

## Post War Psychological Morbidity among Internally Displaced, Married Females in Northern Sri Lanka

Don Shashika Ransara Attidiya<sup>1\*</sup>, Aravinda Wickramasinghe<sup>2</sup>, Achala Balasuriya<sup>3</sup>, Dileepa Ediriweera<sup>4</sup>, Sahayapragash Manuelpillai<sup>1</sup>, Shehan Williams<sup>4</sup>

<sup>1</sup>Mental Health Unit- District General Hospital, Mannar (Former), University of Kelaniya, Sri Lanka

<sup>2</sup>Office of Senior Assistant Secretary - Medical Services, Ministry of Health, Sri Lanka

<sup>3</sup>Medical Unit, District General Hospital, Vavuniya, Sri Lanka

<sup>4</sup>Faculty of Medicine, University of Kelaniya, Sri Lanka

\*Corresponding author: Don Shashika Ransara Attidiya, Mental Health Unit- District General Hospital, Mannar (Former); E-mail: [shashika.attidiya@yahoo.com](mailto:shashika.attidiya@yahoo.com)  
Shehan Williams, University of Kelaniya, Sri Lanka, Tel: +94112903903; Fax: +94112913857; Email: [shehanwil@msn.com](mailto:shehanwil@msn.com)

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### Abstract

**Background:** A three-decade long conflict between the government military and Tamil rebels in Sri Lanka ended in 2009 with the defeat of the rebels. The civilians were the most affected in the war with reports of scant respect for human rights on both sides of the warring factions.

**Objective:** To conduct a cross-sectional study to assess the prevalence of psychiatric morbidity among married females in two villages in Northern Sri Lanka that was affected significantly in the last phase of the war.

**Method:** All married females in two resettled villages in the Mannar District were interviewed by trained data collectors using the translated K-10 and PSSR-17 questionnaires to estimate the prevalence of post-traumatic stress disorder (PTSD) and depressive disorder. All families in these villages were from internally displaced camps where they had been living for more than a year after having been displaced from their homes and having experienced direct war trauma for weeks. Data was collected from 135 married females between March to May 2011 with ethical approval for the study.

**Result:** Criteria for diagnosis of severe PTSD were met in 57% of all participants and all participants had at least mild symptoms of PTSD. The screening tool for depression showed 63% to have significant depressive symptoms. Both depressive and severe PTSD features were present in 24%. Nearly 73% of participants were having either depression or severe PTSD.

**Conclusion:** Psychiatric morbidity was high in the post-conflict period, in a highly vulnerable population of married females.

**Keywords:** Post-traumatic stress disorder; Depression; Sri Lanka; Internally displaced amidst of war; Female spouses

### Introduction

In recent times in Sri Lanka, a vast number of people from the northern part of Sri Lanka called the Vanni region were hapless victims of violent fighting between government military forces and a rebel group (LTTE) fighting for a separate Tamil homeland [1]. War between the Sri Lankan military and Tamil rebels ended in 2009 with the defeat of the Tamil rebels. People were trapped in the last stage of the war between the military and the rebels and were direct witnesses to the conflict. The fighting was particularly intense and hundreds of civilians lost life and limb in the crossfire. They fled from their homes and lived in makeshift lodgings in harsh conditions in forests amidst of starvation and sickness for weeks, under constant threat of bombings and shell fire. They were separated from their families and some were forcibly recruited to fight for the rebels. They eventually crossed over to the government military side and lived as internally displaced persons (IDP) in temporary settlements for more than a year before being

resettled in their villages. These camps were maintained by the government and they were far from human habitation [2].

