A Survey of the Mental Health of the People in Kanyakumari District During the Second Wave of Corona Lockdown in 2021

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Abstract

The present survey shows the mental health of the people in Kanyakumari district of India during the second wave of Covid-19. While the infection causes the unique symptoms of the disease and even death, the disease outbreak has adversely affect the mental health of the people because of the consequences of the lockdown and home confinement. About 1000 people including males and females in rural and urban areas were selected randomly and asked to complete a questionnaire with questions relevant to the symptoms of anxiety, stress, depression, fear, trauma and helplessness, whereupon the data was analyzed statistically. These mental distresses were slightly higher in the urban areas than in the rural areas and females were found to be more affected by these illnesses than the males. The severity ratings of the mental health issues were mild or moderate. The 21-44 and 45-59 age groups were most affected by these mental health issues than the 7-20 and above 60 age groups. Anxiety, stress, depression, fear and helplessness were serious treats to farmers, main workers and marginal worker while students, teachers, government employees and non-workers were little affected by the illness. The unavailability of daily essentials led to mental distress in many people. These distresses were however in low proportions compared to mental health of people in other countries because of effective implementation of mental health management by the efforts of the Government during the lockdown.

Keywords: Covid-19, SecondWave, Anxiety, Stress, Depression, Fear, Trauma, Helplessness.

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Introduction:

The sSRNA virus Covid-19 has been of central interest among the people all over the world since it is the etiological agent that causes a deadly disease called Severe Acute Respiratory Syndrome (SARS) in humans. Though wild-type Coronavirus was first realized while subjecting the virus infected samples to electron microscopic studies for the analysis of their surface structures in the 1960s, Covid-19 was left unnoticed for several years as it is believed to be a harmless virus which may be a component of the body's normal microflora. But, all what the scientific community has thought of was disproved when the first pandemic appeared in China in 2020 and a great deal of attention had been paid to its structure, mutability and immunity against the virus in recent years. This most potent pathogen, which is the novel Coronavirus, is supposed to have originated from the wild type virus somewhere from a wet bazaar in Wuhan, China, as the first human case was found out in the State on 1 December 2019, and has spread to all other countries wherein the disease outbreak has created hospitalization and death of millions of people .[1] As of 16 July 2021, there are 189,239,053 Corona positive cases and 4,070,341 deaths in the world because of this deadly virus.[2] There has hardly been any apt drug to treat Corona patients, even if there are some immune stimulating drugs to provide some general immunity to people, and again the live and attenuated vaccines developed for this virus cannot offer the people the complete protection against the Covid-19 virus due to decreased sensitivity of the spike antigens towards the neutralizing antibodies for haem agglutination.[3] because of the reason that during the repeated multiplication this virus has been changing the amino acid sequence of the spike protein.[4] In this worrisome situation, the health experts, as they think of

that prevention of the spreading is better than cure, have stressed the Government to introduce some restrictive measures such as home confinement.[5]   local lockdown, wearing of masks , washing of hands at frequent intervals.[6] keeping 6 feet distance while interacting with people , and the closure of bars, restaurants, social and cultural festivals. In this critical situation, the lockdown in homes with restricted movement has been of utmost importance in preventing the spread of Covid-19 virus. For that reason, almost more than one third of the World's population has been put under the lockdown and so is in India wherein her 1,394,049,821 people, as of 16 July 2021, have been put under lockdown in homes with restricted movement with the intention of preventing the spread of Covid-19 during its first wave in 13 April -30 July 2020 and its second wave in 1 May -31 July 2021.It seems to be more justified that Ronojoy Adikari and Rajesh Singh, who are working with mathematical modeling of the spread of Covid-19 at the Cambridge University, shown that a 49-days nationwide lockdown or sustained lockdown for two months with periodic relaxation may be obligatory to prevent Covid-19 resurgence in India . The Government of India has implemented 21-days lockdown with extended relaxations thereafter for two months to prevent the resurgence of this virus. The Tamilnadu Government has therefore imposed lockdown during its first wave in 13 April -30 July 2020 and its second wave in 1 May -31 July 2021, and thereby the state's 71,875,403 people have been confined in their houses. It should be emphasized here that such lockdowns are so simple to look at but create problems due to lack of income sources, freezing of students and migrant labours, shortage of foods, freedom of movement, poverty, and mental stresses in people. The Tamilnadu Government had

provided financial support of Rs. 1000/, free rice and other essential commodities to all ration card holders, exempted the payment of loan and tax for three months, and developed relief camps for migrant workers to save them during the lockdown . 26 March 2020). Social difficulties and inadequate medical challenges to fight against Covid-19 have intensified the anxiety and feeling of helplessness in all age-groups of people, including students, adults and old aged people in both the urban and rural areas .[7]

