

Social Consequences of the 2004 Tsunami on the Rural Population in Kollam District, Kerala

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ABSTRACT

Objective: The objective of the study was to identify the social consequences of Tsunami among Tsunami-affected people of Kollam district, Kerala following the 2004 Indian Ocean Tsunami. **Methods:** The study used descriptive survey design with purposive sampling method to collect data on social consequences among 246 Tsunami-affected people by using self administered questionnaire. **Results:** The percentages of affected people having social consequences varied from mild to severe levels. Social consequences significantly differed with variables like housing structure before Tsunami ($p=0.018$), present housing structure ($p=0.002$), social participation after Tsunami ($p=0.044$), impact encountered ($p=0.001$), satisfaction with mental health support received after the Tsunami ($p=0.001$), loss of loved ones ($p=0.011$) and initiation of substance abuse ($p=0.002$). **Conclusion:** This study provides an initial look into the social consequences of Tsunami affected people in the rehabilitation phase. The study findings indicate that social consequences persists in the affected people long after the disaster. It was also found that the social consequences significantly differ in people according to the impact they encountered, social participation after Tsunami, loss of loved ones, area of relocation, satisfaction with mental health support received after Tsunami and initiation of substance use.

Keywords: Tsunami, Social Consequences, Tsunami affected people, Disaster

INTRODUCTION

India has been traditionally vulnerable to natural disasters on account of its unique geo-climatic conditions. Floods, droughts, cyclones, earthquakes and landslides have been recurrent phenomena. About 60% of the landmass is prone to earthquakes of various intensities; over 40 million hectares is prone to floods; about 8% of the total area is prone to cyclones and 68% of the area is susceptible to drought. In the decade 1990-2000, an average of about 4344 people lost their lives and about 30 million people were affected by disasters every year.

Tsunamis have the potential to cause an

enormous impact upon the health of millions. The Tsunami, which affected South Asia on 26 December 2004, is known to have caused over 175,000 deaths worldwide and displaced millions of people from their homes and livelihoods. In the affected areas family and community structures, which are so vital for psychosocial wellbeing, have been drastically altered by the Tsunami[1]. The tsunami which swept across Asia on 26 December 2004 claimed the lives of 171 people in Kerala. Most regions along the coastal belt of Kerala experienced the fall and rise in water levels but Alappad (131 deaths and population affected were 600000), in Kollam District and Arattupuzha, in Alapuzha District bore the burnt of the killer waves[2]. Alappadu Panchayat was badly affected by Tsunami in Kollam District of Kerala State.

According to the India disasters report, disasters affect over 63 million people every year[4]. Therefore, the magnitude of the problem is thus quite huge and psychosocial aspects of disasters are so poorly recognized and many

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times overlooked and need special attention. On assessing the pattern and quantifying the mental health problems as well as their course over time among a sample of exposed and non-exposed individuals four years after the Maharashtra earthquake found that the social consequences are due to the exclusion of affected people from the design and reconstruction process, forcing alienation of people from their own homes and familiar surroundings and memories and the consequent loss of identity and role[7]. Therefore, identifying the social impact of Tsunami will help to explore the extent of the problem and its impact in order to plan intervention strategies for the community.

METHODS

The study sample consisted of 246 adult people from both Tsunami affected and rehabilitated areas drawn by purposive sampling technique. Children below 16 years of age were excluded from the study. Alappadu panchayath, was the coastal area from which the Tsunami affected sample was taken for the study, whereas Kulashekarapuram and Clappana Panchayath area were the rehabilitated settings from which the samples for the study were drawn. As the study aimed to find out the social consequences of the overall Tsunami affected population, the study did not use any screening method to select the sample other than the age factor.

A descriptive survey study design was used to determine the social consequences of Tsunami and find its relationship with selected variables. Data analysis was done by using descriptive and inferential statistics. Socio demographic data and social consequences were presented as frequency and percentage by descriptive analysis. Independent t-test (parametric), Kruskal Wallis H and Mann Whitney U (Non-parametric) test were used to find the relationship between social consequences and selected demographic variables after establishing normality by Kolmogorov Smirnov test.

Measurements

The most important and crucial aspect of any investigation is the collection of appropriate information, which provides necessary data for the study. The investigator developed the tools

to measure the variables under study. Research and non- research literature, books, manuals relevant to the specific topic was explored.

