

## Research Article

# Mental health of children from a war affected border village: a cross sectional comparative study

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## Abstract

### Background

Sri Lankan government had a war against terrorism for thirty years in North and East of Sri Lanka. There were villages in the North-East bordering to the LTTE held territory and the community lived in those villages faced to frequent attacks during that three decades. The present study was conducted to compare the mental health of children in a war affected border village, with the mental health of same aged children from a village not directly affected by the war.

### Material and Methods

Grade 8 and 9 students (n=148) from a government school were selected as subjects and self administered questionnaire and the validated Sinhalese version of the Strengths and Difficulties Questionnaire (SDQ) were completed. Age matched 138 students were selected as comparison group, from an area which is socioeconomically similar but not affected by the war as a border village. Same questionnaires were completed by the comparison group.

### Results

Subject group consisted of 76 (51%) males and 72 (49%) females. Age ranged 12-16 years (median 14, IQR 13-14). Majority (n=85, 57.0%) of children living in a border village were experienced some kind of an extremely terrifying incident related to the war. Nearly one fifth (n=26, 17.6%), who are living in the border village, had lost at least one immediate family member due to terrorist attacks. Majority of the border village children (n=94, 63.5%) believed that the war produced a significant negative impact on their lives. Children living in the border village showed 2.5-fold excess risk for a mental health problem (OR 2.5, 95% CI 1.4 to 4.5). Living in a border village carried 3 times excess risk for conduct problems (OR 3.1, 95% CI 1.6 to 6.0). Children living in the border village showed 2-fold excess risk for peer relationship problems (OR 1.9, 95% CI 1.1 to 3.2). Living in a border village carried 2-fold excess risk for hyperactivity/inattention problems (OR 2.3, 95% CI 1.2 to 4.2).

### Conclusions

Majority of children living in border village reported different exposures related to the civil war that can cause considerable and long-lasting psychological impact. Children from the border village had a significantly higher risk of showing borderline abnormal values on the SDQ, compared to children not from a border village. It is probable that this is due to the effect of war and its impact on the mental health of the children of the border village.

**Key words:** mental-health, war, border-village, children, conflict

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## Background

Since independence from British rule, Sri Lanka has been experiencing an ethnic conflict that has slowly escalated into full scale war in 1983, between the Sri Lankan government and a group of Tamil separatist terrorists, Liberation Tigers of Tamil Eelam (LTTE). Thereafter, over three decades, the violence resulted in the deaths of tens of thousands of Sri Lankans of all ethnicities (1). Through a combination of terrorist tactics and conventional forces, the LTTE carried out massacres of innocent civilians, attacked economic targets and vital infrastructure and created a fear psychosis that crippled everyday life for at least three generations of Sri Lankans (1). Over the course of the conflict, the LTTE frequently exchanged control of territory in the North and East of Sri Lanka with the government military, with the two sides engaging in fierce military confrontations, which has devastating effects on the daily activities of the residential communities within and bordering the territory, irrespective of their ethnicity.

The adverse effects of war extend to the whole community especially including the most vulnerable members of society, such as children (2). In addition to the ways that war affects adults, it affects children in different ways (3). Studies have shown that exposure to war and terror leads to severe stress reactions and anxiety in children (4, 5). In addition higher rates of post-traumatic stress disorder and depressive disorder has been found among affected children (3). Some studies conducted in Sri Lanka were suggested an association between mental health of children and exposure to conflicts (6) and internal displacement (7). However, evidence on interventions are limited (8).

This study was planned to achieve two main objectives: (1) to describe the war related trauma exposure of children in a war affected border village, and, (2) to compare the mental health of children in a war affected border village, with the mental health of same aged children from a village not affected by the war.

## Methods

### Study setting

Padaviya is a rural agricultural area located in Anuradhapura District of Sri Lanka. It has 240 Km<sup>2</sup> of land area and 24,185 population (9). It was bordering to the territory captured by the LTTE for more than one and half decades, until the end of the war in 2009. The community lived in the area faced to frequent and brutal attacks during the three decades of war (1).