It is clinically proved that all humans tend to interact with some others socially to lead a peaceful life and, if such social interactions are cut back, mental distress results , leading to mental health issues such as anxiety, stress, depression, fear, trauma, and helplessness.[8] The anxiety is a troubled feeling in mind due to uncertainty of future which shows restlessness, feeling of impending danger, raised heartbeat, fast breathing, feeling of weakness and difficulty in concentration and thinking.[9] The stress is, on the other hand, is a hyper worried condition due to some social or mental pressures, which is characterized by slight aches in heart, troubled sleeping, dizziness or shaking of head, high blood pressure, muscular tension, improper digestion, and tiredness. Depression is persistent feeling of sadness and lack of interest on anything, which is clinically manifested guiltiness, hopelessness, mood swings, mental agitation, excessive restless sleep, lack of concentration, excessive or poor hunger, and weight loss or weight gain.[10] Fear is somewhat worried feeling triggered by the feeling of the nearness of a real danger or thoughts, which is manifested in the form of pain in the chest, dry mouth, short breaths, body weakness, fast heartbeat, and slight chillness .[11] Trauma is an unpleasant feeling of depressed mood that brings flashbacks, avoidance of situation, mistrust, lack of interest, irritability, hostility with well-wishers, hyper-vigilance, and unwanted thoughts.[1]The helplessness is the feeling of loneliness due to real or perceived absence of control over the situation, which shows the signs like frustration, failure to ask help, lack of effort, low self-esteem, giving up, passivity and poor motivation.. These mental health issues arise in human subjects from any event or circumstance that disturbs or homeostasis, which is proved to be correct during the Covid-19 pandemic in 2020 and 2021 .[11,12] While death due to Covid-19 is agonizing worldwide, the psychological distress in the normal healthy people has become a central issue during the pandemic so that.[12] have advised the Chinese Government to take a suitable action to preserve the mental health of people. It was observed more than fifteen years ago that many people had experienced the problems of stress, depression and anxiety during the early outbreaks of SARS.[13] but the intensity of mental health issues became a serious threat to the people who were quarantined during the Covid-19 pandemic in 2020,[14] in the study of mental health of Chinese people during the pandemic in 2020, confirmed that severe psychological distress (anxiety, stress, and depression) is not uncommon in the subjects. In support of this research has demonstrated that psychological distress such as stress, anxiety, and depression are quite common and hence alarming to the whole society has realized high levels of mental ill-health among Indians during the Covid-19 epidemic. Having recognized the necessity to keep up the mental health of people, the World Health organization (WHO, 2020) has issued the manual on "*Mental Health and Psychosocial Considerations during the Covid-19 Outbreaks*" as a guideline for the general public to follow during the Covid-19 outbreaks.

The present lockdown during the second wave of Covid-19 pandemic has also affected

the mental health of Indians differently with regard to their age, sex, profession, residing place, and socio-economic condition of the family. There has hardly been any work exploring the issues of mental health of people confined in the houses by lockdown in Tamilnadu State. This work is therefore an attempt to fulfill the gap in research by choosing Kanyakumari district as the area of study and the results would help the Health Experts and Policymakers to take appropriate steps to preserve the mental health of people during Covid-19 pandemics.

Materials and Methods

Study Area

Kanyakumari district- the southernmost district of Tamilnadu state in India- lies between 77º 15' and 77º 36' of the eastern longitudes and between 8º 03' and 8º 35' of the northern latitudes. This district is bound by Tirunelveli district on the North and East sides, the Gulf of Mannar on the South-east side, the Indian Ocean and the Arabian Sea on the South and South-west sides, and by Trivandrum district of Kerala on the West and North-west sides. It has a total area of 1672.4 square kilometers. As of 2011 census, the total population of this district is 1,870,374, of which 330,572 are sheltered in rural areas while 1,539,802 take accommodation in urban settlements. Out of 1,539,802 people in urban area, 761407 are males and 778395 are females whereas in rural areas 164938 are males and 165434 are females. The overall sex ratio is 1019 for every 1000 males. In the socio-economic activity, the percentage of main workers, marginal workers and non-workers were 81.3%, 18.7% and 63.7% respectively; the same for males were 85.2%, 14.8% and 43.7% respectively, and that for females were 68.2%, 31.8% and 83.6% respectively. Further, in the population, 17262 males and 16518 females in rural areas and 75573 males and 72997 females in urban areas are in 0-6

year age group; about 410650 people are in 7-20 year age group; about 669000 people are in young adult group between 21 and 44 years; about 247000 people are old-adults between age 45 and 59 years; and, about 167000 are aged people (above 60 years). The literacy rate is 93.65% for males and 89.89% for females.

Statistical Method

Field visits were conducted to rural and urban areas of the district between 10 May and 30 June of 2020 and random samples of 200 people from each age group were selected from both categories for this simple survey. Each and every respondent was inquired of to get information about the age, sex, profession, residing place, occupation, and socio-economic condition of the family and details of mental issues the person suffered during the second wave of Covid-19 pandemic. The collected data was analysed statistically using SPSS version 21 to carry out T-test, Anova and Correlation analysis to draw fitting inferences.

Lovibond and Lovibond (1995) method of mental health measurement was used to assess the severity of anxiety, stress, depression, fear, trauma, and helplessness. This is a 21-item DASS version of the scale to assess the severity of each mental health issue and there are 7 items for each issue. The responses were categorized into four, of which 0 denoted "Not applied to me", 1 denoted "Applied to me to some degree for sometimes", 2 denoted "Applied to me very much", and 3 denotes "Applied to me most times". Then Cronbach's alphas were calculated for each of the mental health issues and were found to be 0.81 for anxiety, 0.74 fore stress, 0.79 for depression, 0.69 for fear, 0.62 for trauma, and 0.89 for helplessness. The aggregated number for each subscale was multiplied by 2 and interpreted as suggested by Lovibond and Lovibond

(1995). The severity ratings thus calculated are given in table 1.

Table 1: Severity ratings used in the interpretation of mental health issues.

Severity rating	Anxiety	Depression	Stress	Fear	Trauma	Helplessness
Normal	0-7	0-9	0-14	0-17	0-18	0-17
Mild	8-10	10-13	15-18	18-23	19-24	18-23
Moderate	11-14	14-20	19-25	24-28	25-29	24-29
Severe	15-19	21-27	26-33	29-31	30-33	30-33
Extremely Severe	20+	28+	34+	32+	34+	34+

