Psychosocial Experiences of Disaster-Affected Women in Tamil Nadu: Empirical Evidences from Cyclone-Hit Regions of Thiruvarur District

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Abstract

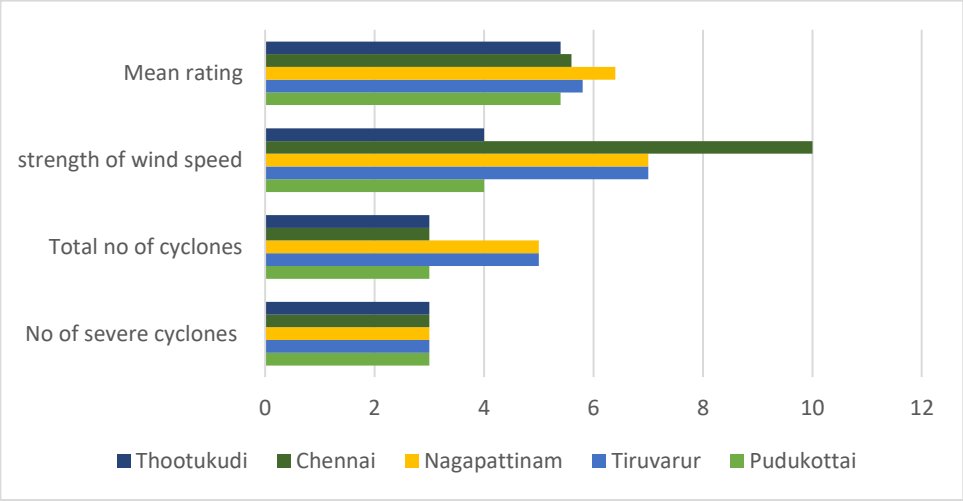
Natural calamities are unavoidable and can significantly disrupt the environment and people's lives. Disasters can strike at any time and in any place, so having a plan to deal with them is crucial. Disaster management encompasses planned and deliberate measures for mitigating the effects of natural disasters on the community. Women, particularly in underdeveloped nations, where gender inequality is prevalent, are generally more vulnerable to the impacts of disasters due to factors like lack of finances, limited mobility and decision-making authority. Disasters can also disrupt healthcare services, making it difficult for women to get the required treatment, resulting in stress, fear and anxiety due to these conditions. Post-traumatic stress disorder (PTSD) is a mental health condition that can arise in people who have experienced or witnessed a traumatic event. Research indicates that women are more likely to experience PTSD than men following a tragedy. This research seeks to assess the prevalence and severity of PTSD among women who have lived through the aftermath of the cyclone and to identify the factors that lead to its onset in this group of people.

The objective of this study is to investigate the prevalence of mental health issues and PTSD among women affected by cyclones in the delta regions of Tamil Nadu, India. The study focuses on how natural disasters, which are more frequent in this area, affect people psychologically. The research uses quantitative analysis and descriptive methods to explain the prevalence of mental health conditions among the impacted women. The study's findings indicate that women in Tamil Nadu's delta regions who are affected by cyclones are particularly vulnerable to developing PTSD. The results of this study have significant ramifications for those who provide mental health services, work in disaster management and are involved in policymaking to promote the mental health of women impacted by natural disasters. The present study also aims to contribute to the existing body of knowledge on mental health conditions, in particular PTSD and its impact on the mental health of women affected by natural disasters.

Keywords: PTSD, Mental health, Women, Disaster, Cyclone, Delta region, Thiruvarur.

Introduction

Natural Disasters, Women and Mental Health: Tropical cyclones are one of the recurring natural disasters that strike India nearly every year, inflicting massive loss of life and property. This leads to storm surges, floods, strong winds, erosion, loss of life, casualties and property damage, resulting in socioeconomic loss[17]. India's coastal regions are the hardest hit, with many suffering during natural disasters.



Graph 1: Cyclone Prone Districts of India- Southern delta region.
(Source: National Disaster Management Authority.)

