

# POST TRAUMATIC STRESS DISORDERS (PTSD) AMONG TSUNAMI SURVIVORS IN ALAPPAD PANCHAYATH

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# **Post Traumatic Stress Disorders (PTSD) among Tsunami survivors in Alappad Panchayath**

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## **Preface**

Tsunami, one of the worst natural disasters occurred on the 26<sup>th</sup> of December 2004 across the world hitting the coastal land including the state of Kerala. The tsunami the first of its kind in the state took away hundreds of lives, destroyed houses and disrupted the entire fabric of the fisher folk. Although materialistic rehabilitation was carried out immediately with almost concern and empathy the psycho social problems were left out unattended. The present investigation was taken up to study the impact of tsunami on the psycho social status of survivors in Alappad Panchayath of Kollam District, which was the most adversely affected area. The psycho social variables selected for the study were Post Traumatic Stress Disorder (PTSD).

Five Hundred tsunami survivors were selected from various relief camps using the method of cluster smpling. 500 subjects were selected from nearby non affected Chavara Panchayath for the sake of comparison. The study was conducted in three phases, immediately after tsunami, after one year of occurrence and after two years of occurrence. Tools used for the study was Impact of Event Scale. Analysis was done using Statistical Package for Social Sciences (SPSS.20).

Dr. V. N. Sreekumar

## **Post Traumatic Stress Disorders (PTSD) among Tsunami Survivors in Alappad Panchayath**

### **Introduction**

India woke up to one of the worst natural disasters on the 26<sup>th</sup> of December 2004 that the country has ever seen in the recent history. On December 26<sup>th</sup>, 2004 at 6.28 am, a rupture on the sea floor along a 1000 Km fault line triggered a quake of magnitude 8.9 on the West Coast of Northern Sumatra in Indonesia. This resulted in the ocean bed rising more than 10 meters and displacing overlying water generating a massive tsunami traveling at speed up to 700km/hr. Tsunamis are high tidal waves caused due to the sea water entering into the coastal land areas. It was when the tsunami struck Indonesia, Thailand, Maldives, Malaysia, Somalia, Kenya, Tanzania, Seychelles and the South Eastern Coast of India killing and affecting thousands of people. In India, the states of Tamil Nadu, Kerala, Andhra Pradesh and union territories of Pondicherry, and Andaman and Nicobar Islands witnessed massive destruction following the huge surging tsunami waves hitting the coastal land on 26<sup>th</sup> of December 2004. Tamil Nadu, Andaman and Nicobar Islands, Pondicherry, Andhra Pradesh and part of Kerala were devastated by the tsunami. It was the first of its nature in our country. The tsunami took away the lives of thousands, destroyed houses and disrupted the entire fabric of the fisher folk and others living in the coastal areas.

Official estimates issued by the Ministry of Home Affairs (2005), says that death toll due to tsunami was 9,995 with Tamil Nadu accounting for 7,923 death alone. The number of missing people was put at 6011 after thirteen days of the tsunami disaster. The total loss accounting for the loss of houses, means of livelihood and other infrastructures estimated were Rs.47 billion in Tamil Nadu, which alone become the 50% of the total loss in the South India, followed by Rs 13 billion in Kerala and Rs. 5 billion in Pondicherry respectively. The loss in Andhra Pradesh was calculated to be Rs 3.4 billion. A total of 2,260 kilometers of cost line besides Nicobar Islands was affected. More than 2,83,100 people were killed, 14,100 are documented to be missing around 1,126,900 people were displaced by earth quake and subsequent tsunami. In India approximately 10,749 people lost their lives. 1,57,393 dwelling units in 891 villages have been damaged.

The quake waves devastated the costal life of Kerala in a terrifying manner. The fear and agony that were left in the minds of people of Kerala were indefinable. Everything was not what it was before. All shattered..., lives, homes, herds and dreams. 168 person were killed in Kerala. Tsunamis attack was merciless in Alappad Panchayath of Kollam District. 130 were killed in this small panchayath

itself. The whole physical and organizational structure of the community was deeply changed. Homes were destroyed, people were relocated, close relatives were dead, records and other valuables were lost and changes were evident in psycho social patterns and human transactions.

