

# IMPACT OF COVID-19 ON QUALITY OF LIFE AMONG GENERAL POPULATION IN RURAL AREA OF CHENGALPATTU DISTRICT, TAMILNADU: A CROSS SECTIONAL STUDY

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## ABSTRACT:

**INTRODUCTION:** The COVID-19 pandemic has changed the lifestyle of all people. This study was conducted to study the impact of the COVID 19 pandemic on the quality of life among the general population in the rural area of Chengalpattu district, Tamil Nadu.

**MATERIALS AND METHODS:** This Community based Cross-sectional study done after the second wave of COVID 19 pandemic in India, included 424 participants from the rural health training center's field practicing area of a tertiary care private hospital in Chngengalpattu district of Tamil Nadu. After obtaining informed consent, data were collected through house to house survey using the WHO-BREF questionnaire which assessed the quality of life including physical health, Mental health, Social relationship and Environmental domains. Along with it, socio-demographic details of the participants were also obtained. Collected data were analyzed using SPSS software version 21.

**RESULTS:** The Quality of life of the people is better with 52.4% of participant's scores falling above the mean score of 253.59(+/- 57.81). 59.2% of the participants showed better physical health with a mean score above 68.21(+/- 21.7). 51.9% and 54.0 % of the participants had good mental health and social relationship respectively. 52.6% of the participants enjoyed a good physical environment during the pandemic with a mean score of 65.56(+/-16.9). There is a strong association between quality of life and socio-demographic factors like age ( $p = 0.00$ ); Gender ( $p = 0.003$ ); Marital status ( $p = 0.024$ ); Education ( $p = 0.000$ ); Socio-economic status during the pandemic ( $p = 0.000$ ) and Occupation ( $p = 0.000$ ), which was statistically significant.

**CONCLUSION:** Despite the pandemic 52.4% of the participants had a better quality of life. This may be due to subsidies and free rations from the government to the people. Also, people in the productive age group with better education and occupation had a good quality of life. This implies that, the government's plan should focus on better education to the children and improvement of employment opportunities.

**KEY WORDS:** Quality of life, COVID 19, Pandemic, General population

**INTRODUCTION:**

Coronavirus disease (COVID-19) is an infectious disease caused by coronavirus<sup>1</sup>. In humans, several coronaviruses are known to cause respiratory infections ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS).<sup>2</sup>

People can catch COVID-19 from others who have the virus. The disease spreads primarily from person to person through small droplets from the nose or mouth, which are expelled from a person with COVID-19. People can catch COVID-19 if they breathe in these droplets or by being in contact with the objects or surfaces infected by them.<sup>2</sup> People with COVID-19 have had a wide range of symptoms reported – ranging from mild symptoms to severe illness. Symptoms may appear 2-14 days after exposure to the virus. People with these symptoms may have COVID-19: Fever or chills, Cough, Shortness of breath or difficulty breathing, Fatigue, Muscle or body aches, Headache, New loss of taste or smell, Sore throat, Congestion or runny nose, nausea or vomiting, Diarrhea.<sup>3</sup>

WHO defines Quality of Life(QOL) as an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns. It is a broad-ranging concept affected in a complex way by the person's physical health, psychological state, personal beliefs, social relationships, and relationship to salient features of their environment.<sup>4</sup>

COVID-19 has taken several twists and turns, From beginning as an alert in December 2019 to its declaration as a Pandemic in March 2020 now taking its turn to become endemic. As a disease, it has not only affected a person physically but also mentally. The government has imposed severe restrictions to limit the movement of people to prevent the spread of COVID 19. Many people lost their livelihood due to it. The cost and availability of essential commodities were affected. In this way, people were also affected mentally. This makes it important to assess the quality of life of people during the COVID 19 pandemic.

**METHODOLOGY:**

The present research utilized a community-based Cross-sectional study design to assess the impact of COVID 19 on the quality of life among the general population living in rural areas of the Chengalpattu district.