According to the graphic 1, a selection of southern districts that are prone to cyclones and are significantly impacted during tropical cyclones is illustrated based on the frequency of cyclones, wind speed and cyclone proneness. The districts of Nagapattinam, Thiruvarur, Chennai and Pudukottai in Tamil Nadu are classified as "proneness level 2," meaning that they are most affected by disasters. The Thane 2011 cyclone caused substantial damage in Tamil Nadu's coastal regions including the devastation of planted crops and the uprooting of hundreds of trees, electric wires, traffic signal poles and cell phone towers. In addition, 46 people, as well as a large number of livestock, were declared dead.

Cyclone GAJA, in November 2018, impacted the delta districts of Thanjavur, Thiruvarur and Nagapattinam. The residents of these areas rely on agriculture and related activities for a living, which is already threatened by large discrepancies in the monsoons and other climate factors. Concerns were raised about major damage to thatched huts/houses and roofs, as well as the potential threat of flying metal sheets. Power and communication cables were damaged, along with rice crops, bananas, papaya and orchards. It was also predicted that low-lying areas would be inundated by seawater following the disintegration of the Kutcha embankments.

Deepa[4] has analyzed the crops, livestock and other resources that are affected during Gaja, like Brinjal, groundnuts, cows and so on. After the cyclone, the respondents struggled to meet the daily family expenses as the crops in the area were affected by the Gaja storm. Pulses, rice, groundnuts, brinjal, banana and casuarina were the main crops affected by the cyclone. The farmers experienced severe economic losses with the pulses (60%), paddy (70-85%), vegetables (40-60%), bananas (100%) and casuarina (60-80%) swept off during Gaja. The effect of Gaja was severe among the farmers in the valley and their rehabilitation work has remained a concern.

Disasters leave a profound impact on the lives of the rural poor, with different parameters such as social, economic and demographic backgrounds affecting their experiences. Gender is one of the factors that influences how women and men experience disasters differently. According to the National Disaster Management Authority, 9,162 women first responders contributed significantly throughout catastrophes. Furthermore, women in rural regions play an important role in disaster management, which has a huge psychological influence on them. Rural women face multiple challenges that have a direct impact on their livelihoods in the long run.

According to UNISDR[21], there is little quantitative evidence available on the long-term impact of disasters on people's lives and livelihoods. There is also a lack of large-scale qualitative studies to understand the gendered impact of disasters, especially among the vulnerable sections. During a disaster, women in rural areas not only face the terrifying reality of losing their property and loved ones, but they also face challenges such as safety and security. They are more likely to encounter violence and abuse, including sexual violence, trafficking and forced marriage. Another crucial problem is women's access to healthcare during and after natural disasters.

Women require specialized medical care, especially during pregnancy and childbirth. Natural disasters, terrorist acts and war can be especially stressful and have a profound influence on people's mental health. While both men and women can get PTSD following a disaster, Pillai et al[22] have indicated that women are more likely to develop this condition as they frequently face extra obstacles and anxieties during and after a disaster as a result of societal expectations and cultural conventions. Higher rates of poverty, as well as limited access to education, healthcare and employment prospects, exacerbate women's susceptibility during disasters. These characteristics can add to the feelings of powerlessness, anxiety and sadness, potentially raising the risk of developing PTSD and other mental health conditions.

A person's entire psychological well-being, encompassing their emotional, cognitive and social functioning, is called mental health. It includes how people feel, think and behave, as well as their ability to deal with life's problems and stressors. The value of mental health for women is apparent. Women frequently experience particular social, biological and cultural challenges that might affect their mental health. These include, but are not limited to, hormonal fluctuations throughout the menstrual cycle, pregnancy and menopause, violence, discrimination based on gender, unequal access to healthcare and education, caregiving roles and societal expectations.