Results

Table 2 reports the mild and moderate levels of anxiety, depression, stress, fear, trauma and helplessness in both males and females in the rural areas. For the mild cases, the mean values of the severity of anxiety, stress, depression, fear, trauma and helplessness in males of the rural population were 8.1, 12.7, 14.1, 16.3 and 21.1 with 1.9, 2.3, 2.8, 3.6, 3.3, 4.9 standard deviation. Likewise, the mean values for the females of the rural population were measured to be 8.9, 12.9, 7.9, 14.4, 17.8 and 21.8 with 2.1, 2.5, 3.1, 4.1, 4.1, 3.1 standard deviation. For the moderate cases, the mean values of the severity of anxiety, depression, stress, fear, trauma and helplessness in males of the rural population were 10.3, 16.3, 11.6, 17.3, 24.3 and 24.3 with the standard deviations 2.9, 2.7, 2.4, 3.9, 2.9 and 4.9 respectively. Similarly, the mean values for the females of the rural population were measured to be 10.7, 16.6, 11.8, 17.7, 24.7 and 24.7 with 3.2, 3.1, 23.7, 3.7, 3.2, 3.7 standard deviation. The mean values of females were slightly higher than the males, but the male and female did not differ significantly in their anxiety ($t=0.63$; $p=0.54$), depression ($t=0.68$; $p=0.49$), stress ($t=0.54$; $p=0.71$), fear ($t=0.52$; $p=0.56$), trauma ($t=0.63$; $p=0.44$) and helplessness ($t=0.53$; $p=0.48$).

Table 2: Severity of anxiety, stress, depression, fear, trauma, and helplessness among the males and females in rural areas.

Mental health Issue	Sex	Number	Severity	Mean	SD	t-value	Significance
Anxiety	M	31	Mild	8.1	1.9	0.63	0.54
	F	33	Mild	8.9	2.1		
	M	21	Moderate	10.3	2.9	0.64	0.57
	F	24	Moderate	10.7	3.2		
Stress	M	30	Mild	12.7	2.3	0.68	0.49
	F	32	Mild	12.9	2.5		
	M	16	Moderate	16..3	2.7	0.61	0.53
	F	18	Moderate	16.6	3.1		

Depression	M	31	Mild	7.8	2.8	0.54	0.71
	F	32	Mild	7.9	3.1		
	M	18	Moderate	11.6	2.4	0.62	0.47
	F	19	Moderate	11.8	2.7		
Fear	M	48	Mild	14.1	3.6	0.52	0.56
	F	50	Mild	14.4	4.1		
	M	34	Moderate	17.3	3.9	0.44	0.53
	F	35	Moderate	17.7	3.7		
Trauma	M	36	Mild	16.3	3.3	0.63	0.44
	F	37	Mild	17.8	4.1		
	M	20	Moderate	24.3	2.9	0.66	0.51
	F	21	Moderate	24.7	3.2		
Helplessness	M	57	Mild	21.1	4.9	0.53	0.48
	F	61	Mild	21.8	3.1		
	M	42	Moderate	24.3	2.8	0.64	0.56
	F	44	Moderate	24.7	3.7		
Normal	M	116	-	-	-	-	-
	F	94	-	-	-	-	-

Table 3 shows the mild and moderate levels of anxiety, depression, stress, fear, trauma and helplessness in both males and females in the urban areas. For the mild cases, the mean values of the severity of anxiety, depression, stress, fear, trauma and helplessness in males of the rural population were 8.3, 12.9, 7.9, 14.3, 16.6 and 23.2 with 2.3, 3.4, 3.8, 4.4, 5.3, 4.9 standard deviation. Likewise, the mean values for the females of the rural population were measured to be 9.1, 13.3, 8.3, 14.6, 17.6 and 23.8 with 2.6, 4.5, 3.5, 3.9, 4.9, 4.7 standard deviation. For the moderate cases, the mean values of the severity of anxiety, depression, stress, fear, trauma and helplessness in males of the rural population were 10.5, 16.6, 12.6, 17.1, 24.8, and 24.6 with the standard deviations 2.4, 4.7, 3.4, 4.7, 4.8 and 4.8 4.9 respectively. Similarly, the mean values for the females of the rural population were measured to be 10.7, 16.8, 12.7, 17.3, 24.9 and 24.9 with 3.0, 4.1, 3.7, 4.8, 5.1, 5.1 standard deviations. As in the rural areas, the mean values of females were slightly higher than the males; however, the male and female did not differ significantly in their anxiety (t=0.54; p=0.49), depression (t=0.62; p=0.58), stress (t=0.48; p=0.74), fear (t=0.57; p=0.63), trauma (t=0.64; p=0.43) and helplessness (t=0.48; p=0.53). The healthy males and females in the rural areas were slightly higher than those in the urban areas of the district (Table 2 and 3).

Table 3: Severity of anxiety, stress, depression, fear, trauma, and helplessness among the males and females in urban areas.

Mental health Issue	Sex	Number	Severity	Mean	SD	t-value	Significance
Anxiety	M	38	Mild	8.3	2.3	0.54	0.49
	F	39	Mild	9.1	2.6		
	M	27	Moderate	10.5	2.4	0.59	0.71
	F	28	Moderate	10.7	3.0		
Stress	M	40	Mild	12.9	3.4	0.62	0.58
	F	41	Mild	13.3	4.5		
	M	21	Moderate	16..6	4.7	0.63	0.67
	F	22	Moderate	16.8	4.1		
Depression	M	35	Mild	7.9	3.8	0.48	0.74
	F	36	Mild	8.3	3.5		
	M	21	Moderate	12.6	3.4	0.59	0.64
	F	23	Moderate	12.7	3.7		
Fear	M	32	Mild	14.3	4.4	0.57	0.63
	F	34	Mild	14.6	3.9		
	M	30	Moderate	17.1	4.7	0.49	0.61
	F	19	Moderate	17.3	4.8		
Trauma	M	39	Mild	16.6	5.3	0.64	0.43
	F	40	Mild	17.6	4.9		
	M	23	Moderate	24.8	4.8	0.69	0.58
	F	24	Moderate	24.9	5.1		
Helplessness	M	57	Mild	23.2	4.9	0.48	0.53
	F	62	Mild	23.8	4.7		
	M	42	Moderate	24.6	4.8	0.66	0.65
	F	45	Moderate	24.9	5.1		
Normal	M	95	-	-	-	-	-
	F	86	-	-	-	-	-