Content validity was established for Socio- demographic Proforma and Social Consequences Rating Scale by 7 experts with sufficient orientation and experience in the area from the fields of psychiatric nursing, psychiatric medicine, psychology, psychiatric social work. The validators were given a table in which they were required to place every item under one of the following 3 categories: relevancy, accuracy and appropriateness and requested to state whether agree or disagree with items. Validators were also requested to mention such items which were either not well worded or difficult to understand. But there was 100% agreement in all the areas of items.

In order to ascertain the reliability of the Social Consequences Rating Scale, internal consistency was determined by Cronbach's Alpha method on the basis of responses given by a sample of 20 affected people in the same setting but different area called Cheriyazhikal . The reliability coefficient was found to be 0.76.

Description of the tool

The Socio demographic Proforma was constructed to cover in detail about the factors regarding social and demographic profile of the affected people in relation to the disaster. The Social Consequences Rating Scale was developed to collect the details regarding the sample's social consequences rated as never, occasionally and always. Scoring was given as 1 for never, 2 for occasionally and 3 for always. The total score was arbitrarily classified further into Mild: 24-36, Moderate 37-54, Severe: 55-72.

RESULTS

Description of Socio-demographic Proforma

The result of the study with regard to socio-demographic characteristics showed that out of the total 246 sample, 130 (52.8%) were from coastal area and 116(47.2%) were from the rehabilitated area. Majority of the sample did not have past psychiatric illness (96.7%) and 194(78.9%) had got support from atleast one agency after the disaster. Majority of the people

were at their residence (54.1%) and near the sea shore (33.7%) at the time of Tsunami and majority of the affected people had economical impact(47.2%). Majority of sample were not into any type of substance abuse (72%), 23.2% of sample had habits of substance abuse before tsunami and 4.9% started after tsunami. (Table 1)

Descriptions of Social Consequences

The data presented under social consequences showed that majority of the Tsunami affected people had difficulties with relocation and many of them (24.8%) could not adjust to the new place, where they had been rehabilitated. Here it was observed that there was less acceptance by native people (11.4%). Majority of people felt they were not receiving proper legal and political support in their relocated place 115 (46.7%), majority felt alienated in the new place (33.3%), distanced from livelihood(32.9%). Some of the affected people (13.4%) expressed that women were more insecure and 15.9% of the sample felt that there was an increase in immoral and anti social activities in the area after the Tsunami as shown in Table[2,3 and 4].

Relationship between selected demographic variables and social consequences

Social consequences significantly differed with variables like housing structure before Tsunami ($p=0.018$), present housing structure ($p=0.002$), social participation after Tsunami ($p=0.044$), impact encountered ($p=0.001$), satisfaction with mental health support received after the Tsunami ($p=0.001$), loss of loved ones ($p=0.011$) and initiation of substance abuse ($p=0.002$).

Comparison of Social Consequences in terms of Area of living, Gender and Marital status

Social consequences were more prevalent in the rehabilitated area (32.5%) compared to the coastal area (21.1%). It was also found that social consequences were more in males (28%) compared to females (25.6%), more in married (37.4%) compared to unmarried (15.4%) and widows (0.8%).

DISCUSSION

The results from this study depict the social consequences three years after the Tsunami disaster. Replicating findings can be identified from several previous studies and surveys. The demographic data collected in the study visualised the scenario of the Tsunami affected population three years after the disaster. The study sheds lime light on the association of these sociodemographic factors in contributing to the social consequences of the disaster. One of the unique findings of the study was that the social participation of the affected people had increased in a small percentage, which may be contradicting other studies related to impact of disasters. But in reality, the social responsibility shown by different organisations were commendable in this area. The data gave a clear picture that the severity of the impact was because of the coastal living and proximity of the people towards the sea for their livelihood. Our results also point out to a conclusion that economical impact was one of the major characteristics finding, which may be again having an impact on the development of social consequences over a long term. Our data regarding occupation and income status of the sample are consistent with results of an exploratory study to assess the coping mechanisms among Tsunami affected people with disabilities conducted in three districts of Tamil Nadu, India[13].