Mental health illnesses including eating disorders, anxiety, depression and post-traumatic stress disorder (PTSD), are more common in women than in men. Additionally, women may have premenstrual dysphoric disorder (PMDD) and postpartum depression. The stigma associated with mental health can have a profound impact on women. Feeling guilty or ashamed about getting help for mental health issues might result from societal expectations of women as nurturers and carers. Also, women might not have as much access to mental health services as men do, or they might experience systemic biases in diagnosis and treatment.

Women are more susceptible to PTSD due to biological and hormonal variables. According to James et al[13], women have a greater stress response system, particularly when it comes to releasing stress hormones like cortisol. This can have an impact on how women process and control their emotions, making them more vulnerable to developing PTSD symptoms after a distressing experience. Furthermore, women are more likely than men to have co-occurring mental health disorders such as depression and anxiety, in addition to PTSD. These comorbid diseases might intensify

women's overall symptomatology and therapy, making recovery more challenging.

The present study aims to understand the psychological impact, particularly PTSD, of sudden disasters and the challenges faced by rural women's groups. It is common to observe the functioning of at least 2-3 self-help groups in every village, run by non-governmental organizations, governmental organizations and individuals. Women constitute dynamic community groups in this area; hence, the study will help to reflect on the role of self-help groups in disasters and evolving disaster management methods in rural areas. Through this research, focal convergence can be given to developing women in self-help groups as active community groups towards disaster management.

Rural women already face vulnerabilities due to factors like poverty, inequality, overburdened family responsibilities and are the direct victims of climate change. Still, they are the agents of change in the rural areas. To harness this potential, implementations are to be taken to ensure women-centric strategies to reduce and mitigate disaster risks. The study is carried out with women from the marginalized women groups in five villages, namely, Thuraikadu, Udhayamarthandapuram, Thillaivilagam, Idumbavanam and Muthupet. These villages were listed among the worst-affected villages by the Gaja Cyclone in Thiruvarur District. (Based on the data of the Disaster Management Authority of Thiruvarur District).

Major Objectives of the Study

- To examine the mental health experiences among the respondents.
- To investigate the prevalence of Post-traumatic stress disorder (PTSD) among the respondents.
- To study the role of women in rural disaster management.
- To propose policies and interventions to mitigate the risk of PTSD among the respondents.

Material and Methods

The impact of cyclones on women in marginalized populations across five villages was thoroughly investigated using purposive sampling techniques. This research focused on the psychological consequences experienced by women following cyclones and employed a quantitative analysis approach. To ensure comprehensive data collection, the study prioritized high levels of female participation, which was demonstrated through the development of a participation continuum tailored for village participants. The research utilized the post-traumatic stress disorder scale, the Screening Questionnaire for Disaster Mental Health (SQD) and its SDQ-P subscale to accurately assess the mental health of the participants.

The data collected were meticulously analyzed using SPSS version 23.0 for Windows. The study specifically targeted five villages in the Thiruthuraipoondi block of the Thiruvarur district, which had been severely affected by the recent cyclone. A total of 465 females, including both married and single individuals, actively participated in the study. The primary objectives of this research are to identify specific concerns, to develop effective policies and to implement interventions that can assist marginalized women during times of disaster.

Inclusion and exclusion criteria:

- The study included women affected by the recent cyclone Gaja.
- The study included women from delta regions in Tamil Nadu, specifically five villages in Thiruvarur district: Thuraikadu, Udhayamarthandapuram, Thillaivilagam, Idumbavanam and Muthupet.
- Women aged 21 and older are included in the study.
- Women from other districts, Children and adolescents are excluded from the study.