Table 4 reveals the mental health issues of the males and females of different age groups in rural areas. The anxiety was highest in 21-44 age group (46/109), followed by the age group 45-59 (26/109), 7-20 age group (26/109) and above 60 age group (11/109) and the likewise the stress was highest in 21-44 age group (41/96), followed by the age group 45-59 (28/96), 7-20 age group (18/96) and above 60 age group (9/96). The depression was at the peak in 21-44 age group (52/100), followed by the age group 45-59 (28/100), 7-20 age group (14/100) and above 60 age group (6/100), but fear was the maximum in age group 45-60 (78/167), followed by 21-44 age group (48/167), above 60 age group (8/167) and the 7-20 age group (19/167). The trauma was highest in the age group 45-59 (45/114), followed by 21-44 age group (37/114), above 60 age group (18/114) and 7-20 age group (14/114), but helplessness was found to be the highest in above 60 age group (69/205), followed by the age group 45-59 (56/205), 21-44 age group (52/205), and 7-20 age group (27/205). Both the males and females had shown mild to moderate levels of mental health issues but no severe case in this study. The mean severity ratings of females were slightly higher than the males, but the male and female did not differ significantly in their anxiety (t=0.63; p=0.54), depression (t=0.68; p=0.49), stress (t=0.54; p=0.71), fear (t=0.52; p=0.56), trauma (t=0.63; p=0.44) and helplessness (t=0.53; p=0.48).

Table 4: Severity of anxiety, stress, depression, fear, trauma, and helplessness among the males and females of different age groups in rural areas.

Mental health Issue	Sex	Number	7-20 age group	21-44 age group	45-59 age group	Above 60 group	Severity class	Mean	SD	t-value	Signi.
Anxiety	M	31	7	12	8	4	Mild	8.1	1.9	0.63	0.54
	F	33	8	13	9	3	Mild	8.9	2.1		
	M	21	5	10	4	2	Moderate	10.3	2.9	0.64	0.57
	F	24	6	11	5	2	Moderate	10.7	3.2		
Stress	M	30	6	13	8	3	Mild	12.7	2.3	0.68	0.49
	F	32	6	14	9	3	Mild	12.9	2.5		
	M	16	3	6	5	2	Moderate	16..3	2.7	0.61	0.53
	F	18	3	8	6	1	Moderate	16.6	3.1		
Depression	M	31	4	16	9	2	Mild	7.8	2.8	0.54	0.71
	F	32	4	17	9	2	Mild	7.9	3.1		
	M	18	3	9	5	1	Moderate	11.6	2.4	0.62	0.47
	F	19	3	10	5	1	Moderate	11.8	2.7		
Fear	M	48	6	13	23	6	Mild	14.1	3.6	0.52	0.56
	F	50	6	14	24	6	Mild	14.4	4.1		
	M	34	4	10	15	5	Moderate	17.3	3.9	0.44	0.53
	F	35	4	11	16	4	Moderate	17.7	3.7		
Trauma	M	36	4	12	15	5	Mild	16.3	3.3	0.63	0.44
	F	37	4	12	16	5	Mild	17.8	4.1		
	M	20	3	6	7	4	Moderate	24.3	2.9	0.66	0.51
	F	21	3	7	7	4	Moderate	24.7	3.2		
Helplessness	M	57	7	14	15	21	Mild	21.1	4.9	0.53	0.48
	F	61	8	15	16	22	Mild	21.8	3.1		
	M	42	6	11	12	13	Moderate	24.3	2.8	0.64	0.56
	F	45	6	12	13	13	Moderate	24.7	3.7		

Table 5 shows the mental health issues of the males and females of different age groups in urban areas. The anxiety was highest in 21-44 age group (58/132), followed by the age group 45-60 (38/132), 7-20 age group (30/132) and above 60 age group (6/132); the stress was highest in 21-44 age group (48/124), followed by the 7-20 age group (32/124), age group 45-60 (29/124), and above 60 age group (15/124); the depression was at the peak in 21-44 age group (46/115), followed by the age group 45-60 (35/115), above 60 age group (18/115) and 7-20 age group (16/115); the fear was the maximum in the 21-44 age group (43/115), followed by age group 45-60 (36/115), the 7-20 age group (20/115) and above 60 age group (16/115); the trauma was highest in the 21-44 age group (54/126), followed by age group 45-60 (38/126), 7-20 age group (18/126) and above 60 age group (16/126); and, the helplessness was the highest in above 60 age group (70/206), followed by the age group 45-60 (57/206), 21-44 age group (52/206), and 7-20 age group (27/206). Both the males and females had shown mild to moderate levels of mental health issues but no severe case in this study. As in the rural areas, the mean severity ratings of females were slightly higher than the males; however, the male and female did not differ significantly in their anxiety (t=0.54; p=0.49), depression (t=0.62; p=0.58), stress (t=0.48; p=0.74), fear (t=0.57; p=0.63), trauma (t=0.64; p=0.43) and helplessness (t=0.48; p=0.53). The healthy males and females in the rural areas were slightly higher than those in the urban areas of the district (Table 4 and 5).

Table 5: Severity of anxiety, stress, depression, fear, trauma, and helplessness among the males and females of different age groups in urban areas.

