Participants were asked to endorse items based on how frequently they engaged in a behavior to make themselves feel better (1 = *not at all*; 2 = *a little*; 3 = *quite a bit*; and 4 = *extremely*). Items included: participating in religious practices (e.g., praying, fasting, reading religious texts, visiting the mosque), spending time with family, thinking about a better future for the children, participating in physical activity, using alcohol or drugs. The last item of the coping scale was an “other” choice, with an option to explain. Cronbach’s α for the full coping scale was poor (.59), suggesting the scale is not measuring a unified construct, so items were examined individually.

Social Functioning subscale from the World Health Organization Quality of Life BREF (WHOQOL-BREF). The WHOQOL-BREF scale assesses quality of life within the context of participants’ culture and value system (WHO, 2014). The WHOQOL-BREF has been utilized in several countries and is considered a valid assessment for use in a variety of cultural settings (Skevington, Lotfy, & O’Connell, 2004). The WHOQOL-BREF has four subscales, however, only the Social Functioning subscale was used for this study. The Social Functioning subscale was modified by dropping an item regarding sexual satisfaction as it overlapped with an item included in the HSCL-25. The remaining two items from this subscale were averaged and were examined individually: “How satisfied are you with your personal relationships?” and “How satisfied are you with the support you get from your friends?” Response options range from 1 (*very dissatisfied*) to 5 (*very satisfied*). Cronbach’s $\alpha = .65$ indicated acceptable internal consistency for the adapted subscale.

Participant suggestions for agencies to improve mental health. An additional question was included to collect data on participant suggestions for humanitarian organizations: “What do you think humanitarian agencies could do to improve your mental health?” This free response question provides the Rohingya an opportunity to

provide critical insights about what they believe to be the cause of their psychological distress.

Procedure

The interview schedule was translated into Bengali by two native Bengali speakers. Although Bengali is not the native dialect of the Rohingya, it is commonly understood and used by the Rohingya living in the refugee camps. This is a result of both the protracted nature of the humanitarian aid environment and also because the native Rohingya dialect is related to Chittagonian, a regional dialect of Bengali spoken in the Chittagong district where both UNHCR camps are located (Kiragu et al., 2011). The health staff member who completed the primary translation was familiar with mental health terminology. After the initial translation was complete, a second translator, blind to the original items, back-translated the interview schedule. After the back-translation, a few items were modified for clarity.

Data were collected through structured individual interviews with randomly selected adult refugees residing in two camps. Interviews ranged in duration from 45–90 minutes. The survey included the 141 quantitative items discussed above and a few open-ended questions. It was administered in Kutupalong and Nayapara refugee camps over a 2-month period. A local research team received a week-long training from the primary researchers to prepare to administer the interview, and signed an ethical code of conduct. The research team included five health workers and five refugee community health workers. The survey was piloted to ensure comprehension among participants, cross-checking participant feedback with MOH interviewer feedback. This process also enabled researchers to refine their skills in administering the survey. Additional minor changes were made to the interview schedule during this pilot-testing phase.

In order to respect privacy, interviews were conducted at central locations inside the camps, and not within individual households. Participants were informed in advance that they would not receive any financial or other forms of compensation for participating, other than juice, water, and biscuits during the interview. Sounds from the camp could be heard in the rooms, and it is conceivable that people passing outside could hear the interview. Verbal consent was obtained from each participant prior to conducting the interview. Consent was obtained verbally due to significant levels of illiteracy as well as mistrust of authorities within the population. This procedure is consistent with that used by other researchers working in similar situations (e.g., Tol et al., 2009). Participants were offered a paper version of the informed consent document in Bengali, as the closest language to their own, to keep for their records. One participant was unable to understand the consent form and was, therefore, excluded from participation. Visual aid scales were utilized in the administration of the survey to aid in participant understanding of response sets, as suggested by others (e.g., Kohrt et al., 2011). Four image scales were used for corresponding response sets. Images of water glasses were used to represent 3-, 4-, and 5-point

scales, and emoticons were used to represent response options for the Social Functioning Scale (WHO, 2014). Support services were available for the duration of the study to provide assistance to any participants experiencing acute distress, including suicidal thoughts.