Economic hardships were common in the rural villages that they lived in. They were agriculture or fishing dependent villages and a regular income was not common. They were affected by drought and floods and often had to face huge losses to their earnings which were equivalent to 1-2 US dollars a day. Most females got married at a young age, usually in their teens. They also had many children to care for. They were poorly educated and had to sometimes do manual work in fields while also looking after the families. Poverty and lack of education were the main reasons for their early marriages [3]. Some also entered early marriage as a means of evading forced recruitment by rebel groups like the LTTE. Therefore, married females appeared to be the most vulnerable and we were keen to understand their mental health issues as the well-being of the families depended on them. Their vulnerability is further exacerbated by the prevailing cultural norms and practices. Traditionally Tamil families had a patriarchal hierarchy and the women were not previously endowed with leadership roles which they had to take on as there were an increasing number of female headed households in the post-war context. The conservative

society did not also encourage close contact with a male other than the husband, father or sibling. Single females would have been but few in the post-war context. They would have been more educated and many would have opted not to go back to the villages. Even those who returned would have been living with the parents or siblings, and therefore better supported. It is unusual for single females to live by themselves. The objective of our study was to determine the extent of psychological distress among the civilian married females who were resettled in two villages that were completely abandoned during the war. These people fled from their villages due to the intense fighting between Tamil rebels and Sri Lankan forces and they were trapped in Mullivaikkal at the end of the war. Mullivaikkal is a dry, sandy coastal belt of around five square kilometers limited on the east by the Indian ocean and the west by a shallow lagoon called Nandikadal, on the eastern flank of Mullativu district in the Northern province of Sri Lanka where the final battle was fought. The civilian survivors thereafter were kept in IDP camps by the government before they were resettled in their villages.

## Methods

### Study design and setting

A cross sectional study was conducted in two villages, Salampan and Anthoniyapuram in Manthai West Divisional Secretariat area, Mannar district, where the IDPs were resettled. Mannar District is located in the north west of Sri Lanka in the Northern Province. These villagers had abandoned their homes in the intense fighting and then spent nearly a year before resettling back in their own villages. We selected these two villages since all the inhabitants had been in IDP camps and the villages to be in the catchment area of Mannar Mental Health Unit. They were also the first to resettle in Mannar district.

An IDP is defined as someone who had been forced to leave their home for reasons such as religious or political persecution, war or natural disaster, but who had not crossed an international border. In this study we included only the people who have been in this situation for the past year. All the villagers were resettled a few months before the study. There were 190 registered families in these two villages. All married females between the ages of 18 and 60 years were interviewed after obtaining informed consent. Those over 60 years were excluded as they would be elders and their socio-economic status would be different. This study was conducted in the months of March to May 2011. All females meeting criteria for study inclusion and consenting to participate were included.

### Research instruments

Three trained research assistants conducted the interviews. They were recent graduates from University of Jaffna living in Mannar district. They went through a-month of training in Mannar Mental Health unit before collection of data. Research assistants spent many days explaining the research and building rapport with the villagers before collecting data. A questionnaire was used to obtain demographic and personal data. Socio-demographic variables included were age, living with a husband, the number of children, previous chronic illnesses, previous psychiatric illnesses, loss of family members during the war, war injury, any mental trauma and the nature of the trauma, loss of property, and whether their basic needs were met at the time of resettlement. Shelter, food and clothing were considered as basic needs. Mental trauma was categorized thus: 1-witnessing a family member or close relative's death, 2-witnessing

deaths, bomb explosions or shootings; 3-not witnessed any deaths or explosions but another form of mental trauma such as family member arrested, interrogated by military officers or detained in camps for security checks and forced separation from the family. The latter factors posed a significant threat to the lives of these participants [4].

The Kessler-10 questionnaire (K-10) and the Post traumatic stress disorder Scale Self-Reported-17 questionnaire (PSSR-17) were used to assess the extent of depressive symptoms and post-traumatic stress disorder. The K-10 scale is widely used to assess psychological morbidity in epidemiological studies [5]. This is a ten item scale; that scores from 1 to 5. We used a translated and validated Tamil questionnaire. The PSSR-17 is a questionnaire used to assess combat stress and PTSD among post war refugees in different countries [6]. It is a 17 item questionnaire with scores from 0 to 3 for each item, depending on severity of symptoms. PTSD is diagnosed by the presence of one re-experiencing symptom, three avoidance symptoms and two arousal symptoms for at least one month [7]. On a continuous scale a total score of 1-9 indicates mild; 10-19 moderate and  $\geq 20$  severe PTSD [8]. Both scales have excellent internal consistency with a Cronbach's alpha of 0.95 for the K10 scale and 0.89 for the PSSR-17 scale. SPSS data analysis package was used to analyze the data.