Mental health Issue	Sex	Number	7-20 age group	21-44 age group	45-60 age group	Above 60 group	Severity class	Mean	SD	t-value	Signi.
Anxiety	M	38	9	16	11	2	Mild	8.3	2.3	0.54	0.49
	F	39	9	17	11	2	Mild	9.1	2.6		
	M	27	6	12	8	1	Moderate	10.5	2.4	0.59	0.71
	F	28	6	13	8	1	Moderate	10.7	3.0		
Stress	M	40	11	15	9	5	Mild	12.9	3.4	0.62	0.58
	F	41	11	16	9	5	Mild	13.3	4.5		
	M	21	5	8	5	3	Moderate	16..6	4.7	0.63	0.67
	F	22	5	9	6	2	Moderate	16.8	4.1		
Depression	M	35	5	13	11	6	Mild	7.9	3.8	0.48	0.74
	F	36	5	14	11	6	Mild	8.3	3.5		
	M	21	3	9	6	3	Moderate	12.6	3.4	0.59	0.64
	F	23	3	10	7	3	Moderate	12.7	3.7		
Fear	M	32	6	12	10	4	Mild	14.3	4.4	0.57	0.63
	F	34	6	13	11	4	Mild	14.6	3.9		
	M	30	5	11	9	5	Moderate	17.1	4.7	0.49	0.61
	F	19	3	7	6	3	Moderate	17.3	4.8		
Trauma	M	39	6	17	11	5	Mild	16.6	5.3	0.64	0.43
	F	40	6	17	12	5	Mild	17.6	4.9		
	M	23	3	10	7	3	Moderate	24.8	4.8	0.69	0.58
	F	24	3	10	8	3	Moderate	24.9	5.1		
Helplessness	M	57	7	14	15	21	Mild	23.2	4.9	0.48	0.53
	F	62	8	15	17	22	Mild	23.8	4.7		
	M	42	6	11	12	13	Moderate	24.6	4.8	0.66	0.65
	F	45	6	12	13	14	Moderate	24.9	5.1		

The unavailability of daily essentials also led the people to suffer anxiety, stress and depression, but not the fear, trauma and helplessness among the people of rural and urban areas (Table 6). In rural areas, the anxiety was highest in people who could not get enough daily essentials (51/107), followed by people who were not sure about supplies (34/107) and people who got adequate amount of supplies (22/107), but in urban areas, its incidences were 53/107, 34/107, 20/107 correspondingly. Stress in rural areas was highest in people who could not get enough daily essentials (42/96), followed by people who were not sure about supplies (28/96) and people who got adequate amount of supplies (26/96), whereas in urban areas, its occurrences were

43/107, 27/107, 26/107 respectively. Similarly, depression in rural areas was highest in people who could not get enough daily essentials (53/110), followed by people who were not sure about supplies (36/110) and people who got adequate amount of supplies (21/110), whereas in urban areas, its occurrences were 55/111, 37/111, 19/111 respectively. The anxiety, stress and depression were slightly higher in urban population than in the rural population. In the rural areas, the mean severity levels of anxiety, stress and depression were 8.9 (SD=2.3), 16.3 (SD=2.6) and 11.6 (SD=2.4) respectively in people who could not get adequate essentials; these values were 9.2 (SD=2.6), 12.9 (SD=1.9) and 7.9 (SD=2.2) respectively in people who were not sure about supply; and these values were 9.3 (SD=2.1), 12.7 (SD=2.3) and 7.8 (SD=1.6) in the same order in people who got adequate amount of essentials. A significant difference was observed in anxiety ($F=9.31$; $p<0.01$), stress ($F=8.18$; $p<0.01$), and depression ($F=9.37$; $p<0.01$). On the other hand, in the urban areas, the mean severity levels of anxiety, stress and depression were 9.1 (SD=2.5), 16.4 (SD=2.8) and 11.7 (SD=2.6) respectively in people who could not get adequate essentials; these values were 9.4 (SD=2.7), 12.6 (SD=2.2) and 7.4 (SD=2.4) respectively in people who were not sure about supply; and these values were 9.2 (SD=2.3), 12.2 (SD=2.1) and 7.6 (SD=1.9) in the same order in people who got adequate amount of essentials. A significant difference was observed in anxiety ($F=9.43$; $p<0.01$), stress ($F=8.21$; $p<0.01$), and depression ($F=9.34$; $p<0.01$). These values are not statistically significant.

Table 7 shows that the occurrence and severity of anxiety, stress, depression, fear, trauma, and helplessness differ considerably depending on the professional categories of the people. In the total of 1000 people, anxiety was found to be maximum among the farmers (63), followed by marginal workers (58), students (56), main workers (54), non-workers (43), Government Employees (26) and teachers (19); stress was found to be highest in Farmers (71), followed by marginal workers (65), main workers (59), students (33), non-workers (33), Government employees (32) and teachers (21); depression was at the peak in marginal workers (73), followed by main workers (69), farmers (63), non-workers (43), students (34), Government employees (34) and teachers (20); fear was seen utmost among the farmers (68), followed by the marginal workers (68), main workers (59), non-workers (49), Government employees (37), students (26) and teachers (19); trauma was found to be highest among main workers (24), followed by farmers (23), students (23), marginal workers (19), teachers (18), Government employees (18), and non-workers (18); and the helplessness was the maximum among the farmers (67), which was followed by marginal workers (61), main workers (58), non-workers (41), students (26), Government Employees (23) and teachers (21). The farmers, main workers and marginal workers were found to be more vulnerable to anxiety, stress, depression, fear and helplessness, whereas students and teachers were little affected by these illnesses. The Government employees, whose job was mainly concerned with protection of people from Covid-19 outbreaks, most often felt anxiety, stress, fear and depression. Trauma did not affect the famers, main workers, marginal workers and non-workers seriously but students and teachers were more sensitive to it. Further, the severity class of anxiety, stress, depression, fear and helplessness was moderate in farmers, main workers and marginal workers while that was found to be moderate in students, teachers, government employees and non workers.

Table 6: Severity of anxiety, stress, depression, fear, trauma, and helplessness among the people regarding unavailability of essentials in rural and urban areas.