This study examined the social consequences of tsunami 3 years after its occurrence and our results provided evidence on different aspects. Most notable issue was on relocation of the people and their difficulties with adjustment to the new place. Unsurprisingly, majority of the samples had difficulties with their newly rehabilitated place. Most of them felt sad and a section of people felt that the house constructed for them were not according to their native culture and tradition. These issues may be a by product of the usual problems identified by majority of disaster rehabilitation studies, which explains exclusion of victims in deciding the place for rehabilitation, ways of constructing it, etc. Basically the recipients of the service are alienated from the planning and decision making process. A study conducted four years after the Maharashtra earthquake in North India found an increase in the social consequences due

to exclusion of affected people from the design and reconstruction process, forcing alienation of people from their own homes and familiar surroundings and memories and the consequent loss of identity and role[7]. This study supports the findings of the present study.

Our findings with regard to the livelihood factors and legal-political support received by the affected people revealed that the system of their traditional livelihood had been affected. A group of women seemed frustrated over the irresponsible nature of their husbands following the disaster. According to them "after the Tsunami, fishing activities have come down . Now these men do not know other jobs. They are spending their time by playing cards, gambling and drinking. And also, we, women are not able to restart our small scale jobs like coir making or fish drying due to strong objection from neighbourhood in the rehabilitated area. We don't know how we will earn our daily bread....." Change in attitude towards life, loss of interest in life or destructive use of rehabilitation funding is pointed out here. This problem has been identified in many past studies as a major hindrance of the rehabilitation efforts and regaining normalcy of the place and people.

Furthermore, the study also found that 36.2% of the Tsunami affected people felt that they did not receive adequate relief and rehabilitation facilities. This has been rightly pointed out in a broader way by the research findings by United Nations Report which explains that the exclusions are due to the prevailing social structure including caste system which plays major role[12].

Most notably, social consequences significantly differed with variables like housing structure before Tsunami ($p=0.018$), present housing structure ($p=0.002$), social participation after Tsunami ($p=0.044$), impact encountered ($p=0.001$), satisfaction with mental health support received after the Tsunami ($p=0.001$), loss of loved ones ($p=0.011$) and initiation of substance abuse ($p=0.002$).

It was evident from our study that the support received to get an own house for the affected people had a greater impact on the social life with difficulties in relocation to a strange place, that increased the social consequences. One of the notable findings from our study was that

the social consequences were more prevalent in the rehabilitated area. This explains that those who got rehabilitated in the coastal area itself had comparably less social problems, which may be because of lack of acceptance from the native people at the rehabilitated place or difficulties of the affected people in adjusting to the rehabilitated place. This aspect needs to be explored with further studies in the field.

Strengths and Limitations

As with any study, our results need to be viewed in light of its limitations and strengths. Non-probability purposive sampling technique was used to select samples, hence generalizations of the findings are limited to this study. A drawback of the study is that pre-disaster social situation was not measured as such a measure was not required and hence was not known. The strength of our study is that we had a unique opportunity to assess in depth the details regarding the social consequences of the disaster in their rehabilitated areas.

Recommendations

In view of the findings reported, the following recommendations are made for future research: A similar study could be carried out with a larger representative sample, which could help in greater generalization. A comparative study can be done between affected people of rehabilitated and coastal area. Development of a disaster mental health team by Mental health professionals including Psychiatric Nurses would be beneficial for the society.

CONCLUSION

One of the areas of concentration of psychiatric studies is disaster epidemiology. Mainly these data are useful for administrative and descriptive purpose than to plan for the preventive strategies even at global level since the social consequences following any disaster have a uniform pattern. Many studies were conducted to investigate the immediate effects of disasters. However very few studies were conducted regarding the long-term effect of Tsunami, in turn helping in delivering the effective continuation of psychosocial care even long after the disaster took place. The aim of the present study was to identify the social consequences after the Tsunami at the

time of rehabilitation. Therefore, these findings are helpful for health administrators, policy makers, international and national voluntary organizations and mental health care providers in the designing a new strategy for the prevention of widespread problems or minimizing the impact by any type of disasters. Especially for the

mental health care providers, it shows the need of incorporating psychosocial care with long-term rehabilitation measures. The curriculum for all mental health professionals, and even other health related professionals should be equipped with crisis intervention and other long term measures needed for managing such