This study conforms to the ethical standards and guidelines for mental health research in humanitarian settings (see Inter-Agency Standing Committee [IASC] Reference Group for Mental Health and Psychosocial Support in Emergency Settings, 2014). UNHCR and local government authorities (e.g., Camp in Charge officials from the Refugee Relief and Repatriation Commissioner Office) provided initial approval for the study. All research materials were also reviewed by the Bangladesh Medical Research Council and the associated National Research Ethics Committee (NREC).

Analysis

Data were analyzed using Statistical Package for the Social Sciences (SPSS Statistics 21.0 and 22.0). Prior to analysis, variables of interest were examined for violations of statistical assumptions (e.g., skew, kurtosis, extreme outliers). A few extreme outliers (more than 3x interquartile range) were Winsorized to 2.5 *SD* above/below the mean. These minor adjustments did not change the pattern of any of the primary findings. As a result, analyses with outliers modified are reported throughout the results section. Qualitative responses were categorized by two coders, using consensus methods, and subsequently analyzed for frequency. Differences in sample size are reported in each section. When the sample size for a given variable or analysis differs from the overall sample size ($N = 148$), this indicates missing data. Reasons for missing data include participants declining to answer some items.

In order to examine predictors of mental health outcomes, a series of regression analyses using PTSD and depression symptom scores as the outcome was conducted. Daily environmental stressors, social satisfaction, coping, trauma history, age, and sex were utilized as predictors. In order to determine the most parsimonious set of predictors to explain the most variance, and because of power concerns, only predictors with $\beta = .1$ or above were included in the final models (see Table 3).

In order to more closely examine the relationship between trauma history, daily environmental stressors, and mental health symptoms, a series of mediation analyses was also conducted. A mediation model suggests that the effect of the independent variable (trauma history) on the dependent variable (PTSD or depression symptoms) is altered by the mediator variable (daily environmental stressors). While the direct effect of trauma history and daily stressors on PTSD symptoms was examined through the initial regression models, indirect effects were tested using the Hayes's PROCESS macro for SPSS (Hayes, 2012). This is similar to approaches used by others recently to study daily stressors as potential mediators (e.g., Jordans et al., 2012).

The mediation models included trauma history as the independent variable, PTSD symptoms as the dependent variable, and daily stressors as the mediator

Table 3. Simultaneous multiple regression model predicting PTSD symptoms ($N = 142$)

Model and variables	B	SE B	β	t	95% CI
Model 1 predicting PTSD symptoms: $R^2 = .29$, $F(4, 138) = 13.88$, $p < .001$					
Trauma history	0.493	0.159	.273	3.11**	[0.179, 0.807]
Environmental stressors	0.808	0.279	.253	2.91*	[0.260, 1.357]
Age	0.135	0.057	.174	2.36*	[0.022, 0.248]
Sex (F/M)	-6.67	1.32	-3.81	-5.06***	[-9.27, -4.07]

* $p < .05$. ** $p < .01$. *** $p < .001$.

to examine indirect effects. Age and gender were used as covariates based on the initial regression results, and because similar research has found older age and being female to be associated with worse mental health outcomes in some humanitarian contexts (Jordans et al., 2012).

Results

Sociodemographics

Of the 180 persons invited to participate, 148 participants were available and agreed to be interviewed. The 148 adults (age 18–59; $M = 34$, $SD = 11.44$) included 78 women and 70 men, with 62 participants from Kutupalong and 86 participants from Nayapara. Thirty-two persons did not participate: 31 could not be located at their address within the camps, and one woman declined. The final sample of 78 women and 70 men was adequately representative. In the camps women are 55% of the total population while men are 45%.

Daily/environmental stressors

The most common daily stressors cited by participants included concerns about attaining food (95%), lack of freedom of movement (82%), general lack of fair access to services within the camps (78%), and concerns about safety or protection (77%; see Table 1 for additional details). When asked to rank their top three concerns, the majority of participants indicated problems with attaining food, lack of freedom of movement, and safety or protection concerns.