In Kerala especially in Alappad Panchayath people manifested different types of emotional reactions, Numb in the beginning, people appeared to show signs of relief and elation for having survived. Post traumatic reactions like intense feeling of anxieties, depression, fear, frustration etc. were the most common reactions replaced by the survivors. Certain specific stresses like displacement of individual to the other geographic areas, prolonged life in camps, unemployment, inactivity and lack of recreational possibilities were found to affect people physically, socially and mentally. The fostering of dependency in survivors, general disruptions in social fabric and the breakdown of traditional forms of social support left devastated effects on people. As part of rehabilitation measures people were re-localized and de-localized. The insecurity feelings, apprehensions about the future problems yet to be tackled were haunting the survivors in Alappad Panchayat.

### **Post Traumatic Stress Disorders (PTSD)**

An important advance in the scientific study of responses to disasters was the recognition of Post Traumatic Stress Disorder (PTSD) in the third edition of the Diagnostic and Statistical Manual (DSM-III; APA, 1980).

PTSD is probably the most commonly studied diagnosis after disaster. It requires that symptoms be present for at least one month post trauma, and may have its onset of symptoms immediately, soon after the event, or it may be delayed. The clinical picture can be a dramatic one, with mental confusion, massive anxiety, and repetitive intrusive memories and dreams of the disaster event (Burkle, 1996). The intrusive thoughts are the most frequent symptoms, followed by exaggerated startle responses. Hyper Arousal reactions with acute PTSD have been linked to the severity of stress exposure in 80% of adults; reactions appear immediately or within hours (DSM-IV, APA, 1994).

Although there have been a great number of studies reporting PTSD after disasters, prevalence rates have been so variable that they range from 0% to 100%. This variability may be attributed to type of trauma, sample selection and use of different assessment tools; which typically range from clinical interviews to standardized assessment instruments, and self-report measures (Bryant & Harvey, 2000).

Again, a representative example pertinent to the tsunami finds among an exposed Thai population 8 weeks after tsunami, 12% of displaced and 7% of non-displaced reported PTSD. At 9 month follow-up this reduced to 7% and 2% (van Griensven et al., 2006). The pace of decline may not be linear. The relatively small number of studies that do contain multiple observations of the same individuals over time find that elevated psychological distress persists in the months after the event but then begins to decline dramatically at periods beyond a year since the onset of disaster (Shaw et al. (1996); Phifer& Norris (1989); Carr et al. (1997); Norris et al. (2004).

A community-based household survey in fishing villages in Indonesia (Salur and Labuhan) that had been hit by the tsunami reported a PTSD prevalence of 13%, considerably lower than studies in other disasters (ICMH, 2006; Mollica, Cui, McInnes, & Massagli, 2002). Other studies of ICMH found that PTSD rates were no higher in affected areas than in randomly selected subject groups (ICMH, 2006). In Sri Lanka where little consensus emerged on the nature of psychosocial problems in general, PTSD as such was not highlighted; and in India, research undertaken in the weeks that followed the disaster reported few diagnosed cases of the syndrome (ICMH, 2005b). On the other hand, six months after the disaster, a series of focus group studies in two villages in Indonesia (Salur and Labuhan) found that the level of fear was still high, and that people were still presenting severe physical and cognitive reactions.

Pyari, Raman and Sarma (2013) conducted a study in Risk factors of post-traumatic stress disorder in tsunami survivors of Kanyakumari District, Tamil Nadu, India. In this study sample, women had 6.35 times higher risk of having PTSD as compared to men, when adjusted for other variables. The higher risk of PTSD among homemakers also strongly supports the vulnerability of women to PTSD as all homemakers were women in our study population. Studies on Oklahoma City bombing survivors and earthquake survivors in Turkey have shown an increased risk of PTSD among women than men. The experiences of Oxfam, a non-governmental organization (NGO) which had worked in tsunami affected areas in South India, highlight the genderspecific problems and their role in increasing the stress of women. Other studies related to tsunami and PTSD also was associated with poor mental health outcomes. On the contrary, there were some data from India in a disaster setting, suggesting that people of all the socio-economic strata were equally affected by PTSD.