Table 1
Percentage of Disaster Vs Mental Health Experiences of Women affected by Cyclone (N=465)

S.N.	Experiences	Yes		No	
		N	%	N	%
1	Have you noticed any changes in your appetite	81	17.4	384	82.6
2	Do you feel that you are easily tired and or tired all the time	163	35.1	302	64.9
3	Do you have trouble falling asleep or sleeping through the night	226	48.6	239	51.4
4	Do you have nightmares about the event	226	48.6	239	51.4
5	Do you feel depressed	215	46.2	250	53.8
6	Do you feel irritable	264	56.8	201	43.2
7	Do you feel hypersensitive to small noises or tremors	247	53.1	218	46.9
8	Do you avoid places, people and topics related to the event	227	48.8	238	51.2
9	Do you think about the event when you do not want to	241	51.8	224	48.2
10	Do you have trouble enjoying things you used to enjoy	225	48.4	240	51.6
11	Do you get upset when something reminds you of the event	168	36.1	297	63.9
12	Do you notice that you are making an effort to try not to think about the event, or are trying to forget it	249	53.5	216	46.5

Results

The research study evaluated a sample of 465 females, which included both married and single individuals. The study briefly mentions the socio-demographic characteristics of the sample, revealing that 74.8% of the respondents were under the age of 30 while 47.5% of the sample belonged to the age 45 and older. From table 1, it can be inferred that the most prevalent types of traumatic events were as follows: "Do you feel irritable?" (56.8%, n=264), "Do you notice that you are making an effort to try not to think about the event or are trying to forget it?" (53.5%, n=249) and "Do you feel that you are hypersensitive to small noises or tremors?" (53.1%, n=247).

The Screening Questionnaire for Disaster Mental Health (SQD) includes a subscale for post-traumatic stress disorder (PTSD), referred to as SQD-P, which consists of 9 items. Findings from the original Japanese study indicate that both SQD and SQD-P scores can be effectively categorized into three levels of impact: 0-3 points are considered "slightly affected," 4-5 points are "moderately affected," and 6-9 points are "severely affected." According to table 2, regarding the overall SQD scores, 28.8% of the women were classified as slightly affected, 10.1% as moderately affected and 61.1% as severely affected by PTSD. The table also shows that in terms of SQD-P scores, 31% of the women were slightly affected, 31.2% were moderately affected and 37.8% were severely affected in relation to the prevalence of PTSD.

Table 3 describes the prevalence of SQD and its distribution and association with various sociodemographic factors, with the SQD-P subscale. The prevalence of SQD-P subscale among the respondents was found: among those aged below 30 (n=25), 24% of them were in the slightly affected category, 60% of them were moderately affected and 16% of them were in the severely affected category. Within the 31- 40 years age group (n=219), 26.9% were slightly affected, 31.5% of them were moderately affected and 41.6% were severely affected with the SQD-P subscale. From the aged 40 and older group (n=221), 35.7% of them were slightly affected, 27.6% of them were moderately affected and 36.7% of them were severely affected with the SQD-P subscale.

Furthermore, the table reveals that age is statistically significant with the SQD-P subscale (χ^2=.14.773, p<0.01). Among different numbers of family members group, it is seen that members with (2+0, n=68) group, 42.6% of them, (2+1, n=96) group 41.7% of them, (2+2, n=124) group 41.1% of them, (2+3, n=105) group 32.4%, (2+4, n=105) group 34.5% of them and (2+5, n=14) group 14.3% of them were severely affected by SQD-P subscale.

Between the females (n=348), 39.7% of them were severely affected, 29.3% of them were moderately affected and 31% of them were slightly affected with PTSD for the SQD-P subscale. In the case of single women (n=117), 32.5% of them were severely affected, 36.8% of them were moderately affected and 30.8% of them were slightly affected with PTSD for the SQD-*P* subscale. Among those working in agriculture (n = 288), a total of 111 individuals were found to have significant PTSD symptoms based on the SQD-P subscale. The breakdown is as follows: 31.2% were wage workers, 61.3% were seasonal workers, 23.3% were farmers with their land, 62.5% were farmers with leased land, 20% were seasonal farmers and 8.5% were wage workers.

Furthermore, based on the SQD-P subscale, occupation is statistically significant (χ2=66.101, p<0.01). According to the SQD-P subscale, 32.2% of respondents in the group with monthly incomes between Rs. 1000 and Rs. 2000 (n = 87) and Rs. 2100 to Rs. 3000 (n = 299) have severe PTSD. While 41.5% of respondents with monthly incomes ranging from Rs 3100 to Rs 5000 (n=58), 19% of respondents were with incomes beyond Rs 5000 (n=21) and 31.9% of them were severely affected with PTSD for the SQD-P subscale. Also, the table reveals that monthly income is statistically significant with the SQD-P subscale (χ^2=29.504, p<0.01).