The quality of life of people was assessed after the first wave of the COVID 19 pandemic. Based on the study by Yingfei Zhang and Zheng Feei Ma<sup>5</sup>, 52.1% of participants felt horrified and apprehensive due to the pandemic. Considering its prevalence with a 95% confidence interval, allowed error 5% and Non response rate as 10% the sample size was obtained as 424. This study was conducted in a rural health training center's field practicing area of a tertiary care hospital in Chengalpattu district of Tamil Nadu. It included 12 villages and the study population was selected through

simple random sampling in all the villages. Adults in the study area were included in the study. Those who were not approachable even after 3 visits were excluded from the study.

The WHO-BREF questionnaire was used to collect the data from the participants. The quality of life was assessed by dividing it into four domains. The physical health domain incorporated activities of daily living, dependence on medicinal substances, energy and fatigue, mobility, pain and discomfort, sleep and rest, and work capacity. Bodily image and appearance, negative and positive feelings, self-esteem, spirituality / Religion / Personal beliefs, thinking, learning, memory and concentration were assessed in the psychological domain. Personal relationships, social support and sexual activity were assessed in the social relationship domain. Environment domain assessed financial resources, freedom, physical safety and security, health and social care: accessibility and quality, home environment, opportunities for acquiring new information and skills, participation in and opportunities for recreation/leisure activities, physical environment, and transport. In addition, socio-demographic details were also collected.

After obtaining ethical clearance, the participants were approached. Face to face survey was conducted and required data was collected. Hand hygiene, social distancing and necessary PPE were used both by the interviewer and the participant. Positive questions were awarded a score from 1 to 5 based on their response to the likert scale question. Negative questions were also awarded a score from 1 to 5 but in the reverse order. A raw score was calculated for each domain and then it was converted to a transformed score as given by WHO. The mean score of each domain was obtained and those who had scored above the mean were considered to have better domain scores. All the domain score was added and the mean was found. Those who had a score more than the total mean score were considered to have better quality of life than others.

The collected data was entered in Microsoft Excel and analyzed with the help of SPSS software version 21.0. Qualitative variables will be expressed in proportions and Quantitative variables in Mean(SD) / Median (IQR). Chi-square test was applied to find the association.

## **RESULTS:**

This study to assess the quality of life was carried out among 424 participants from the field practicing area of a private tertiary care hospital's rural health training center. Females participated more actively in the study and made up 57.1% of the total participants. 21.2% of the participants were between 18-29 years of age, 35.8% of the participants were between 30-44 years of age, 40-65 years old contributed to 26.7% of the study population and the remaining 16.3% were 61 years and above. 80.2% of the participants were married and were living with their spouses. Only 16.7% of the participant graduated and 20.8% of them were illiterate. Most of the study population, 35.6% completed high school. 82.1% of the study participants were free from

comorbidities like diabetes, hypertension, hypothyroid, etc. Professionals and semi-professionals constituted only 11.8 %. The majority of the participants, 52.4% were doing some kind of skilled or semi-skilled work. 13.7% of the participants remained unemployed. Table 1 depicts the socio-demographic characteristics of the study participants.