### **Assessment of PTSD in Alappad Panchayath: Comparative Analysis**

Assessment of PTSD and its sub variables (Avoidance, Intrusion and Hyper Arousal) was made by comparative analysis between tsunami affected Alappad



Panchayath and people of non-affected Chavara Grama Panchayath. The main aim of this approach was to test the significant differences between the survivors of Alappad Grama Panchayath and the people of Chavara Grama Panchayath with regard to the problem of Post Traumatic Stress Disorder (PTSD) immediately after tsunami. For the purpose of comparison, the entire population of Alappad Panchayath was taken as the universe of study. As per the 2001 census, the total population of Alappad Panchayath was 24931, which comprised 12468 males and 12463 females. The sample size was estimated on the basis of the entire households, numbering to 3707, living in 14 relief camps of Alappad Panchayath. The method of Cluster sampling was used for the study with probability proportionate to size. The cluster was taken as the relief camps which comprised the survivor population of a particular geographical area, so to say wards. The total survivor population of Alappad Panchayath was divided in to 14 clusters. 6273 adult males and 6979 adult females were included in the sampling frame. The sample proportion was fixed as 10:1. The sample size was estimated on the basis of the table proposed by Krejcie and Morgan (1970). Accordingly, the number of respondents to be included in the sample was 407. This number was finally rounded to 500 to avoid all sampling errors.

Chavara Grama Panchayath was taken as control population for the study. According to the 2001 census, the total population of Chavara was 41497. The six coastal wards in the panchayath, Kovilthottam, Karithura, Kulangarabhagam, Puthenkovil, Thattasseri, and Cherusseri Bhagam were taken as clusters for sampling. 20% of the house holds from each cluster were included in the sample. The procedure used to draw samples from the clusters was simple random sampling.

**Table 1. The Means, Standard Deviations and ‘t’ value obtained by the people of Alappad Grama Panchayath and Chavara Grama Panchayath in Post Traumatic Stress Disorders (PTSD) and its sub variables immediately after tsunami**

Variable	Panchayath	N	Mean	Std. Deviation	t	Sig.
PTSD	Alappad	500	61.58	11.79	106.28	0.001***
	Chavara	500	3.82	2.91		
Avoidance	Alappad	500	22.73	5.31	85.31	0.001***
	Chavara	500	1.44	1.69		
Intrusion	Alappad	500	21.29	5.68	74.02	0.001***
	Chavara	500	1.46	1.89		
Hyper Arousal	Alappad	500	17.66	8.04	44.72	0.001***
	Chavara	500	1.21	1.71		

\*\*\*Significant at  $p < 0.001$

It can be seen from the mean values that the survivors of Alappad Grama Panchayath have scored higher PTSD (61.58) when compared to the people of Chavara Grama Panchayath (3.82). This reveals that the people of Alappad Grama Panchayath have higher PTSD when compared to Chavara Grama Panchayath. It can be seen from the mean values that the survivors of Alappad Grama Panchayath have scored higher in Avoidance (22.73) when compared to the people of Chavara Grama Panchayath (1.44). This reveals that the people of Alappad Grama Panchayath have higher Avoidance when compared to Chavara Grama Panchayath. It can be seen from the mean values that the survivors of Alappad Grama Panchayath have scored higher in Intrusion (21.29) when compared to the people of Chavara Grama Panchayath (1.46). This reveals that the people of Alappad Grama Panchayath have higher Intrusion when compared to Chavara Grama Panchayath. It can be seen from the mean values that the survivors of Alappad Grama Panchayath have scored higher in Hyper Arousal (17.66) when compared to the people of Chavara Grama Panchayath (1.21). This reveals that the people of Alappad Grama Panchayath have higher Hyper Arousal when compared to Chavara Grama Panchayath.

#### **Assessment of PTSD in Alappad Panchayath: Longitudinal Analysis**

The longitudinal analysis of Post Traumatic Stress Disorders in Alappad Panchayath was done by categorized the entire two years of study duration in three Longitudinal Phases; Phase I- Assessment of PTSD immediately after tsunami, Phase II - Assessment of PTSD after one year, Phase III - Assessment of PTSD after two years of tsunami occurrence. The main aim was to test the significant difference in Post Traumatic Stress Disorder (PTSD) among the survivors in Alappad Grama Panchayath in three consecutive phases.