Mental health Issue	Area	Unavailability of essentials	Number	Severity	Mean	SD	F-value	Signi.
Anxiety		Yes	51	Mild/	8.9	2.3	9.31	<0.01
		May be	34	Moderate	9.2	2.6		
		No	22		9.3	2.1		
Stress		Yes	42	Mild/	16..3	2.6	8.18	<0.01
	Rural	May be	28	Moderate	12.9	1.9		
		No	26		12.7	2.3		
Depression		Yes	53	Mild/	11.6	2.4	9.37	<0.01
		May be	36	Moderate	7.9	2.2		
		No	21		7.8	1.6		
Anxiety		Yes	53	Mild/	9.1	2.5	9.43	<0.01
		May be	34	Moderate	9.4	2.7		
		No	20		9.2	2.3		
Stress		Yes	43	Mild/	16.4	2.8	8.21	<0.01
	Urban	May be	27	Moderate	12.6	2.2		
		No	26		12.4	2.1		
Depression		Yes	55	Mild/	11.7	2.6	9.34	<0.01
		May be	37	Moderate	7.4	2.4		
		No	19		7.6	1.9		

The mean severity ratings of anxiety were 9.1, 9.3, 9.4, 10.2, 10.3, 10.6 and 10.4 for students, teachers, government employees, farmers, main workers, marginal workers and non-workers respectively and the corresponding standard deviations were 2.1, 2.3, 2.4, 3.5, 3.7, 3.4 and 3.2 respectively. A significant group difference was found in these professional groups (F=5.34; <0.01). In the case of stress, the mean values were 12.9, 12.7, 16.3, 17.6, 17.8, 17.9 and 16.9 for the same order of professional groups with the standard deviations 1.9, 2.3, 2.6, 2.9, 3.1, 2.1, and 3.0 respectively (F=4.87; p<0.01). In the case of stress, the mean values were 12.9, 12.7, 16.3, 17.6, 17.8, 17.9 and 16.9 for the same order of professional groups with the standard deviations 1.9, 2.3, 2.6, 2.9, 3.1, 2.1, and 3.0 in that order (F=4.87; p<0.01). Regarding the severity of depression, the mean values were 7.8, 11.6, 7.9, 10.8, 11.2, 11.3 and 11.1 for the same order of professional groups with the standard deviations 1.6, 2.4, 2.2, 3.1, 3.3, 3.0 and 2.9 correspondingly (F=6.13; p<0.01). The mean values of fear were 12.7, 13.1, 13.8, 14.3, 14.6, 14.7 and 14.1 for the same order of professional groups and the standard deviations were 3.1, 2.4, 3.3, 2.9, 3.7, 3.9 and 3.1. A significant group difference was found in these professional groups (F=5.67; p<0.01). Likewise, the mean values of trauma were 13.3, 13.2, 14.3, 13.4, 13.3, 15.9 and 15.9 for the same order of professional groups and the standard deviations were 2.6, 2.9, 3.4, 3.1, 3.2, 2.8 and 2.9. The statistical significance between the groups was F=6.47 (p<0.01). Similarly, the mean values of helplessness were 16.1, 16.3, 16.6, 18.8, 18.6, 19.3 and 14.9 for the same order of professional groups and the standard deviations were 3.3, 4.3, 3.6, 4.2, 4.3, 3.8 and 2.7 respectively. The statistical significance between the groups was found to be F=6.47 (p<0.01).

Table 7: Severity of anxiety, stress, depression, fear, trauma, and helplessness in different categories of profession.

Mental health Issue	Profession	Number	Severity class	Mean	SD	F-value	Significance
Anxiety	Student	56	Mild	9.1	2.1		
	Teacher	19	Mild/	9.3	2.3		
	Govt.	26	Moderate	9.4	2.4		
	employee	63	Mild/	10.2	3.5	5.34	$p<0.01$
	Farmer	54	Moderate	10.3	3.7		
	Main worker	58	Moderate	10.6	3.4		
	Marginal labour	43	Moderate	10.4	3.2		
	Non Worker		Moderate				
			Moderate				
Stress	Student	33	Mild	12.9	1.9		
	Teacher	21	Mild	12.7	2.3		
	Govt.	32	Mild/	16..3	2.6		
	employee	71	Moderate	17.6	2.9	4.87	$p<0.01$
	Farmer	59	Moderate	17.8	3.1		
	Main worker	65	Moderate	17.9	2.1		
	Marginal labour	33	Moderate	16.9	3.0		
	Non Worker		Moderate				
Depression	Student	34	Mild	7.8	1.6		
	Teacher	20	Mild/	11.6	2.4		
	Govt.	34	Moderate	7.9	2.2		
	employee	63	Mild/	10.8	3.1	6.13	$p<0.01$
	Farmer	69	Moderate	11.2	3.3		
	Main worker	73	Moderate	11.3	3.0		
	Marginal labour	43	Moderate	11..1	2.9		
	Non Worker		Mild / Moderate				
			Mild				
Fear	Student	26	Mild	12.7	3.1		
	Teacher	19	Mild	13.1	2.4		
	Govt.	37	Mild	13.8	3.3	5.67	$p<0.01$
	employee	68	Moderate	14.3	2.9		
	Farmer	59	Moderate	14.6	3.7		
	Main worker	68	Moderate	14.7	3.9		
	Marginal labour	49	Mild/	14.1	3.1		
	Non Worker		Moderate				
Trauma	Student	23	Mild	13.3	2.6		
	Teacher	18	Mild	13.2	2.9		
	Govt.	18	Mild/	14.3	3.4		
	employee	23	Moderate	13.4	3.1	6.47	$p<0.01$
	Farmer	24	Mild	13.3	3.2		
	Main worker	19	Mild	15.9	2.8		
	Marginal labour	18	Moderate	15.9	2.9		
	Non Worker		Moderate				