Trauma exposure

The most common traumatizing events experienced were confiscation or destruction of property (75%), beating (56%), extortion or robbery (55%), and being

forced to hide (52%; see Table 2). In addition, 40% of respondents reported torture. Also, common was physical abuse by a spouse or other family member (27% of males and 38% of females). Three percent of women and 17% of men surveyed reported experiencing rape or other “forced sex.”

Symptoms

Posttraumatic distress symptoms. A cut-off score of 2.5 on the PTSD subscale of the HTQ is typically used to determine those with scores diagnostic of PTSD (Allden et al., 1998). Using this criterion, 36% of participants endorsed symptoms typically diagnostic of PTSD ($M=2.2$, median = 2.3, $SD=0.56$). Symptoms with the highest mean severity included: feeling as if [they] didn't have a future ($M=3.4$, range 1–4), recurrent thoughts or memories of the most hurtful or terrifying events ($M=3.1$), feeling on guard ($M=2.8$), and less interest in daily activities ($M=2.5$). Because this instrument has not been normed or validated for use with this specific population, it is preferable to avoid diagnostic inferences. As a result, for all analyses involving the HTQ PTSD scale, a continuous (severity) variable was used instead of categorical cut-offs.

Depressive symptoms. A cut-off score of 1.75 on the HSCCL is typically thought to be diagnostic of a depressive disorder. Using this criterion, 89% of participants endorsed symptoms consistent with depression ($M=2.5$, median = 2.5, $SD=0.54$). Symptoms with the highest mean severity included: feeling hopeless about the future ($M=3.4$, range 1–4), feeling low in energy/slowed down ($M=3.1$), feeling worthless ($M=3.1$), and worrying too much about things ($M=2.9$). Notably, 13% of participants endorsed suicidal thoughts.

In studies among conflict-affected populations, the concordance of the HSCCL scores with clinical diagnosis tends to be low (Ventevogel et al., 2007). As a result, and because this scale has not been normed or validated for use in this population, diagnostic cut-offs are avoided. Instead, a continuous (severity) variable is used in analyses involving depression symptoms.¹

Additional serious mental health symptoms. Percentages are reported for participants endorsing symptoms “most of the time” or “all of the time” in the last 2 weeks: feeling so afraid that nothing could calm [them] down (14%), so angry that [they] felt out of control (9%), being told by family or friends that [their] firmly held suspicions were strange (5%), hearing voices that were not real (3%), and seeing things that were not real (2%).

Somatic symptoms. Participants frequently endorsed several items including: headaches (67%), back pain (55%), a burning sensation in the head, stomach, or all over the body (50%), pain all over the body (49%), and gastrointestinal problem (i.e., digestive problem, chronic constipation; 49%).

Local idioms of distress. Participants endorsed several symptoms over the past month, although at relatively low frequency: feeling or believing that they were under a spell (10%), possessed by a bad spirit or demon (10%), or that they were controlled by an unidentified black shadow or black magic (6%).

Function assessment. Functional impairment was assessed (range 1–5; 5 = most severe impairment), $M = 3.3$, $SD = 1.5$, median = 4.0 (women $M = 3.1$, $SD = 1.4$, median = 4.0; men $M = 3.4$, $SD = 1.6$, median = 4.0). The most common (median) response for both men and women was “quite a bit” (4) in response to the question: “How difficult it is for you to perform daily activities?” Notably, 57% of respondents indicated “quite a bit” (4) or “extremely” in response to this question.

Participants indicating difficulty with daily activities were asked a follow-up question about the cause of the difficulties. Sixty-eight percent indicated that physical health concerns prevented them from completing tasks, 54% mental health, 47% current living situation, and 50% “other” (participants could select multiple categories). Common explanations for the “other” option included: harassment by the local population/villagers (22%), harassment by police (20%), and problems fetching water (10%). Harassment by police and harassment by the local population/villagers were answers typically provided by men. Problems fetching water was indicated only by women.

Coping. Coping items with the highest mean scores were (1 = *not at all* to 4 = *extremely*) thinking about a better future for the children ($M = 3.9$), participating in religious practices (3.1), practicing good hygiene (3.1), spending time with family (2.9), and working (2.5).

Social functioning. Participants reported slight satisfaction with personal relationships ($M = 3.55$, range 1–5) and the support they receive from friends ($M = 3.35$, range 1–5). The mean for responses was between “neither satisfied nor dissatisfied” (3) and “satisfied” (4).