(...Contd. in page 6)

**Table 2. Summary of Repeated measures ANOVA scores in PTSD, Avoidance, Intrusion and Hyper Arousal of Alappad Panchayath measured in three different phases**

Variables	Source of variation	SS	df	Mean Squares	F	Sig.
<b>Post Traumatic Stress Disorders (PTSD)</b>	Between Treatment	253475.64	2	126737.82	641.79	0.001***
	Between Subjects	97960.18	499	196.31		
	Error	197078.35	998	197.47		
	Total	548514.17	1499	12713160.60		
<b>Avoidance</b>	Between Treatment	28105.34	2	14052.67	343.58	0.001***
	Between Subjects	20563.95	499	41.21		
	Error	40817.98	998	40.90		
	Total	89487.27	1499	14534.78		
<b>Intrusion</b>	Between Treatment	26885.64	2	13442.82	392.84	0.001***
	Between Subjects	17351.51	499	34.77		
	Error	34151.02	998	34.21		
	Total	78388.17	1499	13511.80		
<b>Hyper Arousal</b>	Between Treatment	31080.49	2	15540.24	411.50	0.001***
	Between Subjects	20217.41	499	40.51		
	Error	37688.83	998	37.76		
	Total	88986.73	1499	15618.51		

\*\*\*Significant at  $p < 0.001$ 

The 'F' value obtained for PTSD is 641.79 which are statistically significant at 0.001 levels. This reveals that the survivors in Alappad Panchayath show highly significant difference in PTSD score obtained in Phase I, Phase II and Phase III. The 'F' value obtained for Avoidance is 343.58 which are statistically significant at 0.001 levels. This reveals that the survivors in Alappad Panchayath show highly significant difference in Avoidance score obtained in Phase I, Phase II and Phase III. The 'F' value obtained for Intrusion is 392.84 which are statistically significant at 0.001 levels. This reveals that the survivors in Alappad Panchayath show highly significant difference in Intrusion scores obtained in Phase I, Phase II and Phase III. The 'F' value obtained for Hyper Arousal is 411.50 which is statistically

significant at 0.001 level. This reveals that the survivors in Alappad Panchayath show highly significant difference in Hyper Arousal scores obtained in Phase I, Phase II and Phase III. Since all the F values of PTSD and its sub variables Avoidance, Intrusion and Hyper Arousal are statistically highly significant, Post hoc test was conducted to identify the group with high significant difference. The results are presented in Table 3.

**Table 3. Least Square Deviation test for pair wise comparison of the score in PTSD, Avoidance, Intrusion and Hyper Arousal of survivors in Alappad Panchayath measured in three different phases**

Variables	Pair	Mean Values	Mean Differences	Sig.
<b>Post Traumatic Stress Disorders (PTSD)</b>	Phase I	61.58	24.52***	0.001
	Phase II	37.06		
	Phase I	61.58	29.86***	0.001
	Phase III	31.72		
	Phase II	37.06	5.34***	0.001
	Phase III	31.72		
<b>Avoidance</b>	Phase I	22.73	9.23***	0.001
	Phase II	13.50		
	Phase I	22.73	9.14***	0.001
	Phase III	13.59		
	Phase II	13.50	0.09	0.82
	Phase III	13.59		
<b>Intrusion</b>	Phase I	21.29	8.57***	0.001
	Phase II	12.72		
	Phase I	21.29	9.34***	0.001
	Phase III	11.95		
	Phase II	12.72	0.77*	0.04
	Phase III	11.95		
<b>Hyper Arousal</b>	Phase I	17.66	6.68***	0.001
	Phase II	10.98		
	Phase I	17.66	11.07***	0.001
	Phase III	6.59		
	Phase II	10.98	4.39***	0.001
	Phase III	6.59		

\*\*\*Significant at  $p < 0.001$

\*Significant at  $p < 0.05$

The table indicates that there is highly significant difference in Phase I and Phase II (MD=24.52,  $p < 0.001$ ), Phase I and Phase III (MD=29.86,  $p < 0.001$ ) and Phase II

and Phase III (MD=5.34,  $p<0.001$ ) in Post Traumatic Stress Disorders among the survivors in Alappad Panchyath.

All the results obtained are highly significant and it can be seen from the mean values that the survivors of Alappad Grama Panchayath have scored higher in PTSD (61.58) immediately after tsunami when compared to the score obtained after one year (37.06) and two years (31.72). This reveals that PTSD systematically from Phase I to Phase II and Phase II to Phase III.

