BRIEF RESEARCH REPORTS

Traumatized Experiences of Children by Multiple Emergency Stressors: An Analysis of Data from the 2004 Tsunami in Sri Lanka

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ABSTRACT

Background: In 2004, in the midst of civil war, Sri Lanka was struck by a large tsunami, devastating coastal communities. **Methods:** In the immediate aftermath of the 2004 Asian tsunami, while providing emergency aid, a Canadian NGO interviewed children living in both a refugee camp and an affected village in Sri Lanka. **Results:** Complete data were available for 63 respondents, aged 3 to 17 years. There were significant reports of sleeping problems, crying, and somatic symptoms consistent with psychological trauma, which were more likely among the village residents than the camp residents. If a respondent had been affected by the war, via family death or injury, then they were more likely to have been similarly affected by the tsunami, as well. **Conclusion:** These findings are useful for developing strategies to address current emergency situations, such as the Syrian refugee crisis, in which children are likely to be similarly doubly traumatized.

Keywords: Stressors, tsunami, children, Sri Lanka

INTRODUCTION

The South Asian island nation of Sri Lanka was beset with a civil war from the early 1980s until 2009. During this time, health effects upon residents were varied and severe. In 2004, the Asian tsunami destroyed many coastal residences and negatively impacted those who were already affected by generations of war. As a result of these two stressors, the composition of families changed dramatically, with an increase in orphans and female-headed households, as largely working-aged men were killed by the war,[1] while children and elderly bore the brunt of the tsunami's wrath.[2]

In the wake of these two terrible phenomena, much work has been done on measuring the resilience of survivors and their paths to recovery. A recurring finding is that family characteristics are strongly associated with children's mental health, particularly in areas affected by mass trauma.[3]

The extent to which the traumatizing effects of war and natural disaster are similar has been superficially investigated, though the recommended therapies tend to be the same, particularly for children.[4]But disasters, both natural and human-made, place all members of a community at risk for physical and psychological harm; and "while natural resilience may help many to recover, there may be barriers that hinder the recovery process".[5] This is especially important in the context of low-income countries, where the availability of mental health services is generally poor.[6]

While war and disaster are no doubt forces for the creation of acute psychological trauma, especially in chronically underserved areas, such emergencies "also draw attention and resources to these issues and provide openings for mental health service development".[7] Emergencies like the 2004 Asian tsunami laid bare both the deep multilevel trauma suffered by dual survivors of war and disaster and the troubling lack of services available to those survivors.

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In the immediate aftermath of the tsunami, the Canadian Coalition for Relief to Eastern Province (CCREP) was established by private citizens in Canada to provide emergency medical supplies to selected communities in affected Sri Lanka. In preparation for a more sustained presence in the area, in the form of training locals to serve as trauma counsellors, the organization undertook a one-time study of children's experiences with both the tsunami and the ongoing civil war, with the aim of assessing their baseline psychological trauma symptomatology.

This paper presents the results of CCREP's study, which took place in the weeks immediately following the Asian tsunami. Release of these data was delayed for several years due to initial privacy concerns and respect for local hesitations about honouring children's experiences. Insights gleaned from these results are quite relevant today, however, given the comparable experiences of large numbers of children in low-income countries traumatized by their own local and global emergencies, such as the plight of Syrian children in light of that country's ongoing civil war.[8]

METHODS

After providing services to individuals affected by the tsunami, CCREP workers administered a questionnaire to randomly selected children in both a United Nations refugee camp and in a coastal village (Kalkudah). Both populations were mostly Tamil-speaking, and no incentives were provided for participation.

The questionnaire asked about children's basic demographics, whether they had lost family members or household animals to either the war or the tsunami, been personally injured, had witnessed someone else killed or injured, been forced to migrate, and how their homes had been physically affected. It also asked the children about their mental state (feelings about the future, their safety, and their education) and about any somatization symptoms experienced in the previous three weeks (headache, stomach pain, nausea, sleep experiences, breathing problems, or anger). A fluent Tamil-speaker conducted the questioning, and the children had friends, family members or other trusted persons present at the time of the interviews.

All data were coded quantitatively and subsequently analyzed using SPSS version 20. Research ethics approval for this study was granted by both the local medical officer of health and the Research Ethics Board of the University of Ottawa, file H05-12-01.

RESULTS

Complete data were available for 63 respondents, 28 (44%) of whom were female, with a mean age of 11 years (ranging from 3 to 17 years). Seven of the respondents (11%) were living with relatives at the time of the study, while 24 (38%) still lived in their original homes, and 31 (49%) lived in a refugee camp. The majority, 78%, reported that their homes were significantly damaged.

Table 1 presents a summary of the familial injuries and deaths caused by the tsunami, while table 2 summarizes the physical symptoms of stress presented by respondents.

Table 1: Family members affected by the tsunami

Family member	Injured	Percent	Death	Percent
Self	8	13%	n/a	n/a
Animals	0	0	0	0
Friends	4	6%	5	8%
Cousins	1	2%	9	14%
Siblings	8	13%	15	24%
Parents	9	14%	10	16%
Grandparents	1	2%	3	5%
Uncles/Aunts	11	17%	14	22%

Table 2: Physical symptoms reported

Sleep symptoms	Number	%
Any sleep problems	34	54%
Nightmares	23	37%
Trouble falling asleep	8	13%
Wake up in middle of night	3	5%
Somatic symptoms		
Any somatic symptoms	21	33%
Breathing problems	2	3%
Headaches	11	17%
Unspecific body pains	16	25%
Nausea	5	8%
Stomach pains	8	13%
Other symptoms		
Inability to concentrate	4	6%
Frequent crying	42	7%

Though these are coastal people, 89% reported a new fear of the sea, whereas 78% reported having no fear of the ongoing civil war. We were unable to discern whether such

fearlessness was genuine, expressions of bravado, or reflective of a desire to be perceived as supportive of their side's efforts in the war.