### Ethical considerations

Ethical clearance was obtained from the Ethics Committee of the Faculty of Medicine, University of Kelaniya. Informed written consent was obtained from all the participants. Those identified to be in severe distress and needing intervention were referred to the local psychiatric services and psycho-social network.

## Results

### Female spouses

We recruited 135 spouses from the 190 families registered in the district. The mean age of the sample was 36.8 (SD- 11.97). The majority of them had witnessed a significant traumatic event such as the death of a family member (10.4%) or the death of a civilian (57.7%). A large proportion of the females (91.1%) claimed that there was a significant damage to their property and 22.2% of the females had sustained physical injury during the war (Table 1).

All the females had mild form of PTSD in the PSSR-17 screening questionnaire. Of them, 57% met the criteria for diagnosis of severe PTSD. The screening tool for depression showed that 63% had significant depressive symptoms. Both depressive and severe PTSD features were present in 24% of the female spouses. Nearly 73% of females were having either depression or severe PTSD. The husbands of 31 spouses were missing at the time of the study (Table 1).

### Association with demographic factors

There was a higher prevalence and higher scores for PTSD among the age group of 36 -50 in comparison to other age categories (Table 2). In the 36-50 age groups, 25% were suffering from severe PTSD in comparison to 20% and 11% with PTSD in those below 36 years and above 50 years respectively. Depression and not PTSD, was more associated with previous diagnosis of psychiatric disorder. All females who had a previous diagnosis of psychiatric disorder screened positive for depression in comparison to 60% with depressive symptoms among females without a history of psychiatric disorder. Factors such as not

living with a husband, basic needs not being met, loss of property, injury, chronic illness and severity of mental trauma showed a trend towards having PTSD although not statistically significant (Table 2). Depression did not show a similar trend.

Demographic details	PTSD					Depression	
	N%	Mild n (%)	Moderate n (%)	Severe n (%)	Mean (SD)	N (%)	Mean(SD)
<b>Age</b>							
<36	59 (43.7)	09(6.7)	23(17)	27(20)	18.8(9.3)	42(31.1)	3.5(.85)
36-50	49 (36.3)	05(3.7)	09(6.6)	35(25.9)	24.2(9.5)	29(21.4)	3.1(.95)
>50	27 (20)	01(.7)	10(7.4)	16(11.8)	22.5(8.6)	15(11.1)	3.4(.82)
<b>Village</b>							
Salampan	48(35.5)	9(6.6)	23(17)	16(11.8)	16.7(7.3)	38(28.1)	3.8(.63)
Anthonyapuram	87(64.4)	7(5.1)	19(14.0)	61(45.1)	23.8(9.5)	48(35.5)	3.1(.90)
<b>Living with Husband</b>							
Yes	99 (73.3)	13(9.6)	31(22.9)	55(40.7)	20.8(9.4)	62(45.9)	3.3(.92)
No	36 (26.7)	02(1.5)	11(8.1)	23(17)	23.3(9.5)	24(17.7)	3.4(.83)
<b>Having Children</b>							
Yes	115(85.2)	12(8.8)	33(24.4)	70(51.8)	22.1(9.3)	70(51.8)	3.2(.90)
No	20 (14.8)	03(2.2)	09((6.6)	08(5.9)	17.7(9.2)	16(11.8)	3.6(.81)
<b>Whether met Basic needs</b>							
Yes	03 (2.2)	0(0)	02(1.4)	01(.7)	23.3(7.5)	03(2.2)	4.0(.4)
No	132(97.8.)	15(11.1)	40(29.6)	77(57)	21.5(9.5)	83(61.4)	3.3(.9)
<b>Sustained Injury</b>							
Yes	30(22.2)	03(2.2)	07(5.1)	20(14.8)	22.9(9.4)	19(14)	3.3(.89)
No	105(77.8)	12(8.8)	35(25.9)	58(42.9)	21.1(9.4)	67(49.6)	3.3(.90)
<b>Mental Trauma</b>							
1	14 (10.4)	03(2.2)	05(3.7)	06(4.4)	18.3(8.2)	10(7.4)	3.4(.82)
2	78 (57.8)	09(6.6)	27(20)	42(31.1)	21.1(9.5)	48(35.5)	3.4(.93)
3	43 (31.8)	03(2.2)	10(7.4)	30(22.2)	23.3(9.6)	28(20.7)	3.3(.85)
<b>Lost any Family member</b>							
Yes	73 (54.1)	06(4.4)	26(19.2)	41(30.3)	21.9(9.6)	42(31.1)	3.2(.90)
No	62 (45.9)	09(6.6)	16(11.8)	37(27.4)	20.9(9.3)	44(32.5)	3.5(.85)
<b>Lost Property</b>							
Yes	125(92.6)	15(11.1)	36(26.6)	74(54.8)	21.7(9.5)	78(57.8)	3.3(.89)
No	10 (7.4)	0(0)	06(4.4)	04(2.9)	19.1(8.4)	08(5.9)	3.7(.84)
<b>Suffering from Chronic illness</b>							
Yes	25(18.5)	02(1.4)	05(3.7)	18(13.3)	25(10.6)	13(9.6)	3.1(1.0)