Table 1. Frequency and percentages of basic characteristics of the sample

Sociodemographic variables	Frequency	Percentages (%)
1. Area of living of Tsunami affected people.		
a. Rehabilitated area	116	47.2
b. Coastal area	130	52.8
2. Age category		
a. <20	49	19.9
b. 21-40	120	48.8
c. 41-60	63	25
d. >61	14	5.7
3. Gender		
a. Male	122	49.6
b. Female	124	50.4
4. Religion		
a. Hindu	225	91.5
b. Christian	21	8.5
5. Educational status		
a. Illiterate	2	0.8
b. Primary & middle	89	36.2
c. High school	77	31.3
d. Higher secondary	48	19.5
e. Graduation and above	30	12.2
6. Marital status		
a. Married	166	67.5
b. Unmarried	72	29.3
c. Widower/widow	8	3.3
7. Supporter of family		
a. Father	107	43.5
b. Mother	27	11
c. Brother/sister	3	1.2
d. Son/daughter	6	2.4
e. Husband	31	12.6
f. Myself	72	29.3
8. Possessions		
a. Nil	149	60.6
b. Boat/net	96	39.0
c. Others	1	0.4
9. Social participation before Tsunami		
a. No membership in any organization	138	56.1
b. Member in one organization	94	38.2
c. Member in 2 organizations	7	2.8
d. Office holder	5	2.0
e. Wider public leader	2	0.8
10. Social participation after Tsunami		
a. No membership in any organization	127	51.6
b. Member in one organization	90	36.6
c. Member in 2 organization	25	10.2
d. Office holder	2	.8
e. Wider public leader	2	.8
11. Where were at time of incidence		
a. At house	133	54.1
b. Near to sea shore	83	33.7
c. In the sea	13	5.3
d. Away from the place	17	6.9

12. Occupation before Tsunami

a.	1.1 Unemployed	73	29.7
b.	1.2 Housewife	63	25.6
c.	1.3 Fisherman	89	36.2
d.	1.4 Labourer/agriculturist	3	1.2
e.	1.5 Service	1	.4
f.	1.6 Others	17	6.9

13. Occupation after Tsunami

a.	2.1 No job	56	22.8
b.	2.2 No change	181	73.6
c.	2.3 New job	9	3.7

14. Impact encountered

a.	No impact	2	.8
b.	Physical	25	10.2
c.	Economical	116	47.2
d.	Human loss	26	10.6
e.	Emotional	13	5.2
f.	More than one impact	53	21.5
g.	All	21	8.5

15. Past psychiatric illness

a.	Absent	238	96.7
b.	Present	8	3.3

16. Satisfaction over mental health support soon after tsunami

a.	No	92	37.4
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Table 2. Social consequences related to relocation after Tsunami

Sl. No.	Social consequences	Never		Occasionally		Always	
		Freq	%	Freq	%	Freq	%
1.	Felt sad when relocated	107	43.5	52	21.1	87	35.4
2.	Faced difficulties in 100 relocated place	40.7	84	34.1	62	25.2	
3.	New house is against tradition & values.	138	56.1	52	21.1	56	22.8
4.	Acceptance by native people	160	65	58	23.6	28	11.4

Table 3. Social consequences related to livelihood and legal-political support

Sl. No.	Social consequences	Never		Occasionally		Always	
		Freq	%	Freq	%	Freq	%
1.	Faced problem in adjusting belief and culture.	139	56.5	82	33.3	25	10.2
2.	Felt alienated	112	45.5	52	21.1	82	33.3
3.	Distanced from livelihood	119	48.4	46	18.7	81	32.9
4.	Receiving legal and political support	115	46.7	56	22.8	75	30.5
5.	Opportunity for social gathering	42	17.1	66	26.8	138	56.1

Table 4. Social consequences of Tsunami affected people in frequency and percentages

Sl. No.	Social consequences	Never		Occasionally		Always	
		Freq	%	Freq	%	Freq	%
1.	Adequate support from relief and rehabilitation	89	36.2	80	32.5	77	31.3
2.	Feeling of lost role and identity	169	68.7	51	20.7	26	10.6
3.	Inability to cope when supports ceased	164	66.7	61	24.8	21	8.5
4.	Interruption in education	178	72.4	40	16.3	28	11.4
5.	Change in role and responsibility	168	68.3	49	19.9	29	11.8
6.	Marital problems	189	76.8	42	17.1	15	6.1
7.	Increase in immoral and anti social activities	135	54.9	72	29.3	39	15.9
8.	Women felt insecure	163	66.3	50	20.3	33	13.4
9.	Discrimination in distribution of relief materials	169	68.7	49	19.9	28	11.4
10.	Opportunities for outsiders to exploit land	161	65.4	30	12.2	55	22.4

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