### Sample and sampling

The study was conducted about two and half years after the civil war, in September 2011. Sample was selected from grade 8 and 9 students in a government school (1C category) in Padaviya (n=148). Comparison group

(n=138) was selected from an 1C category government school in Anuradhapura, an area which is socioeconomically similar but not affected by the war as a border village.

### Study Instruments

Demographic details, degree of exposure to the conflicts, life-experiences and perception regarding the effect of war on their lives were collected through a pre-tested self-administered questionnaire. The validated self-report Sinhalese version of the Strengths and Difficulties Questionnaire (SDQ) was used to assess mental health. SDQ ask about 25 attributes, some positive and others negative. These 25 items are divided between 5 scales; (1) Emotional symptoms, (2) Conduct problems, (3) Hyperactivity/inattention, (4) Peer relationship problems, and, (5) Prosocial behaviour. First four scales added together to generate a total difficulties score. (10). Scores were categorized in to three categories depending on clinical importance; (1) a score close to average - clinically significant problems in the particular area are unlikely, (2) a slightly raised score- may reflect clinically significant problems, and, (3) a high score - substantial risk of clinically significant problems in the particular area. However, score represented 2<sup>nd</sup> and 3<sup>rd</sup> categories were considered as having a risk of clinically significant problems for the analysis.

### Data Collection and Statistical Analysis

Both the groups were complete same questionnaires at the school during the school time. War-trauma exposures were describe by calculating percentage of exposure. Prevalence of mental illnesses were calculated and both groups were compared through calculation of odds ratio (OR) and chi-square test.

## Results

### Sample characteristics

In this investigation subject group consisted of 76 (51%) males and 72 (49%) females. The comparison group consisted with 67 (48.5%) of males and 71 (51.5%) of females. Age ranged 12-16 years (median 14, IQR 13-14 ) in both groups.

### War-trauma exposure

Majority (n=85, 57.0%) of children living in a border village were experienced some kind of an extremely terrifying incident related to the war. Only 17% (n=24) children in comparison group experienced an extremely terrifying incident related to the war. Nearly one third (n=45, 30.4%) of the children living in a border village were experienced an invasion by the terrorists. Bodily injuries to themselves and bodily injuries to a family member due terrorists attack was reported by 14.2% (n=21) and 27% (n=40) of children living in the border village respectively. Nearly one fifth (n=26, 17.6%), who are living in the border village, had lost at least one immediate family member due to terrorist attacks.

Moreover, 34.5% (n=51) of living in the border village had lost at least one very close friend who is significant to them. In comparison group, 14.5% (n=20) reported the same. A significant damage to the house due to terrorist attack was reported by 8.1% (n=12) children in border village. Majority of the border village children (n=94, 63.5%) believed that the war produced a significant negative impact on their lives.

**Mental health**

Age and sex matched, randomly selected, 138 (93.2%) subjects and all in the comparison group were included in the present analysis. Children lived in the border village reported significantly higher mental health issues compared to comparison group (Table 1).

Nearly one fourth (n=36, 24.7%) of the subjects had risk of clinically significant conduct problems. Living in a border village carried 3 times excess risk for conduct problems (OR 3.1, 95% CI 1.6 to 6.0), p= 0.0006. About one third (n=46, 31.5%) of the subjects had risk of clinically significant peer relationship problems. Children living in the border village showed 2 fold excess for peer relationship problems (OR 1.9, 95% CI 1.1 to 3.2), p= 0.0228. Living in a border village carried 2 fold excess risk for hyperactivity/inattention problems (OR 2.3, 95% CI 1.2 to 4.2), p= 0.0075.