TABLE 1: SOCIO-DEMOGRAPHIC PROFILE

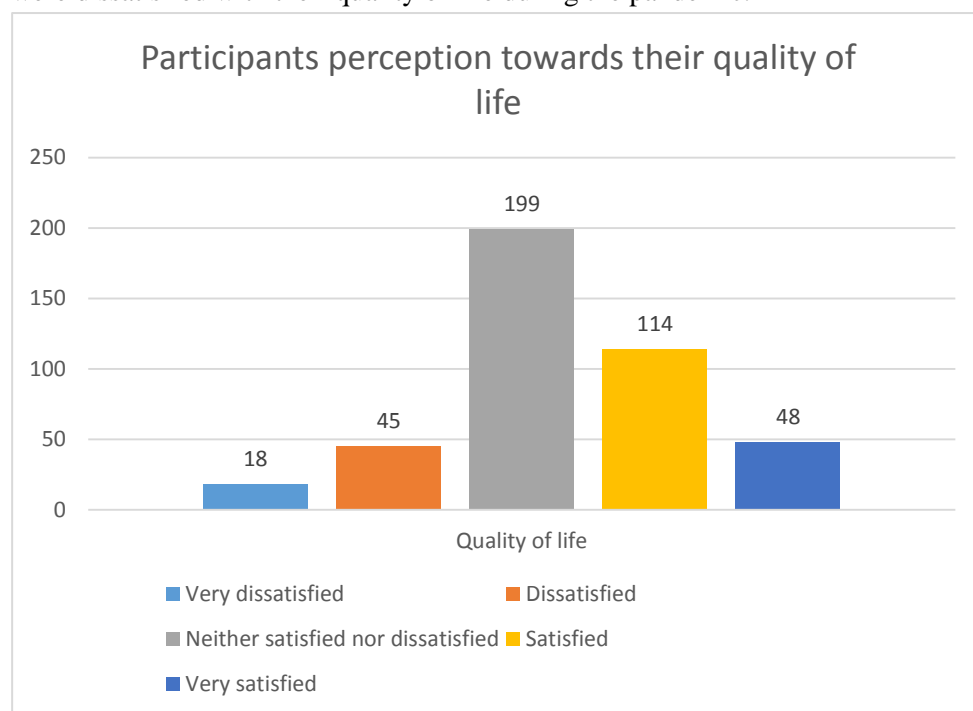
<b>VARIABLE</b>	<b>n (%)</b>
<b>GENDER</b>	
Male	182 (42.9%)
Female	242 (57.1%)
<b>AGE</b>	
18-29 Years	90 (21.2)
30-44 Years	152 (35.8)
45-60 Years	113(26.7)
61 Years and above	69 (16.3)
<b>MARITAL STATUS</b>	
Married	340 (80.2%)
Unmarried	59 (13.9%)
Divorced/Widow	25 (5.9%)
<b>EDUCATION</b>	
Illiterate	88 (20.8%)
1 <sup>st</sup> to 5 <sup>th</sup>	24 (5.7%)
6 <sup>th</sup> to 8 <sup>th</sup>	90 (21.2%)
9 <sup>th</sup> to 12 <sup>th</sup>	151 (35.6%)
Graduate	71 (16.7%)
<b>COMORBIDITY</b>	
Absent	348 (82.1%)
Present	76 (17.9%)
<b>Occupation</b>	
Professional/Semi-Professional	80 (11.8%)
Skilled/Semi-Skilled	222 (52.4%)
Unskilled	94 (22.2%)
Unemployed	58 (13.7%)

The socioeconomic status of the study population was estimated before the pandemic. Table 2 depicts the frequency distribution of socioeconomic status before and during the pandemic. Modified BG prasad classification was used to determine socioeconomic status. The majority of the population lost their jobs and their socioeconomic status dropped. Before the pandemic, 28.8% of the population were in the middle class and at least 13.2% were in the high class. But during the pandemic majority became lower class constituting 42.8%. Only 3.3% of the study participant were in high class even during the pandemic.

TABLE 2: Frequency distribution table of Socioeconomic status of the people

Socio economic class	Frequency before COVID 19	Frequency during COVID 19
I- High class	56(13.2%)	14(3.3%)
II- Upper middle class	101(23.8%)	66(15.6%)
III- Middle class	122(28.8%)	89(21.0%)
IV- Lower middle class	82(19.3%)	61(14.4%)
V- Lower class	63(14.9%)	194(42.8%)

Figure 1 depicts the perception of the participant about their quality of life. About 199 participants were neither satisfied nor dissatisfied with their quality of life. Only 63 participants were dissatisfied with their quality of life during the pandemic.



The mean of the quality of life found among the participants using the WHO BREF questionnaire was found to be 253.59(+/- 57.81). According to that 222 participants (52.4%) have a better quality of life and the rest of all, 202 participants (47.6%) have a poor quality of life. This is depicted in Figure 2.