The table indicates that there is highly significant difference in Phase I and Phase II (MD=9.23,  $p<0.001$ ), Phase I and Phase III (MD=9.14,  $p<0.001$ ) in Avoidance among the survivors of Alappad Panchyath. But in the values obtained in pairs Phase II and Phase III (MD=0.09,  $p>0.05$ ) indicates that there is no significant difference in Phase II and Phase III. This indicates that there is no significant difference in Avoidance between Phase II and Phase III among the survivors of Alappad GP.

All the results obtained are highly significant except Phase II and Phase III and it can be seen from the mean values that the survivors of Alappad Grama Panchayath have scored higher in Avoidance (22.73) immediately after tsunami when compared to the score obtained after one year (13.50). But it is slightly lower than the mean value (13.59) after two years. This reveals that Avoidance score is decreasing from Phase I to Phase II.

The table indicates that there is highly significant difference in Phase I and Phase II (MD=8.57,  $p<0.001$ ), Phase I and Phase III (MD=9.34,  $p<0.001$ ) in Intrusion among the survivors of Alappad Panchayath. In pairs Phase II and Phase III (MD=0.77,  $p<0.05$ ) also shows significant difference.

The first two results obtained are highly significant and can be seen from the mean values that the survivors of Alappad Grama Panchayath have scored higher in Intrusion (21.29) immediately after tsunami when compared to the score obtained after one year (12.72) and two years (11.95). This reveals that Intrusion score is systematically decreasing from Phase I to Phase II and Phase II to Phase III.

The table indicates that there is highly significant difference in Phase I and Phase II (MD=6.68,  $p<0.01$ ), Phase I and Phase III (MD=11.07,  $p<0.001$ ) and Phase II and Phase III (MD=4.39,  $p<0.001$ ) in Hyper Arousal among the survivors in Alappad Panchyath.

All the results obtained are highly significant and it can be seen from the mean values that the survivors of Alappad Grama Panchayath have scored higher in Hyper Arousal (17.66) immediately after tsunami when compared to the score



obtained after one year (10.98) and two years (6.59). This reveals that Hyper Arousal score is systematically decreasing from Phase I to Phase II and Phase II to Phase III.

### **Assessment of PTSD in Alappad Panchayath: Socio -Demographic Analysis**

This approach enabled to find out whether there were significant differences in Post Traumatic Stress Disorders with respect to certain selected socio demographic variables. The socio demographic variables selected for the study were Age, Sex, Educational Status, Income, Type of Family, Marital Status, Occupation, Family Relationship, Type of Displacement and Type of Loss. One way ANOVA and 't' test were used for the analysis.

**Table 4. Summary of one way ANOVA on PTSD scores with respect selected socio demographic variables of the survivors in Alappad Grama Panchayat.**

<b>Variables</b>	<b>Source of Variation</b>	<b>Sum of Squares</b>	<b>df</b>	<b>Mean Squares</b>	<b>F</b>	<b>Sig.</b>
<b>Age</b>	Between Groups	421.43	3	140.47	1.00	0.38
	Within Groups	69048.36	496	139.21		
	Total	69469.79	499			
<b>Marital Status</b>	Between Groups	467.75	3	155.91	1.12	0.34
	Within Groups	69002.04	496	139.11		
	Total	69469.80	499			
<b>Educational Status</b>	Between Groups	145.53	4	36.38	0.26	0.90
	Within Groups	69324.27	495	140.04		
	Total	69469.80	499			
<b>Occupation</b>	Between Groups	467.75	3	155.91	1.12	0.34
	Within Groups	69002.04	496	139.11		
	Total	69469.80	499			
<b>Income</b>	Between Groups	583.578	4	145.89	1.04	0.38
	Within Groups	68886.22	495	139.16		
	Total	69469.80	499			
<b>Family Relationship</b>	Between Groups	648.55	6	108.09	0.77	0.59
	Within Groups	68821.24	493	139.57		
	Total	69469.80	499			
<b>Type of Family</b>	Between Groups	20.22	2	10.11	0.07	0.93
	Within Groups	69449.57	497	139.73		
	Total	69469.80	499			
<b>Displacement Pattern</b>	Between Groups	360.57	2	180.28	1.29	0.27
	Within Groups	69109.22	497	139.05		
	Total	69469.80	499			

The score obtained in Post Traumatic Stress Disorders (PTSD) immediately after tsunami with respect to the Age of the survivors in Alappad Grama Panchayath was tested using one way ANOVA. The 'F' values obtained are (1.00) which is not statistically significant. This indicates that there is no significant difference in PTSD immediately after tsunami with respect to the Age of the survivors.