Participant suggestions for agencies to improve mental health

In response to the question “What do you think humanitarian agencies could do to improve your mental health?” half of the participants answered that having sustainable solutions would improve their mental health. Forty-seven percent specifically indicated resettlement, 2% indicated repatriation, and less than 1% indicated local integration. It should be noted that the 2% indicating a preference for repatriation suggested that this was a viable option only if granted citizenship, and/or guaranteed safety/ensured protection. Notably, 30% of respondents indicated that enhancing their current sense of safety and security would improve their mental health.

Many participants also emphasized that a change in the provision of aid would improve their mental health and overall well-being. Ten percent of those surveyed

mentioned food rations (7.4% any food rations, 3.4% wanted a “reasonable/adequate/proper” amount of food).

Seven percent of respondents emphasized the importance of access to education. The research team received feedback from numerous respondents indicating frustration with the limited opportunities over the last 20 years, explaining that people have been languishing in the camps with no prospects for the future. For example, one participant stated, “our future has been spoiled, but what will happen to the future of our children? That is my question to the humanitarian organization.” Other suggestions for improving mental health included: freedom (6%) which can be broken down into the following subcategories: a place of freedom (2%); freedom of movement within the country (2%); and freedom to leave the country (2%). Several individuals also mentioned the need for opportunities to engage in work/service (5%) and access to adequate health care (3%), noting that both would likely improve mental health and well-being for refugees in the camps.

Predictors of mental health symptoms

Predictors of PTSD symptoms. Sex/gender, age, trauma history, and environmental stressors had a $\beta = .1$ or above and were entered into the final regression model simultaneously to predict PTSD scores among Rohingya refugees. The full simultaneous multiple regression model predicting PTSD scores was significant, $F(4, 138) = 13.88$; $p < .001$, and $R^2 = .29$ (see Table 3).

Sex, age, trauma history, and environmental stressors were all significant predictors of PTSD symptoms. Being a woman is associated with greater PTSD symptoms ($\beta = -3.81$, $p < .001$). Older age also predicted higher PTSD scores ($\beta = .174$, $p < .05$), and a larger number of traumatic events is also associated with greater PTSD symptoms ($\beta = .273$, $p < .01$), as is a larger number of daily environmental stressors associated with higher PTSD scores ($\beta = .253$, $p < .05$).

Predictors of depression symptoms. Sex/gender, age, trauma history, and environmental stressors had a $\beta = .1$ or above in an initial model, and were entered into the final multiple regression model simultaneously to predict depression scores. This regression (see Table 4) was significant $F(4, 141) = 8.52$; $p < .001$, $R^2 = .20$.

Model 2 (see Table 4) indicates that sex/gender, age, and environmental stressors are all significant predictors of depression symptoms. Sex/gender predicted higher depression scores such that being a woman is associated with greater depression symptoms ($\beta = -2.45$, $p < .01$). Older age also predicted higher depression scores. Being older was associated with greater depression symptoms ($\beta = .242$, $p < .01$). Environmental stressors predicted higher depression scores, such that a larger number of reported daily environmental stressors was associated with higher depression scores ($\beta = .263$, $p < .01$). Trauma history was *not* a significant predictor of depression ($\beta = .149$, $p > .05$).

Table 4. Simultaneous multiple regression model predicting depression symptoms ($N = 145$)

Model and variables	B	SE B	β	t	95% CI
Model 1 predicting PTSD symptoms: $R^2 = .20$, $F(4, 141) = 8.52$, $p < .001$					
Trauma history	0.233	0.142	.149	1.64	–
Environmental stressors	0.711	0.245	.263	2.91**	[0.227, 1.19]
Age	0.159	0.051	.242	3.15**	[0.059, 0.259]
Sex (F/M)	–3.67	1.19	–2.45	–3.08**	[–6.03, –1.31]

* $p < .05$. ** $p < .01$.