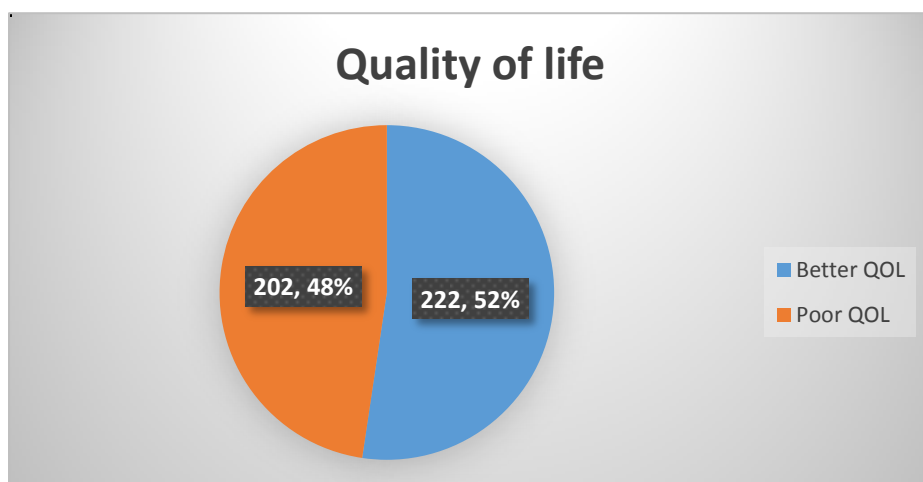


FIGURE 2: Quality of life among general population

When the domains were taken into consideration, most of the participants had better physical health, 59.2%. This was followed by social relationships with 54% having better scores. 51.9% & 52.6% had better mental health and environment respectively. This is depicted in table 3.

TABLE 3: Frequency table of each domain

Domain	Mean Score(S.D)	Score below mean	Score above mean
1- Physical health	68.21(21.7)	173 (40.8%)	251(59.2%)
2- Mental health	65.18(18.0)	204 (48.1%)	220 (51.9%)
3- Social relationships	54.64(21.4)	195 (46.0%)	229 (54.0%)
4- Environment	65.56(16.9)	201 (47.4%)	223(52.6%)

Table 4 depicts the association between socio-demographic character of the participants and the quality of life. Quality of life was found to be associated with age ( $p = 0.000$ ), gender ( $p = 0.003$ ), marital status ( $p = 0.024$ ), education ( $p = 0.000$ ), socioeconomic status during the pandemic ( $p = 0.000$ ) and occupation ( $p = 0.000$ ).

TABLE 4: Association of Socio-demographic factors with Quality of life

S.No	Variables	Quality of Life		P value
		Below mean	Above mean	
1	<b>Age</b>			<b>0.000</b>
	18-29 YEARS	51	39	
	30-44 YEARS	21	131	
	45-60 YEARS	67	46	
	61 YEARS AND ABOVE	63	6	
2	<b>Gender</b>			<b>0.003</b>
	Male	102	80	

	Female	100	142	
3	<b>Marital status</b>			
	Married	151	189	<b>0.024</b>
	Unmarried	37	22	
	Divorced/Widow	14	11	
4	<b>Education</b>			
	Illiterate	68	20	<b>0.000</b>
	1 <sup>st</sup> to 5 <sup>th</sup>	6	18	
	6 <sup>th</sup> to 8 <sup>th</sup>	34	56	
	9 <sup>th</sup> to 12 <sup>th</sup>	55	96	
	Graduate	39	32	
5	<b>Co-morbidity</b>			
	Absent	173	175	0.068
	Present	29	47	
6	<b>Socioeconomic class during pandemic</b>			
	I	7	7	<b>0.000</b>
	II	50	16	
	III	29	60	
	IV	33	28	
	V	83	111	
7	<b>Occupation</b>			
	Professional/Semi-Professiona l	35	15	<b>0.000</b>
	Skilled/Semi-skilled	79	143	
	Unskilled	37	57	
	Unemployed	51	7	