From table 4, it can be gathered that the most common types of traumatic events were "having physical reactions (e.g. pounding heart, trouble breathing, sweating), when something reminded you of the stressful experience" (0.6%, n=3). The most quite a bit traumatic events were "feeling difficulty concentrating" (12.3%, n=57), "trouble falling or staying asleep" (10.3%, n=48) and the most moderate traumatic events were "repeated, disturbing memories thoughts or images “Feeling as if your future will somehow be cut short” (35.5%, n=165).

Table 5 discusses the individuals' experiences in response to stressful life events. Among those under the age of 30 (n=25), 8% had severe PTSD symptoms while 92% had none. Of the 219 individuals in the age bracket of 31 to 40, 4.1% had severe PTSD symptoms, whereas 95.9% had none at all. 5.4% of individuals over 40 (n=221) showed severity and 94.6% showed no severity.

Table 2
Distribution of Respondents on the Prevalence of Post–Traumatic Stress Disorder due to Cyclone (N=465)

S.N.		PTSD Level		
		0 – 3 Slightly affected	4 – 5 Moderately affected	6 – 9 Severely affected
1	SQD-Score	134 (28.8%)	47 (10.1%)	284 (61.1%)
2	SQD-P Score	144 (31.0%)	145 (31.2%)	176 (37.8%)

Source: Primary data

Table 3
Chi-square test for association between socio-demographic characteristics of women and SQD-P

S.N.	Characteristics	Group	SQD-P Level			χ^2-value	p-value
			Slightly affected	(Moderately affected	Severely affected		
1	Age (in years)	Below 30	6 (24.0%)	15(60.0%)	4(16.0%)		
		(n=25)	59 (26.9%)	69 (31.5%)	91 (41.6%)		
		31–40	79 (35.7%)	61 (27.6%)	81 (36.7%)	14.773	.005
		(n=219)					
		Above 40					
		(n=221)					
2	No. of family	(2+0)	19 (27.9%)	20(29.4%)	29(42.6%)		
	members	(n=68)	32 (33.3%)	24 (25.0%)	40 (41.7%)		
		(2+1)	33 (26.6%)	40 (32.3%)	51 (41.1%)		
		(n=96)	32 (30.5%)	39 (37.1%)	34 (32.4%)		
		(2+2)	20 (34.5%)	18 (31.0%)	20 (34.5%)		
		(n=124)	8 (57.1%)	4(28.6%)	2 (14.3%)	11.182	.344
		(2+3)					
		(n=105)					
		(2+4)					
		(n=58)					
		(2+5)					
		(n=14)					
	Gender	Female	108	102(29.3%)	138		
3		(n=348)	(31.0%)	43 (36.8%)	(39.7%)	2.749	.253
		Male	36 (30.8%)		38 (32.5%)		
		(n=117)					
	Occupation	Agriculture	99 (34.4%)	99 (34.4%)	90 (31.2%)		
4		(n=288)	10	0	0		
		-labor	(100.0%)	26 (23.4%)	68 (61.3%)		
		(n=10)	17 (15.3%)	13 (43.3%)	7 (23.3%)		
		Wage	10 (33.3%)	3 (37.5%)	5 (62.5%)		
		worker	0	2 (20.0%)	2 (20.0%)		
		(n=111)	6(60.0%)	2 (25.0%)	4 (50.0%)		
		Seasonal	2 (25.0%)				
		Worker (n=30)				66.101	.000
		Farmer Own					
		land (n=8)					
		Leased					
		Land					
		(n=10)					
		Seasonal					
		Farmer					
		(n=8)					
	Monthly Income	1000 – 2000	20(23.0%)	39(44.8%)	28(32.2%)		
5	(in Rs.)	(n=87)	94 (31.4%)	81 (27.1%)	124		
		2100 – 3000	22	25 (43.1%)	(41.5%)		
		(n=299)	(37.9%)	0	11 (19.0%)	29.504	.000
		3100 – 5000	8 (38.1%)		13 (31.9%)		
		(n=58)					
		Above 5000					
		(n=21)					