Table 5. Direct and indirect effects for trauma exposure on PTSD ($N = 143$)

	Effect (95% CI)
Model 1: Total trauma exposure effect (without mediator)	
Trauma exposure	.73 [0.453, 1.000]
Age	.11 [–0.009, 0.219]
Gender	–6.21 [8.848, –3.567]
Model 2: Direct effects of trauma and covariates	
Trauma exposure	.49 [0.179, 0.807]
Age	.14 [0.022, 0.248]
Gender	–6.67 [9.273, –4.065]
Direct effect of potential mediator:	
Environmental/daily stressors	.81 [0.260, 1.357]
Indirect effect (mediation):	
Environmental/daily stressors	.24 [0.079, 0.412]

Note. Standard multivariate regression with the predictor (trauma exposure) and covariates (age, gender). Model 1 is a standard simultaneous regression. Unstandardized coefficients are used. 5,000 samples bootstrapping using PROCESS (Hayes, 2012). Model 2 summary: ($N = 143$); $R^2 = .32$, $F(3, 139) = 21.33$, $p < .001$.

Mediation

Results indicated an indirect effect via daily stressors of trauma exposure on PTSD symptoms (see Table 5). There was a statistically significant association between all variables in the model. When the indirect effect of daily stressors was included in the model, the direct effect of trauma history was reduced from a total effect of .49 to an adjusted effect of .24. There was still a direct effect of traumatic exposure on PTSD symptoms when accounting for the indirect effect of daily stressors, which is consistent with a partial mediation model. In other words, trauma exposure and daily stressors both explain PTSD symptoms. The significant association of age (older) and gender (female) suggests that these are independent predictors in

addition to the direct and indirect pathways of trauma exposure. A similar model for depression symptoms was not conducted because there was no direct effect of trauma exposure on depression in the initial regression model (see Table 4).

Discussion

High rates of trauma exposure were reported among this population, including torture. In addition to history of trauma exposure, daily stressors appeared to play a significant role in mental health outcomes. Such findings are consistent with other recent research highlighting the role of environmental stressors in mental health outcomes (Ayazi, Swartz, Eide, Lien, & Hauff, 2015; Miller, Omidian, Rasmussen, Yaqubi, & Daudzai, 2008), and specifically indicating that the introduction of daily environmental stressors weakens the direct association between trauma exposure and mental health symptoms (Jordans et al., 2012; Miller & Rasmussen, 2010). While it is known that depression is a frequently occurring outcome of exposure to traumatic events (WHO, 2013a), the role of traumatic events in the etiology of depressive symptoms among the Rohingya refugees seems to be of minor importance. There was no direct relation found between exposure to traumatic events and depression in this population. Daily stressors, in contrast, have had a strong and direct effect on depressive symptomology.

It seems to the authors, therefore, that daily stressors associated with life in the refugee camps are of more immediate concern than past traumatic events. Several characteristics are common to many protracted refugee situations including lack of physical security, limited freedom of movement, limited funding for basic needs including food aid, and a lack of wage-earning opportunities (Crisp, 2003). It should be noted that an estimated 5,000–6,000 refugees residing within Nayapara and Kutupalong camps were not eligible to be registered with the Government of Bangladesh at the time this survey was conducted, and therefore they did not receive food rations (Kiragu et al., 2011). Vulnerable populations in such resource-poor contexts often experience an accumulation of personal, social, and material resource losses, such as the destruction of homes or human loss over a lifetime (Hobfoll, 2014; Somasundaram, 2014; Trani & Bakhshi, 2013). Such daily environmental stressors should be considered as potential avenues for intervention, with an eye towards reducing mental health symptoms and increasing functioning. This is consistent with the concept that healthy coping can be fostered by supportive recovery environments (WHO, 2013b). Future mediation models should consider the use of additional covariates. For example, time since displacement is suggested as a potential additional covariate by Jordans et al. (2012).

While interventions focused on environmental stressors, such as food security and safety, may potentially mitigate the impact of traumatic stressors, there is a lack of evidence on the effects of nontrauma-focused psychosocial interventions with refugees, and other war-affected populations (Tol et al., 2011). This coupled with the potential for such interventions to mitigate what has historically been assumed to be trauma-related distress, suggests there is an urgent need for more

research in this area (Ayazi et al., 2015; Hook, 2015; Miller & Rasmussen, 2010; Neuner, 2010).