The score obtained in Post Traumatic Stress Disorders (PTSD) immediately after tsunami with respect to Marital Status of the survivors in Alappad Grama Panchayath was tested using one way ANOVA. The 'F' values obtained are (1.12) which is not statistically significant. This indicates that there is no significant difference in PTSD immediately after tsunami with respect to Marital Status of the survivors.

The score obtained in Post Traumatic Stress Disorders (PTSD) immediately after tsunami with respect to Educational Status of the survivors in Alappad Grama Panchayath was tested using one way ANOVA. The 'F' value obtained is (.26) which is not statistically significant. This indicates that there is no significant difference in PTSD immediately after tsunami with respect to Educational Status of the survivors.

The score obtained in Post Traumatic Stress Disorders (PTSD) immediately after tsunami with respect to Occupation of the survivors in Alappad Grama Panchayath was tested using One way ANOVA. The 'F' value obtained is (0.62) which is not statistically significant. This indicates that there is no significant difference in PTSD immediately after tsunami with respect to Occupation of the survivors.

The score obtained in Post Traumatic Stress Disorders (PTSD) immediately after tsunami with respect to Income of the survivors in Alappad Grama Panchayath was tested using one way ANOVA. The 'F' value obtained is (1.04) which is not statistically significant. This indicates that there is no significant difference in PTSD immediately after tsunami with respect to Income of the survivors.

The score obtained in Post Traumatic Stress Disorders (PTSD) immediately after tsunami with respect to Family relationships of the survivors in Alappad Grama Panchayath was tested using one way ANOVA. The 'F' value obtained is (0.77) which is not statistically significant. This indicates that there is no significant difference in PTSD immediately after tsunami with respect to Family Relationships of the survivors.

The score obtained in Post Traumatic Stress Disorders (PTSD) immediately after tsunami with respect to Type of Family of the survivors in Alappad Grama Panchayath was tested using One way ANOVA. The 'F' value obtained is (0.07 ) which is not statistically significant. This indicates that there is no significant difference in PTSD immediately after tsunami with respect to Type of Family of the survivors.

**Table 5. Mean, Standard Deviations and 't' value of scores of PTSD with respect to selected Socio demographic variables of the survivors in Alappad Panchayath immediately after tsunami**

<b>Socio Demographic variables</b>	<b>Versions</b>	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>t</b>	<b>Sig.</b>
<b>Gender</b>	Male	245	61.71	11.89	0.24	0.80
	Female	255	61.45	11.72		
<b>Life Loss</b>	No loss	369	61.71	11.86	0.43	0.66
	Life Loss	131	61.19	11.65		
<b>livelihoods Loss</b>	No Loss	299	61.42	11.70	-0.35	0.72
	Livelihood Loss	201	61.81	11.97		
<b>Property Loss</b>	No Loss	117	60.63	11.65	-0.99	0.32
	Property Loss	383	61.86	11.84		

The score obtained in Post Traumatic Stress Disorders (PTSD) immediately after tsunami with respect to the Gender of the survivors in Alappad Grama Panchayath was tested using Independent sample 't' test. The 't' values obtained is (0.24) which is not statistically significant. This indicates that there is no significant difference in Post Traumatic Stress Disorders (PTSD) immediately after tsunami with respect to the Gender of the survivors.

The scores obtained in Post Traumatic Stress Disorders (PTSD) immediately after tsunami with respect to the Life loss of family members of survivors in Alappad Grama Panchayath was tested using Independent sample 't' test. The 't' values obtained are (0.43) which is not statistically significant. This indicates that there is no significant difference in Post Traumatic Stress Disorders (PTSD) immediately after tsunami with respect to the life loss of family members of the survivors.

The scores obtained in Post Traumatic Stress Disorders (PTSD) immediately after tsunami with respect to the Livelihood Loss of the survivors in Alappad Grama Panchayath was tested using Independent sample 't' test. The 't' values obtained is (-0.35) which is not statistically significant. This indicates that there is no

significant difference in Post Traumatic Stress Disorders (PTSD) immediately after tsunami with respect to the Livelihood Loss of the survivors.