Eighteen respondents (28%) claimed to be concerned about the future, in terms of the safety and opportunities of them and their families. And when asked about their desired career paths, the most common response, reported by 24 individuals (38%), was a desire to become a doctor.

Specifically, due to the war, 21 (33%) had to leave home, one was personally injured, 12 (19%) had at least one family member killed, and 25 (40%) had personally witnessed someone maimed or injured.

Relevant bivariate associations are reported in tables 3, 4, and 5. Important findings include that older children were most likely to report having been injured by the tsunami, having sleep problems, or having somatic symptoms ($p<0.05$). Additionally, crying, sleep, and somatic problems were associated with having had a close friend or relative die or become injured in either the war or tsunami ($p<0.05$).

As per table 4, village-based children were more likely than those in the refugee camps to have sleep problems ($p<0.001$) and to have had a loved one die in the war ($p=0.002$). As well, boys were more likely than girls to have had a loved one killed or injured by war ($p=0.002$), less likely to report somatic symptoms ($p<0.05$), and more likely to have an adult they could speak to about troubling issues ($p<0.05$).Lastly, if a respondent had been affected by the war, via family death or injury, then they were significantly more likely to have been affected (via family death or injury) by the tsunami, as well ($p<0.05$).

Table 3: Bivariate categorical associations between selected factors

Factor	A family member had any injuries due to tsunami		Self or family member or killed or injured by the war		Has access to an adult they can talk to	
	Chi-square	p-value	Chi-square	p-value	Chi-square	p-value
Any sleep problems	11.579	*0.001	11.377	*0.001	0.742	0.164
Crying	4.087	*0.04	5.636	*0.018	0.551	*0.037
Somatic and sleep problems	4.002	*0.043	0.003	0.593	2.539	0.138
Only somatic ymptoms	1.556	0.287	3.195	0.108	3.81	*0.05
Male gender	0.013	0.556	9.664	*0.002	4.921	*0.028
Any family member Died by the tsunami	7.469	*0.008	5.007	*0.027	0.004	0.662

Statistically significant findings are asterisked

Table 4: Comparison of bivariate categorical associations of village residence and camp residence

Factors with statistically significant associations	Lives in the village rather than refugee Camp	
	Chi-square	p-value
Any family member injured by the tsunami	9.908	0.002
Any sleep problems	13.244	<0.001
Self or family member or killed or injured by the war	9.817	0.002

Table 5: Significant bivariate associations between selected factors and respondent age

Factors with statistically significant associations	Mean age (years)		t-test	p-value
	Yes	No		
Any family member injured by the tsunami	10.03	12.30	-3.323	0.002
Any sleep problems	10.21	12.00	-2.536	0.014
Somatic symptoms	10.58	12.24	-2.211	0.031

As per table 4, village-based children were more likely than those in the refugee camps to have sleep problems ($p<0.001$) and to have had a loved one die in the war ($p=0.002$). As well, boys were more likely than girls to have had a loved one killed or injured by war ($p=0.002$), less likely to report somatic symptoms ($p<0.05$), and more likely to have an adult they could speak to about troubling issues ($p<0.05$). Lastly, if a respondent had been affected by the war, via family death or injury, then they were significantly more likely to have been affected (via family death or injury) by the tsunami, as well ($p<0.05$).

DISCUSSION

The CCREP data suggest that a significant proportion, if not a majority, of Sri Lankan child survivors of the tsunami, experienced significant mental trauma that was compounded by their family experiences with war. Opportunities for assuaging their suffering were limited, given the dearth of local mental health services, but the presence of a comforting adult was found to be a compelling soother in some cases, and is a starting point for both short- and long- term trauma counselling. These results also suggest that the expected somatic, attitudinal and experiential symptoms of mental trauma are viable indicators for a rough field assessment, and might be a useful preface to a deeper prevalence study using more validated trauma detection instruments.

These are not surprising findings, given that previous studies have found high rates of PTSD (post-traumatic stress disorder) in children who have been affected by war,[9] natural disasters,[10]and both war and natural disasters combined.[11,12] The dose-response relationship between episodes of extreme stress and degree of PTSD is well established,[12] and there is evidence for such a scaled trauma-PTSD relationship among Tamil schoolchildren living in the war-affected areas of Sri Lanka.[13]

What is surprising is the finding that village residents were more likely to report somatic stress symptoms. Thabet et al,[14]when studying children in a war zone, found a significantly higher exposure to traumatic events in children from refugee camp areas than from villages, agreeing with earlier studies that showed that PTSD symptoms were more prevalent among children living in refugee camps.[15] Possible explanations for the divergence of the present data include statistical anomaly and selection bias. It should be noted that the village studied, Kalkudah is on the seashore, and therefore was profoundly affected by the tsunami.

Moreover, poor quality housing and restricted economic opportunities are well established as key factors in predicting psychological distress among refugees,[16] apt descriptors of the majority of the CCREP respondents. The refugee camps, on the other hand, featured structures built upon elevated concrete, which might have encouraged residents to feel safer than villagers from the encroaching of the sea.

These findings are relevant to ongoing traumas affecting children in comparable emergency situations worldwide. The current Syrian refugee crisis is the obvious example, wherein children are being multiply affected by direct threats to their physical safety, threats to their family members, the trauma of forced migration, and the complex threats to identity and consistent care that those experiences represent. The CCREP data, in context with literature findings, suggest that viable paths forward include acknowledging the compounded effects of multiple sources of trauma and addressing accessible aspects of everyday lifestyles, such as daily hassles and consistent adult presence.

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