Somatic complaints were high (49–67% rate of endorsement of individual somatic items). This includes over half of respondents reporting medically unexplained headaches and back pain. Moreover, 66% of respondents endorsed the item “worry too much about things” on the Hopkins Symptom Check List. Recent research supports the hypothesis that “worry” may be a pivotal symptom in ethnophysiological pathways leading to arousal, multiple somatic symptoms, and panic (Hinton, Reis, & de Jong, 2015). Daily stressors may lead to worry or “thinking too much,” which in turn can result in, and/or be expressed through, multiple somatic symptoms (Hinton, Nickerson, & Bryant, 2011). Given findings from this study, this model may provide a useful lens through which to interpret some of the results and to explore in future research.

Functional impairment in completing daily activities was reported by over half of respondents. The most common perceived cause of this impairment was health concerns, followed by mental health concerns. Future research should examine the relationship between somatic, other physical and mental health complaints, and functional impairment in greater detail.

An intriguing and counterintuitive finding is that more men than women reported a history of sexual assault (17% compared to 3%). There is little other information available to explain this finding, but it is possible that participants did not fully understand the question and may have provided a “yes” response if a family member experienced rape or forced sex.

Participant suggestions for humanitarian agencies to improve mental health are an important window into understanding the attributions Rohingya make about the origins of their psychological distress. These data also provide a rich source of information about what type of interventions Rohingya believe to be effective in reducing mental health symptoms, with resettlement, enhancing a sense of safety and security, and provision of food aid as the most commonly suggested actions. These recommendations by the Rohingya are consistent with the most commonly reported problems on the daily stressors measure, and again underscore the importance of considering daily stressors as a point of intervention.

Limitations

This research has several limitations. First, due to time and resource constraints, the standardized measures used in the survey were not normed and validated for use with the Rohingya refugee population in Bangladesh. While it is clearly preferable to assess mental health symptoms with measures validated for a specific population (e.g., Kohrt et al., 2011), this is a time-consuming and costly endeavor. Moreover, there is often significant overlap in the content and external validity of locally developed measures and globally deployed measures (e.g., Rasmussen, Ventevogel, Sancilio, Eggerman, & Panter-Brick, 2014). However, care must be taken in interpreting the results of nonvalidated questionnaires, particularly given

the risk to conflate contextually generated distress among people living in chronic adversity with psychopathological states (Horwitz, 2007; Rodin & van Ommeren, 2009).

This research examined symptoms of PTSD and depression. There is continued debate over the validity of Western psychiatric constructs, particularly PTSD, in non-Western populations (Kienzler & Locke, 2017; Kirmayer, Lemelson, & Barad, 2007; Michalopoulos et al., 2015; Ventevogel, 2016). Ideally, this study would have explored the local cultural constructs for mental distress and their relationship with professional psychiatric categories. In this research, however, we wanted to measure symptoms of PTSD and depression through internationally used questionnaires in order to provide reference for comparison of mental health and well-being across contexts, and, moreover, to explore how these symptoms are related to past traumatic events and to daily stressors.

There is a growing body of research indicating that many aspects of PTSD appear to be universal, at the same time emphasizing the need to augment assessment of PTSD with culturally specific measures to address somatic and other symptoms (Hinton, Kredlow, Pich, Bui, & Hofmann, 2013; Marsella, 2010; Michalopoulos et al., 2015; Rooyen & Nqweni, 2012). In order to capture distress that may not have been represented in the PTSD and depression inventories, items were included to assess cultural idioms of distress, somatic symptoms, and overall functioning. This includes some items for measuring disabling anxiety and psychotic symptoms. However, the results of self-report measures for such symptoms can be unreliable, and may result in inaccurate assumptions including underestimating prevalence (Lim, Hoek, & Blom, 2015). Consequently, results should be interpreted with caution.

Third, this was a cross-sectional study. Longitudinal studies are necessary to thoroughly examine the role of daily stressors and history of trauma exposure in predicting mental health outcomes (Neuner, 2010). Finally, in order to understand the local perspectives of the Rohingya, a more in-depth analysis of the local idioms of distress and explanatory models would have been ideal. However, given the limited time frame and restricted access to the refugee camps, a thorough qualitative research phase was not feasible.