Source: Primary data

Table 4
Percentage of Post-Traumatic Stress Disorder (PTSD) of the respondents affected by Cyclone (N=465)

S.N.	Experiences	(1)	(2)	(3)	(4)	(5)
1	Repeated, disturbing memories	113	129	216	7	0
	thoughts or images of the stressful	(24.3%)	(27.7%)	(46.5%)	(1.5%)	
	experience					
2	Repeated, disturbing dreams of	131	163	155	16	0
	the stressful experience	(28.2%)	(35.1%)	(33.3%)	(3.4%)	
3	Suddenly acting or feeling as if	162	152	138	13	0
	the stressful experiences were	(34.8%)	(32.7%)	(29.7%)	(2.8%)	
	happening again (as if you were					
	reliving it)					
4	Feeling very upset when	124	193	127	21	0
	Something reminded you of the stress, bringing back the memory of a stressful experience.	(26.7%)	(41.5%)	(27.3%)	(4.5%)	
5	Having physical reactions (e.g.,	136	159	144	23	3
	heart pounding, trouble breathing	(29.2%)	(34.2%)	(30.9%)	(4.9%)	(0.6%)
	, sweating) when something					
	reminded you of the stressful					
	experience					
6	Avoiding thinking about or	141	179	123	22	0
	talking about the stressful	(30.3%)	(38.5%)	(26.5%)	(4.7%)	
	experience o r avoiding having					
	feeling related to it					
7	Avoiding activities or situations	154	120	156	35	0
	Because they reminded you of the	(33.1%)	(25.8%)	(33.5%)	(7.5%)	
	Stressful experience.					
8		115	144	177	29	0
	Trouble remembering important parts of the stressful experience	(24.7%)	(31.0%)	(38.1%)	(6.2%)	
9	Loss of Interest in activities that	139	161	137	28	0
	you used to enjoy	(29.9%)	(34.6%)	(29.5%)	(6.0%)	
10	Feeling distant or cut off from	97	189	163	16	0
	other people	(20.9%)	(40.6%)	(35.1%)	(3.4%)	
11	Feeling emotionally numb or	147	153	144	21	0
	being unable to have a loving feeling for those close to you.	(31.6%)	(32.9%)	(31.0%)	(4.5%)	
12	Feeling a s if your future will	165	147	120	33	0
	somehow be cut short	(35.5%)	(31.6%)	(25.8%)	(7.1%)	
13	Trouble falling or staying asleep	161	135	121	48	0
		(34.6%)	(29.0%)	(26.0%)	(10.3%)	
14	Feeling irritable or angry	147	138	143	37	0
	outbursts	(31.6%)	(29.7%)	(30.8%)	(8.0%)	
15	Feeling difficulty concentrating	141	139	128	57	0
		(30.3%)	(29.9%)	(27.5%)	(12.3%)	
16	Being super-alert or watchful or	193	128	122	19	0
	on guard	(41.5%)	(27.5%)	(26.2%)	(4.1%)	
17	Feeling jumpy or easily startled	145	181	115	24	0
		(31.2%)	(38.9%)	(24.7%)	(5.2%)	

Not at all (1); A little bit (2); moderately (3); Quite a bit (4); Extremely (5). Source: Survey data

Table 5
Problems experienced by the respondents in response to stressful life events (cyclone)