Helplessness	Student	26	Mild	16.1	3.3		
	Teacher	21	Mild	16.3	4.3		
	Govt. employee	23	Mild	16.6	3.6		
	Farmer	67	Moderate	18.8	4.2	4.63	p<0.01
	Main worker	58	Moderate	18.6	4.3		
	Marginal labour	61	Moderate	19.3	3.8		
	Non Worker	41	Mild	14.9	2.7		

Discussion

Both males and females residing in the rural and urban areas of Kanyakumari district have equally suffered from anxiety, depression, stress, fear, trauma and helplessness during the second wave of the Covid-19 in 2021. However, such mental health issues were somewhat higher in the urban areas than in the rural areas because the lockdown had restricted the movement of people more severely in the urban areas than in rural areas where the lockdown did not restrict the movement of people severely as the houses are considerably apart from one another and their space for movement is quite larger in the surrounding. In both rural and urban areas, females were found to be more affected by these illnesses than the males due to their way of life; the males wandering here and there frequently were not affected seriously but the females who were mostly in the houses all the time had contracted such illnesses easily as has been recorded.[15] However, in general, the present lockdown and trepidation of getting infected with Covid-19 had created a distress among the people irrespective of residential area and gender too. The severity of the mental health issues were found to be either mild or moderate due to the lockdown, but no one sever case was reported, which enable us to think of that distress due to lockdown might have forced some healthy people to suffer the mild or moderate mental health issues or those who already had mild problems might have contracted the moderate illness. This was also confirmed.[16]

Evidently, people in 21-44 ages were highly affected by anxiety because many of them were searching new or better jobs for planning the future but the lockdown confined them in their houses and restricted their wandering to meet the goals and most companies were closed. In the meantime, people of 45-60 years suffered from anxiety mainly because of their worries about the future of their children since they were mostly settled in apt jobs and there were least problems in houses. People belonging to 7-20 years were mostly students who depended on their parents for their survival and their problems in studies were solved through on-line coaching and were almost engaged in internet and online classes, so that their anxiety was very much reduced. People in above 60 year had least anxiety as they almost came to rest from routine life. Owing to the same reason, stress and depression were found to be the highest level in 21-44 ages and was least in elderly people above 60 year. The people belonging to 7-20 years were not suffering much from the lockdown as they were engaged in online classes and were playing indoor and outdoor games frequently as they liked all the time, which was the reason why they did not suffer from the lockdown. The fear of getting infected with Covid-19 and the consequence of death were also the reasons for distress in the 21-44 group and 45-60 group but not in above 60 age group as well as 7-20 age group. People between 21 and 60 years thought that, if they got infected with Covid-19, their family

would fall in inadequacy in the future, which was the distress they got during the lockdown. For the people of 7-20 years group, they felt that they were all under the full protection of their parents, and that if they will be infected with Covid-19, then their parents will bring them to hospitals to save their life, which was the reply from most respondents during the study. As had been observed in fear, the trauma had also followed the same trend during the lockdown. Regarding the helplessness, the severity rating had increased from the 7-20 age group to above 60 age group, because aged people felt the highest helplessness from their children and relatives in needy situations as the lockdown had kept them apart from them, there was difficulty in visiting and even their fellow men could not come to help them due to the fear of Covid-19 spreading. The young generation did not care about helplessness as most of them were always engaged with their friends by mobiles and internets and their times during lockdown was fully on online classes and games.

From this table, it is clear that unavailability of daily essentials such as vegetables, fishes, mutton, chicken, fruits and other consumables is a main cause of mental health problems both in the rural and urban areas of the district, irrespective of gender. During the lockdown, there was poor supply of such essentials in many places because of the stoppage of transportation and lockdown of shops and markets, which forced the people to feel some distress due to their inability to buy items they wanted to have in the house, and led to anxiety, stress and depression. Therefore, these mental health issues were serious threats to those people which could not get enough daily essentials during the lockdown. The levels of these mental health problems were comparatively low in people who could take alternative essentials for items they wanted to buy in the market and

hence the "May be" type was lesser than the "Yes" type in this survey. Another noteworthy point is that the "No" type people reported mild/moderate anxiety, stress and depression due to some unknown reasons of lockdown and home confinement but not due to unavailability of daily essentials. Thus, the people who did not have enough daily essentials were most vulnerable to anxiety, stress and depression than those who could buy adequate amount of daily essentials, which is in the line with the studies [13,17]. As has been reported,[18] here also the respondents reported mild to moderate levels of severity of anxiety, stress and depression. The State Government's timely helps like Rs. 2000/ money support every month for each ration card holder, issuing free rice and consumables every month, and door delivery of vegetables and fruits through panchayat during the second wave of Covid-19 would have reduced the common distresses due to lockdown and home confinement, which might be the reason for such reduced levels of anxiety, stress and depression in this study area. The mental health implications of lockdown would be more far-reaching than the values of present survey, if the Government did not take these adequate steps in time,[19]

It is well established that the lockdown has created distress in human mind and thereby induced the mental health problems in humans The farmers, main workers and marginal workers were found to be more vulnerable to anxiety, stress, depression, fear and helplessness, whereas students and teachers were little affected by these illnesses in the second wave of Covid-19. The Government employees, whose job was mainly concerned with protection of people from Covid-19 outbreaks, most often felt anxiety, stress, fear and depression. Trauma did not affect the famers, main workers, marginal workers and non-workers seriously but students and teachers were more sensitive

to it. Further, the severity class of anxiety, stress, depression, fear and helplessness was moderate in farmers, main workers and marginal workers while that was found to be moderate in students, teachers, government employees and non workers.