Conclusion

The findings of this study support the relevance of daily environmental stressors, or perceived unmet needs, for war-affected populations in refugee camps and other postemergency settings and add to our understanding of the mental health impact of living in chronic adversity. Problems of the past can influence the present in myriad ways, including how one responds to chronic daily stressors.

The study tested the hypothesis that environmental stressors would mediate the relationship between traumatic exposure and distress among stateless Rohingya residing in refugee camps in Bangladesh. The research confirms the proposed model, adding to a small but growing body of literature on the role of daily

stressors in mental health outcomes among war-affected populations (Miller & Rasmussen, 2014). For the Rohingya, being stateless is an important stress factor in their lives, as statelessness generates problems of belonging that make it difficult to access and experience a range of human rights (Drew et al., 2004). Moreover, the effects of collective violence and injustice in the past are comingled with the difficult life circumstances of being stateless refugees in an often unwelcoming and sometimes outright hostile environment (Human Rights Watch, 2013; Lewa, 2009). Unsurprisingly, the participants in this research express a strong wish for sustainable solutions as a way to improve their current situation. Without such solutions in sight, the psychological suffering of the Rohingya is likely to continue.

This does, however, not imply that in the absence of a solution for the problem of statelessness, mental health and psychosocial interventions would be useless. Various interventions could be implemented to improve the mental health and well-being of stateless Rohingya refugees. Given the lack of psychiatric facilities in Bangladesh, specialist psychiatric treatment is rarely a viable option. Most people with mental health disorders will have to be managed within primary care. However, analysis of data from the UNHCR's Health Information System showed that in the Bangladesh camps, very low numbers of refugees with mental disorders are managed within primary health care facilities (Kane et al., 2014). An important action to undertake is, therefore, to train primary health care staff in identification and management of priority mental health conditions, which can be done through evidence-based guidelines developed by the World Health Organization and UNHCR (Ventevogel, van Ommeren, Schilperoord, & Saxena, 2015; WHO, 2010). However, it should also be noted that a potential downside of the integration of mental health into primary care can be the medicalization of distress (Ventevogel, 2014).

Although the long displacement and the lack of possibilities to pursue educational and livelihood opportunities outside the camps have negatively affected the ability of the Rohingya population in Bangladesh to cope with daily adversity (Kiragu et al., 2011), the community has persevered. Social and community activities, religious activities, and caring for children to create a better future were often cited by participants as preferred means of coping with their difficult circumstances. This is not surprising, as there is substantial evidence linking social support and well-being (Cheng et al., 2014; Thoitis, 2011). Researchers and practitioners have indicated that social/community-based support models can be beneficial in helping displaced communities in managing their stress, and have called for increased development and testing of these types of interventions (see Tol et al., 2011, for a review). Given findings from this and other studies, interventions aimed at strengthening family and community supports may be best suited to enhance the well-being of Rohingya refugees in Bangladesh and similar groups in protracted situations.

Mental health distress for the stateless Rohingya may also be mitigated by interventions targeting environmental stressors in order to promote well-being. Humanitarian agencies, regardless of sector specialty, have the potential to positively impact mental health (Horn, Waade, & Kalisky, 2016). The IASC (2007)

guidelines outline recommendations and opportunities for humanitarian agencies to promote psychosocial well-being and foster resilience. Mental health specialists should also increasingly broaden their understanding of what constitutes an effective intervention for psychological distress, working in collaboration with humanitarian actors to incorporate human rights perspectives (UNHCR, 2013).

The authors hope this research will inspire additional efforts to further our understanding of social and cultural contextual factors influencing mental health outcomes for populations such as the Rohingya in Bangladesh, and to aid in development of a more nuanced model of trauma exposure, daily stressors, and associated treatment.

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Note

1. An item regarding loss of sexual interest or pleasure was removed during analysis of the Depression subscale (HSCL). Twenty-two participants skipped this item, suggesting sensitivity to the question. One participant's depression score was an extreme outlier (2.76 *SD* below the mean), and was Winsorized. This participant marked the same number for all items on the questionnaire, raising concerns that responses may not be accurate.

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