### DISCUSSION:

After the repeated attack of COVID 19 as the first and second wave in India, the country as a whole was affected due to mortality and morbidity of COVID 19, lockdowns, a drop in economy, etc.,. Hence, the present study was carried out during this period to study the quality of life of the general population. Quality of Life(QOL) is subjective and has many dimensions. WHO has simplified it and has given a WHOQOL-BREF questionnaire which covers QOL in four aspects: physical, psychological, social, and environmental health.<sup>6</sup>

The physical health domain of the population had a mean score of 68.21( $\pm$  21.7). 59.2% of the participants had a score above the mean and were found to have better physical health. Chawla B et al assessed the QOL among medical students of Pt. Jawahar Lal Nehru

Government Medical College, H.P.<sup>7</sup> The mean physical health of students was also similar with a mean score of 67.23 ( $\pm$  13.74). While Kumar Ranjan L et al studied the QOL of hospital staff during the pandemic in India and found to have similar results.<sup>8</sup> Only 4.3% of his population had poor physical health. Hence physical health of the population was not affected greatly during the pandemic.

65.18( $\pm$ 18.0) was the mean mental health score and 51.9% of the participants had good mental health, which is the comparatively least among other domains. The mean score of this domain among medical college students of Chawla B et al was 52.10 ( $\pm$  17.45).<sup>7</sup> While 16.6% of Kumar Ranjan L et al's participants had poor mental health.<sup>8</sup> Similarly, Lizana P.A et al observed the QOL of teachers during the pandemic and reported that the physical and mental health of the participants were affected.<sup>9</sup> Thus psychological health of people is affected greatly during the pandemic.

The mean social health score of the participants was 54.64( $\pm$  21.4). Though the mean score is lower than other domains, 54% of the participants had better social health. Chawla B et al also observed a very similar social health score of 57.13 ( $\pm$  20.1) among the medical students.<sup>7</sup> But the social health of Kumar Ranjan L et al's participants is greatly affected with 65.4% of the hospital staff reporting poor social health.<sup>8</sup> This difference in the social health can be attributed to the occupation of the population. While Kumar Ranjan L et al's participants constituted professional and semi-professionals involved either directly or indirectly in COVID 19 patient care which greatly limit their social interaction.

The environmental health of the participants had a mean score of 65.56( $\pm$  16.9) with 52.6% of them enjoying good environmental health. The mean environmental score of Chawla B et al's participants is 72.10  $\pm$  13.0. While only 21.7% of Kumar Ranjan L et al's participants had poor environmental health. This change in environmental health is due to differences in the study settings. While our study participants are rural, Chawla B et al's participants comprised both rural and urban populations, and Kumar Ranjan L et al's participants were from urban populations.

Overall the mean QOL score of the participants is 253.59( $\pm$  57.81) with 52% of the participants enjoying better QOL. De Paula et al also observed a small effect on QOL by the pandemic in their study on health professionals in Brazil.<sup>10</sup> QOL was found to associated with age ( $p = 0.00$ ), gender ( $p = 0.003$ ), marital status ( $p = 0.024$ ), education ( $p = 0.00$ ), socioeconomic class ( $p = 0.00$ ) and occupation ( $p = 0.00$ ). Algahtani F.D. et al also concluded in her study on QOL during COVID 19 pandemic in the Saudi Arabian population, that vulnerability varies among different segments of the population. He noticed that male and middle-aged participants were more at risk of lower QOL scores.<sup>11</sup>

## CONCLUSION:

Despite the pandemic 52.4% of the participants had a better quality of life. This may be due to subsidies and free rations from the government to the people. Also, people in the productive age group with better education and occupation had a good quality of life. This implies that, the government's plan should focus on better education to the children and improvement of employment opportunities.

## CONFLICT OF INTREST: Nil



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