No	110(81.5)	13(9.6)	37(27.4)	60(44.4)	20.6(8.9)	73(54.0)	3.4(.85)
<b>Psychiatric Disorders</b>							
Yes	12(8.9)	1(.7)	6(4.4)	5(3.7)	20.3(8.7)	12((8.8)	4.0(.53)
No	123(91.1)	14(10.3)	36(26.6)	73(54.0)	21.6(9.5)	74(54.8)	3.2(.89)
<b>Total</b>	<b>135</b>	<b>15(11.1)</b>	<b>42(31.1)</b>	<b>78(57.8)</b>	<b>21.5(9.5)</b>	<b>86(63.7)</b>	<b>3.4(.89)</b>

**Table 1:** Association of psychiatric morbidity with demographic details.

Age	Severe PTSD				Depression			
	No.	%	OR	95% CI	No.	%	OR	95% CI
18-36	27	45.8%	0.58	(0.23-1.46)	42	71.2%	1.976	(0.77-5.09)
36-50	35	71.4%	1.71	(0.64-4.61)	29	59.2%	1.160	(0.44-3.00)
>50	16	59.3%	1	(Reference)	15	55.6%	1	(Reference)
<b>Village</b>								
Salampan	16	36.4%	1	(Reference)	38	86.4%	1	(Reference)
Anthonyapuram	62	68.1%	3.74	(1.76-7.97)	48	52.7%	0.176	(0.07-0.46)
<b>Living with husband</b>								
Yes	55	55.6%	1	(Reference)	62	62.6%	1	(Reference)
No	23	63.9%	1.41	(0.64-3.11)	24	66.7%	1.194	(0.53-2.67)
<b>Having children</b>								
Yes	70	60.9%	1	(Reference)	70	60.9%	1	(Reference)
No	08	40.0%	0.43	(0.16-1.13)	16	80.0%	2.571	(0.81-8.18)
<b>Whether met Basic needs</b>								
Yes	01	33.3%	1	(Reference)	03	100.0%	N/A	
No	77	58.3%	2.8	(0.26-31.65)	83	62.0%	N/A	
<b>Sustained injury</b>								
Yes	20	66.7%	1.62	(0.69-3.80)	19	63.3%	0.98	(0.42-2.27)
No	58	55.2%	1	(Reference)	67	63.8%	1	(Reference)
<b>Mental Trauma</b>								
1	06	42.9%	0.32	(0.09-1.13)	10	71.4%	1.34	(0.36-5.0)
2	42	53.8%	0.51	(0.23-1.11)	48	61.5%	0.86	(0.39-1.86)
3	30	69.8%	1	(Reference)	28	65.1%	1	(Reference)
<b>Lost any family members</b>								
Yes	41	56.2%	0.87	(0.44-1.72)	42	57.5%	0.55	(0.27-1.14)
No	37	59.7%	1	(Reference)	44	71.0%	1	(Reference)
<b>Lost Property</b>								
Yes	74	59.2%	2.18	(0.58-8.10)	78	62.4%	0.41	(0.085-2.04)