S.N.	Characteristics	Group	PTSD Level		χ^2-value	p-value
			Not severe	Severe		
1	Age (in years)	Below 30 (n=25)	23 (92.0%)	2 (8.0%)		
		31 – 40 (n=219)	210 (95.9%)	9 (4.1%)	0.932	.628
		Above 40 (n=221)	209 (94.6%)	12		
				(5.4%)		
2	No.of family	(2+0) (n=68)	67 (98.5%)	1 (1.5%)		
	members	(2+1) (n=96)	92 (95.8%)	4 (4.2%)		
		(2+2) (n=124)	115 (92.7%)	9 (7.3%)		
		(2+3) (n=105)	102 (97.1%)	3 (2.9%)	7.322	.198
		(2+4) (n=58)	54(93.1%)	4 (6.9%)		
		(2+5) (n=14)	12 (85.7%)	2		
				(14.3%)		
3	Gender	Female (n=348)	330 (94.8%)	18		
		(n=117)	112 (95.7%)	(5.2%)	0.150	.698
				5 (4.3%)		
4	Occupation	Agriculture (n=288)	278 (96.5%)	10		
		Agri-labour	10 (100%)	(3.5%)		
		(n=10)	100 (90.1%)	0		
		Wage worker (n=111)	30(100%)	11		
		SeasonalWorker	8(100%)	(9.9%)		
		(n=30)	10(100%)	0	17.009	.009
		Farmer-Ownland	6 (75%)	0		
		(n=8)		0		
		Leased Land (n=10)		6		
		SeasonalFarmer		(25.0%)		
		(n=8)				
5	Monthly Income (in Rs.)	1000 – 2000 (n=87)	85(97.7%)	2(2.3%)		
		2100 – 3000 (n=299)	283 (94.6%)	16		
		3100 – 5000 (n=58)	53 (91.4%)	(5.4%)	4.160	.245
		Above 5000 (n=21)	21 (100/%)	5 (8.6%)		

Taking into account the number of family members, the subsequent findings were noted: 1.5% of participants in the (2+0, n=68) group showed severity; 4.2% of participants in the (2+1, n=96) group; 7.3% of participants in the (2+2, n=124) group; 2.9% of participants in the (2+3, n=105) group; 6.9% of participants in the (2+4, n=105) group and 14.3% of participants in the (2+5, n=14) group showed severity. Of the 348 female responders, 5.2% had severe PTSD symptoms, whereas 94.8% had none at all. 95.7% of the group of 117 single women exhibited no severity, whereas 4.3% showed severity.

Regarding occupation, 3.5% of agriculturists (n = 288) showed severity, 9.9% of wage workers (n = 111) showed severity and 25% of seasonal workers (n = 30) and farmers (n = 8) showed severity. With the SQD-P subscale, the results showed that occupation was statistically significant ($\chi 2=17.009$, $p<0.01$). Additionally, the monthly income was looked at. 2.3% of the 87 participants in the group earning between Rs. 1000 and Rs. 2000 per month showed severe symptoms of PTSD. 5.4% of the Rs. 2100 to Rs. 3000 group (n = 299) and 8.6% of the Rs. 3100 to Rs. 5000 group (n = 58) showed signs of severity.

Discussion

Rural areas face significant environmental risks because their inhabitants rely heavily on natural resources for all aspects of their lives. Access to food, water and fuel is the priority and major concern of women[10]. According to the study, it can be understood that the prevalence of post-traumatic stress disorder (PTSD) had a mild impact on 20.8% of the women surveyed, while 10.1% reported a moderate impact and 61.1% of respondents reported that their PTSD symptoms had a significant impact on their lives. Surviving a cyclone can be a daunting experience, particularly for women who are responsible for safeguarding themselves and their families. Navigating this experience involves managing multiple aspects of their lives, making their resilience a noteworthy achievement.

Concerning the age distribution and experiences of post-traumatic stress disorder (PTSD), the study found that

among individuals aged 31 to 40 (n = 219), a minimal impact was observed in 31.5% of participants, a moderate impact in 31.5% and a severe impact in 41.6% as measured by the SQD-P subscale. In the age range over 40 (n = 221), 35.7% reported mild impact, 27.6% reported strong impact and 36.7% reported serious impact using the SQD-P subscale. The study also found a significant correlation between age and the SQD-P subscale, indicating that age is a crucial factor in the severity and development of PTSD symptoms. The findings are consistent with the previous research by Ditlevsen and Elklit[5] who reported that women had a higher prevalence of PTSD than men.