**Table 1: Prevalence of mental health problems**

	Number (%) having high score		Number (%) having slightly raised score	
	Border Village Children	Comparison Group	Border Village Children	Comparison Group
Conduct problems	22 (15.1)	5 (3.4)	14 (9.6)	9 (6.2)
Hyperactivity/inattention	20 (13.7)	14 (9.6)	17 (11.6)	5 (3.4)
Peer relationship problems	37 (25.3)	25 (17.1)	9 (6.2)	4 (2.7)
Emotional problems	17 (11.6)	12 (8.2)	7 (4.8)	7 (4.8)
Prosocial behaviour problems	13 (8.9)	11 (7.5)	6 (4.1)	11 (7.5)
Mental health problems (based on total difficulties score)	39 (26.7)	36 (24.7)	87 (59.6)	69 (47.3)

Majority (n=126, 86.3%) of the children living in the border village reported a total difficulties score amounted to clinically significant mental health problem. Children living in the border village showed 2.5 fold excess risk for a mental health problem (OR 2.5, 95% CI 1.4 to 4.5), p= 0.0025. Though higher proportion of border village children reported clinically significant emotional problems, the differences were not statistically significant (OR 1.3, 95% CI 0.7 to 2.3), p= 0.3951 (Table 2).

**Table 2: Comparison of mental health problems among children in border villages and comparison group.**

	Number (%) having high and slightly raised score		Number (%) having normal score		Odds ratio (95% CI) p value (Chi-square test)
	Border Village Children	Comparison Group	Border Village Children	Comparison Group	
Conduct problems	36 (24.7)	14 (9.6)	110 (75.3)	132 (90.4)	3.1 (1.6 to 6.0) p= 0.0006*
Hyperactivity/inattention	37 (25.3)	19 (13.0)	109 (74.7)	127 (87.0)	2.3 (1.2 to 4.2) p= 0.0075*
Peer relationship problems	46 (31.5)	29 (19.8)	100 (68.4)	117 (80.2)	1.9 (1.1 to 3.2) p= 0.0228*
Emotional problems	24 (16.4)	19 (13.0)	121 (83.6)	127 (87.0)	1.3 (0.7 to 2.3) p= 0.3951
Prosocial behaviour problems	19 (13.0)	22 (15.0)	127 (87.0)	122 (85.0)	0.82 (0.4 to 1.6) p=0.5801
Mental health problems (based on total difficulties score)	126 (86.3)	105 (72.0)	20 (13.7)	41 (28.0)	2.5 (1.4 to 4.5) p= 0.0025*

\* p value <0.05

## Discussion

The present study focused on traumatic exposures of the civil war of Sri Lanka and its associations with mental health problems of a sample of school children aged 12–16 years in a selected border village, Padaviya. The findings from this study are important because scarcity of literature on this theme and evidence on intervention (8). In addition, children's mental health determines their future social mobility and socioeconomic status.

Majority of children living in border village reported different exposures related to the civil war that can cause considerable and long-lasting psychological impact. Children from the border village had a significantly higher risk of showing abnormal values on the most of the scales and total difficulty score of SDQ.

A sub analysis done on the Sri Lankan National Mental Health Survey in 2006-2007, reported that school absenteeism was present in 36.2% of those reporting conflict exposure. Students with emotional problems, conduct problems and hyperactivity problems had the 51.2%, 48.6%, and, 44.4% prevalence of school absenteeism. However, they failed show a significant

association between school absenteeism and mental health in relation to conflict exposure (6). A study investigated the mental health impact of prolonged forced displacement in 2012 showed that the prevalence of somatoform disorder and major depression were considerably higher than national estimates (7).

The sample of the present study is not a representative sample of the border villages, as it was selected from one government school. Therefore, in depth analysis with more representative sample is important for confirmation. Moreover, effect of the time, formal and informal interventions can be assessed through such a study.

## Conclusions

Majority of children living in border village reported different exposures related to the civil war that can cause considerable and long-lasting psychological impact. Children from the border village had a significantly higher risk of showing borderline abnormal values on the SDQ, compared to children not from a border village. It is probable that this is due to the effect of war and its impact on the mental health of the children of the border village.

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