In this study, the students were comprised of youths studying in schools, polytechnics, and under graduates of colleges; only least number of students reported mild levels of anxiety, stress, depression, fear and helplessness while others were normal.[20] reported that closure of schools and other academic institutions would reduce an additional 2-4% deaths during the pandemic in this pandemic.[21]had confirmed that such closures would change the students' behaviours badly enough to create a distress that challenges their mental health and economic anguish, which may lead to their abuse in the society. proved that postponement of exams created anxiety, stress, depression and helplessness in over 20% of the student population.[22] in China about 80% of school children suffered from clinginess, difficulty in attention, and irritability because of lockdown, and that media entertainments in families, collaborative games, physical activity and music therapy would be of utmost help to keep up the mental health of students.[23] stated that social distancing during the lockdown had generated the symptoms of anxiety, stress, depression and burdensomeness in over 92% of students so that social distancing must be followed with utmost care. It was also noted that more than 40% of students felt eating disorder because of stress and anxiety while there were in home confinement, which could only be cleared by proper counseling.[24] had established that mood swing, fear, anxiety, stress and depression were very common among the students, for which timely psychological management is warranted during the pandemic. In this same line of investigation, the present study has reported some levels of anxiety, stress, depression, fear and helplessness among the students but the extent such health problems were little lower than the expected level because of the timely implementations of proper relaxations to students such as online-classes, promotion of internet games, announcing the all pass scheme, avoidance of exams, issuing textbooks and others as usual by the State Government in 2021. As the activities of the Government could manage the distress of students with utmost care, their mental health problems were found to be very low compared to the same mental health problems in farmers, main workers and marginal workers in this district. Also, the present study confirms low level of anxiety, stress, depression, fear, trauma and helplessness in teachers of almost all academic institutions because they were not forced to any economic or social distress during the lockdown and they were keeping contacts with their pupils all the days through online classes as they did in their classrooms. These results coincide with the findings.[25,26]

The government employees were people working in police department, public health department, electricity board, PWD, district collectorate, taluk offices, village offices, municipality, Public transports and Banks. These people reported mild level of anxiety, stress, depression and fear but least level of trauma and helplessness during the lockdown.[27] people who are directly involved in the prevention of Covid-19 outbreaks such as public health workers, municipal workers, police personalities, were reported mental health ramifications most often because they were in position to check the migration of people during the lockdown and there was possibility to get infected with Covid-19 that was spreading from man to man through droplet infection. Workers attempting to check the spreading of

Coronavirus therefore reported the high levels of mental health problems,[19] But, for other, the chances to contract Covid-19 infection were low so that the mental health was almost normal,[18]

Land owners cultivating in their lands, tenants, agricultural labours and people working with animal husbandry are all considered as farmers, the people working in factories and corporate for more than 8 hours/day were considered as main labours, people working in any private establishment for 6-8 hours/day or daily labours were considered as marginal labours and people who did manual works for less than 3 hours/day were considered as non-workers, as has been stated in the Indian Statistical Manual 2021. The farmers, main workers and marginal workers were found to be more vulnerable to anxiety, stress, depression, fear and helplessness, whereas students and teachers were little affected by these illnesses in the second wave of Covid-19. These people did not know what the Covid-19 is, what does its deadly consequence and what to do to prevent its spreading in the society, but what is well known to them is their job. The lockdown and home confinement were found to be serious menaces to these people even if some of them realized that these are indispensable attempts to prevent the disease outbreak in this country as a whole. Owing to market closure and lack of transportation facilities, the famers started worrying about selling their products which had to be sold to cheap rates than the usual process and enough buyers did not come to the market for purchase and they further required to struggle for the purchase of fertilizers and others from the market, which led to severe mental distress. Many farmers and herders were forced to sell their asserts in order to meet their needs because the Government's security measures were inadequate to them.[28] In animal keeping also, the farmers felt affected due to market closure, stoppage of livestock movement and trade, replacement of stocks, farmers' access to market and drops in the consumption of animal products during the lockdown.[28] The unexpected difficulties in farming and low price for their goods were the main reasons for the farmers to contract the mental distress that led them to suffer anxiety, stress, depression, fear and helplessness during the lockdown, which is in the same line of studies.[28] On the other hand, for the main workers and marginal workers, the closure of their working place during the lockdown was the main threat that put them under distress economically.[14] The non-workers, even if suffered from the lack of adequate jobs during the lockdown, their life style was little affected and hence their mental distress was not so severe, which is the reason for low levels of mental problems in them. Affluent families reported least mental distress than non-affluent families, which was also found to be true with the current research.

Conclusion

In the present investigation, the anxiety, stress, depression, fear, trauma and helplessness were slightly higher in the urban areas than in the rural areas and the females were found to be more affected by these illnesses than the males. Though the severity ratings of these mental health issues were mild or moderate, the 21-44 and 45-59 age groups were most affected by these mental health issues than the 7-20 and above 60 age groups. Comparatively, the farmers, main workers and marginal worker were most affected by anxiety, stress, depression, fear and helplessness than the students, teachers, government employees and non-workers. Further, the unavailability of daily essentials led to mental distress in many people. These distresses were however in low proportions compared to mental health of people in other countries because of effective implementation of mental health management by the efforts of the

Government during the lockdown. The Government of Tamilnadu had taken many essential measures to reduce the negative impacts of the lockdown, such as free rice and consumables, provision of Rs. 2000/ month for ration card holders, support for outputs and inputs, and allowing transportation of agriculture and fisheries activities. Even though there was unavailability of daily essentials in many places, the Government, NGOs and many other private agencies had delivered vegetables and groceries to houses, which had reduced the mental distresses of people to a considerable extent. For students, the government announced online-classes, relaxations in exams and admission to higher classes. It is therefore concluded that the lockdown had created mental distresses in many people but the effects of the distresses were reduced considerably by the activities of the government during the second wave of Covid-19 outbreak.

Declarations

Ethics approval and consent to participate

Not applicable.

Human and animal rights

No Animals/Humans Were Used For Studies That Are The Basis Of This Research.

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