The highest prevalence was observed in women in their early 50s whereas the lowest prevalence for both genders was in the early 70s. The female-to-male ratio was nearly 3:1 at some ages, with the highest ratio for individuals aged between 21 and 25 years. The study found a significant association between occupation and post-traumatic stress, as measured by the SQD-P subscale ($\chi 2=101$, $p<0.01$). Specifically, a group of individuals with a monthly salary ranging between Rs. 1000 and Rs. 2000 (n=87) exhibited severe symptoms of Post-Traumatic Stress Disorder (PTSD). Additionally, a significant number of women reported feelings of sadness and fear, raising concerns about the well-being of their children in the event of unforeseen circumstances.

The risks of enduring mental health issues and PTSD are heightened for individuals who have experienced significant exposure to the disaster, concurrent depression, low income, a history of trauma and abuse and other adverse life events. As is typically observed after any disaster, psychosocial stress and mental health problems remain prevalent risks, particularly for vulnerable populations with limited resources[8,9,20].

Specific Policy Actions to support the rural women affected by Disasters - key recommendations: Neumayer and Plümper[19] examined how the social vulnerability created by women in everyday economic societies leads to significantly higher rates of female mortality compared to men affected by natural disasters. The following steps are recommended for implementation. Gokhale's[10] study focused on the community and vulnerabilities of women, where the study suggested strategies to train and educate women to make them capable of performing their expected duties in such an event.

1) The inclusion of female village representatives in activities about disaster resilience.
2) Methodical incorporation of age and gender-disaggregated data generation at the local level.
3) Identify the roles of women in pre- and post-disaster management and provide appropriate training by district authorities.
4) Promotion of a village-level disaster management unit with representative women from each hamlet in a block.
5) Crisis intervention should be provided to women, with competent psychological counseling and other sorts of psychological concerns being addressed swiftly by a team of medical professionals and experts.
6) Create connections between catastrophe preparedness and resilience and the long-term effects that might be faced by women.
7) Create a series of case studies that highlight excellent practices for gender-integrated disaster management initiatives.
8) Providing separate rooms and restrooms for women and children.
9) Providing clear instructions on the various sets of emergency health care kits, particularly to meet the health needs of women and children and relief camps should be provided with all basic health and sanitation amenities such as hot water, first aid kits, sanitary napkins and so on.
10) A data list of pregnant women, single moms, kids, the elderly and other village-specific information should be created so that, in the event of a crisis, their medical requirements can be promptly met.

Conclusion

To conclude, the prevalence of PTSD symptoms varied among the surveyed women, with a significant number reporting a notable impact. Age emerged as a critical factor, as older individuals tended to experience more severe symptoms. The study also confirmed that PTSD is more prevalent among women than men, with the highest occurrence found in women in their early 50s. Additionally, occupation, particularly those with a low monthly salary, was strongly associated with severe PTSD symptoms. The findings underscore the heightened risk of enduring mental health issues and PTSD for individuals who have significant exposure to disasters as well as for those suffering from concurrent depression, low income, a history of trauma and other adverse life events.

The Government has made efforts to support the affected population through local administration; however, it is essential to establish a professional system of local governance that effectively addresses the vulnerability index of women in each village, providing support that is unbiased and not influenced by factors such as caste or creed. Social vulnerability factors play a crucial role in determining the psychological effects of cyclones on rural women.

Therefore, policymakers should create a comprehensive list of vulnerable populations in each village, prioritizing assistance for the poorest individuals through both Government and non-governmental organizations.

Establishing a professional disaster management system at the village level is vital, regardless of other influencing factors. It is essential to drive policy initiatives and support systems that prioritize the well-being and recovery of rural women affected by cyclones, ultimately fostering their resilience and overall development.

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