The scores obtained in Post Traumatic Stress Disorders (PTSD) immediately after tsunami with respect to the Property Loss of the survivors in Alappad Grama Panchayath were tested using Independent sample 't' test. The 't' values obtained is (-0.99) which is not statistically significant. This indicates that there is no significant difference in Post Traumatic Stress Disorders (PTSD) immediately after tsunami with respect to the Property Loss of the survivors

### **Dynamics of Post Traumatic Stress Disorders (PTSD) on Tsunami Survivors in Alappad Panchayath**

PTSD is probably the most commonly studied diagnosis after disaster. It is generally noted that the PTSD symptoms will be present for at least one month and may have its onset of symptoms immediately, soon after the event, or it may be delayed. The clinical picture is dramatic with mental confusion, massive anxiety, and repetitive intrusive memories and dreams of the disaster event (Burkle, 1996). The intrusive thoughts are the most frequent symptoms, followed by exaggerated startle responses. Hyper arousal reactions with acute PTSD have been linked to the severity of stress exposure in 80% of adults; reactions appear immediately or within hours (DSM-IV, APA, 1994).

Most of the symptoms of PTSD were found among the survivors in Alappad Panchayath during the study. The first emotional reactions among survivors associated with tsunami hit was Shock and Disbelief. Tsunami struck at the most unexpected hour when they were not prepared. The survivors found themselves to be in a state of shock and showed decreased activity for some time. Another common emotional reaction among them was of total disbelief ie. feeling the whole event was not real but a bad dream.

The survivors were in a state of numbness and feeling of emptiness. They failed to feel anything, even the loss of near and dear ones. They withdrew themselves totally. They couldn't eat or sleep for many days. The survivors found themselves being vigilant and hyper alert – responding to each and every sound in the surrounding, receding or rising of the waves, constantly on vigil for signs of further tsunami, they found difficulty in sleeping. Sometimes they also became irritable and angry.

Many of them avoided going near the sea or the shore. They consciously asked the children not to play near the sea shore. Repeatedly they remember or re-live the experiences of the tsunami disaster. The things, signs and related incidents of

yester event triggered those experiences. Flashbacks and nightmares often haunted them during nights. Even being involved in relief work they were haunted off by 'these attacks'. Having to remove dead bodies or identifying dead bodies must have put them through a state of panic.

Relief, elation and euphoria were very common among the survivors. Some survivors felt a sense of joy to have escaped unharmed and have their family members safe. But at the same time they reported guilt for feeling happy for the survival.

Within a few weeks of the tsunami disaster, it was found that there was an increase in consumption of addictive substances, especially country liquor among the survivors. This was noticed mostly among men who used to spend a big portion of the relief grant -in- aid during the relief phase. Use of tobacco and panmasala were also reached its maximamam level among the survivors at that time. This is considered as the most common PTSD self-managing techniques used by the survivors of tsunami.

Although there have been a great number of studies reporting PTSD after disasters, prevalence rates have been ranging from 0% to 100%. This variability may be attributed to type of trauma, sample selection and use of different assessment tools; which typically range from clinical interviews to standardised assessment instruments, and self-report measures (Bryant & Harvey, 2000).

It is important to note that PTSD is not the normal response to a threatening experience. Most people recover from such an event without any formal intervention. Number of studies has revealed that PTSD is most commonly studied diagnosis after disaster and the result of this study also reiterated the same result. All the reasons mentioned above gives a clear explanation of higher PTSD among the tsunami survivors in Alappad Grama Panchayath.

## **Conclusion**

Comparative analysis of Post Traumatic Stress Disorders (PTSD) and its sub variables (Avoidance, Intrusion and Hyper Arousal) expressed by the tsunami survivors in Alappad Grama Panchayath and the people of non-affected Chavara Grama Panchayath had revealed that the survivors of tsunami in Alappad Panchayath had reported higher level Post Traumatic Stress Disorders when compared to the people of Chavara Panchayath.

The longitudinal assessment of Post Traumatic Stress Disorders (PTSD) and its sub variables (Avoidance, Intrusion and Hyper arousal) with survivors in Alappad Panchayath immediately after tsunami, after one year and after two years of



occurrence had revealed that the PTSD is continuously decreasing from Phase I to Phase II and reach at minimum in Phase III due to psycho social intervention programmes made by the Governmental and Non governmental agencies during this time.

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