No	04	40.0%	1	(Reference)	08	80.0%	1	(Reference)
<b>Suffering from Chronic illness</b>								
Yes	18	72.0%	2.14	(0.82-5.54)	13	52.0%	0.55	(0.23-1.32)
No	60	54.5%	1	(Reference)	73	66.4%	1	(Reference)
<b>Previous Psychiatric disorders</b>								
Yes	05	41.7%	0.49	(0.14-1.62)	12	100.0%	N/A	
No	73	59.3%	1	(Reference)	74	60.2%	N/A	

**Table 2:** Odd ratios among demographic factors.

## Discussion

A high prevalence of depression and PTSD symptoms were seen in Tamil married females more than 18 months after exposure to trauma in northern Sri Lanka. Previous studies have established that women are particularly vulnerable in conflicts and disasters to depression and PTSD. In Sri Lanka following the tsunami in 2004, Wickremae et al., document 37.8% depression and 19.9% PTSD in mothers affected by this disaster [9]. This is higher than the 16% depression and 21% PTSD reported 20-21 months after the tsunami in the general population in southern Sri Lanka [10]. A study from Jaffna district in the northern province of Sri Lanka in 2009, shows depression in 42% and PTSD in 13% of displaced civilians [11]. A study done in 1991 in Jaffna district reported 25% major depression, 27% PTSD, 41% somatization and 26% anxiety disorders in a civilian population following war trauma [12].

It is also noteworthy that the high rates seen in our population are comparable to that seen in post-war Afghanistan of 67% depression and 42% PTSD and in chemical war survivors in Iran of 41% depression and 59% PTSD [13,14]. In conflict ridden areas in Nepal the figures appear lower with 27.5% depression and 9.6% PTSD. A meta-analysis of studies from refugees in conflict areas reports an average of 30.8% depression and 30.6% PTSD [15,16]. Predictors for PTSD in this group were female gender, minority ethnic status, high level of trauma exposure, pain, loss of someone close and social support. All these factors are relevant to our study population.

The higher rates seen in our study of IDP victims could be related to the fact that this was in a vulnerable population directly exposed to trauma. Many females were also from female-headed households and their husbands were missing at the time of the study. They had also been resettled recently and were still struggling to rebuild their lives among economic hardships. Associations between poverty and depression and suicidal ideation, and even risk of PTSD have been previously documented [17-19]. The additive effects of poverty and intimate partner violence in women with PTSD, depression and emotional difficulties have been discussed [20]. Higher social support seems to predict lower PTSD severity at least for women with cumulative interpersonal trauma [21]. The extent of interpersonal violence in this vulnerable group is not known.

A recent Meta-analysis regarding the incidence of PTSD in children and adolescents indicate that around 16% developed PTSD after trauma, with the rate increasing in those exposed to interpersonal trauma [22]. Girls were at higher risk than boys. A recent study among war affected youth from Sierra Leone highlights the role of daily

stressors such as housing, food and economic security and interpersonal adversities as indirect pathways that contribute to PTSD [23]. Even among the women we studied, some of these factors seemed to be associated with a non-statistically significant trend towards PTSD (Table 2).

Natural disasters like a tsunami have a lesser impact compared to man-made disasters like wars, which show a higher prevalence of depression and PTSD [24]. In mass scale conflicts psychiatric morbidity directly correlates to the magnitude of the trauma experience by the civilians, length of the conflict, gender, age and exposure to other traumas like torture, sexual violence and human right violations [25-30]. We could not assess those factors in our study due to the sensitive sociopolitical environment at the time of the study. Complicated grief due to bereavement can be another factor contributing particularly to higher levels of depressive disorder [31]. It is often difficult to discriminate complicated grief from depressive disorder [32].

The shortcoming of our study is that the sample size was too small to make any generalizations or study the factors that may have contributed to the higher morbidity. The findings were based on questionnaire-based outcomes and in-depth interviews were not conducted to confirm the diagnoses in DSM IV or ICD 10 categories. Some information was not gathered due to the socio-political environment and security reasons. Interviewer bias was also a limitation of this study.

This withstanding, this is an important preliminary study of vulnerable females who have been severely traumatized by the conflict in northern Sri Lanka in 2009. A medical response to urgently support this affected group is needed. There may be other sub-populations such as children and older adults who may be equally affected. The mental health of the war affected civilian population should be an important priority in any post war situation.

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