

## Original Research Article

# Quality of life and psychological well-being of the working population during the lockdown and work-from-home phases of the COVID-19 pandemic

Kalidas Jayanand<sup>1\*</sup>, Radhika Kannan<sup>2</sup>, Deepu Thottath<sup>3</sup>, Drisya Madayil<sup>4</sup>

<sup>1</sup>Department of Genetic Engineering, SRM Institute of Science and Technology, Kattankulathur, Chennai, Tamil Nadu, India

<sup>2</sup>Department of Community Medicine, Jubilee Mission Medical College and RI, Thrissur, Kerala, India

<sup>3</sup>Department of General Surgery, <sup>4</sup>Department of Community Medicine, P. K. Das Institute of Medical Sciences, Vaniamkulam, Palakkad, Kerala, India

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### \*Correspondence:

Kalidas Jayanand,

E-mail: kalidassreebadra@gmail.com

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## ABSTRACT

**Background:** The COVID-19 pandemic has shocked the world with lockdown and quarantine procedures and working from home has brought an expeditious change in the daily life of people. The objective of this study was to assess the quality of life of working population during the lock down and work-from-home phases of the second wave of COVID-19 outbreak in Kerala.

**Methods:** A cross-sectional study was done during June to July 2021 among 216 subjects who were employed and had work-from-home during the previous six months. A structured and pre-validated questionnaire including the 36-item short form quality of life (SF-36) was broadcasted through online platforms using google forms. The data was then analysed using the SPSS V.21.

**Results:** The mean age of the study group was 37.8±10.1 years. Most of the subjects belonged to the educational sector 57 (26.4%) and IT sector 48 (22.2%). Bodily pain had the highest domain score (73.55±24.5). When compared to other scores, the mean physical functioning score (58.73±27.9), role limitation due to physical (54.86±37.1), and emotional difficulties (55.19±43.1) had lower scores. All domain scores were found to be higher for people over the age of 60. There was statistically significance between the mean values of social functioning (p=0.010), mental health (p=0.0001), role limitation due to emotional problem (p=0.003), vitality (p=0.0001) and general health (p=0.012) when compared with age groups.

**Conclusions:** There was significant impairment in the quality of life and psychological aspects of the working population of Kerala during the work-from-home phase of the second wave of COVID-19 pandemic.

**Keywords:** Covid-19, Quality of life, Work-from-home

## INTRODUCTION

WHO declared the outbreak of COVID-19 a public health emergency of international concern (PHEIC) in January, 2020.<sup>1</sup> The pandemic has shocked the world and has brought in a wide range of social and economic impacts.<sup>2,3</sup> India is facing the 2<sup>nd</sup> wave of covid-19, with

over 30.5 million cases being reported till the end of June 2021.<sup>4</sup> High transmissibility and epidemiological pattern of the pandemic has made the world go into a standstill with lockdown and quarantine procedures being enforced, schools and universities closed and a major proportion of the working population being shifted home.<sup>5</sup> Most of the working population had huge social lives and is used

commuting to work and since this was suddenly brought to a stop, there was a mixed reaction from the population. The mandatory work from home (WFH) situation brought in challenges for employees like work isolation and managing the narrow boundary between work and non-work.<sup>6-8</sup>

The working sector in India constitute only 32.1% of the total population and in Kerala it was 34.78% according to census 2011 data.<sup>9</sup> The workloads of this population in the work from home settings has not been any less. Instead of working from 9-5 its 9- “till works gets done” and this is bound to bring about behavioural changes like irritability, changes in mood and other psychological changes as well. Work from home can also be said as a double-edged sword because although some people might face issues staying home and working many others feel that working from the comfort of their homes boosted their productivity and efficiency, at this point all we can say is that it depends from person to person but the pandemic does bring a sense of uncertainty. According to a European study most of the young adults were facing low levels of optimism, high levels of loneliness and job insecurities because of the ongoing pandemic crisis.<sup>6,10,11</sup>

This area is yet to be explored in states like Kerala where a large majority of working population returned home at the onset of the pandemic. The objective of this study is to assess the quality of life of working population during the lock down and work at home phases of the second wave of COVID-19 outbreak in Kerala. In addition, the study also aims to determine the association between the various sociodemographic factors and the quality of life of these subjects.

## METHODS

A cross sectional study was done among the employed from the 30<sup>th</sup> of June 2021 till 4<sup>th</sup> of July 2021 on the population of Kerala who had work from home during the second wave of the COVID-19 pandemic. The inclusion criteria for the study were people who had been doing work from home for the last six months, residing in Kerala. Frontline workers like police officers, doctors, and all healthcare workers were excluded. Students and people below the age of 18 years were also excluded from this study.

Sample size was calculated to be 216 and it was calculated by the formula

$$n = \frac{z^2 \sigma^2}{E^2}$$

Z = Standardized normal deviate (taken as 1.96 for 95% confidence interval),

$\sigma$  = Sample standard deviation (taken as 5.92 from a previous study done in China),

E = Margin of error (0.8).<sup>12</sup>

Non response rate of 10% was also included in the sample size calculation.

A structured pre validated questionnaire was circulated via online platforms through a google form and a consent form was also attached. The Google form link was sent to the participants through social media platforms like WhatsApp and Facebook messenger. The participants were asked not to share their names for a sense of anonymity. All items in the questionnaire were mandatory and the participants were notified if they accidentally skipped a question. The main variables to be obtained from the questionnaire were the sociodemographic variables like age group, occupation, income, educational qualifications and rural/urban background. The second part of the questionnaire was the 36- item short form survey (SF-36) quality of life questionnaire. It was a study that stems from medical outcomes study and it is often used as a self-reported measure of health. Studies have supported the validity and reliability of SF-36 for use in India.<sup>13,14</sup> The questionnaire assesses 8 different domains of health such as: 1) limitations in physical activities because of health problems (PF); 2) limitations in social activities because of physical or emotional problems (SF); 3) limitations in usual role activities because of physical health problems (PR); 4) bodily pain (BP); 5) general mental health (psychological distress and well-being) (MH); 6) limitations in usual role activities because of emotional problems (RE); 7) vitality (energy and fatigue) (VT); 8) general health perceptions (GH).

The SF-36 yields eight scale scores and raw domain scores are converted to a 0-100 scale, higher scores indicated better health (MCS) scores.<sup>15</sup>

The Google forms were circulated in different social media platforms and all the completed google forms were included in the study till the sample size was reached. Data was then entered into Microsoft excel and analysed using SPSS version 21.

## RESULTS

A total of 216 participants were included in the study, of which 116 (53.7%) were males. The age of the subjects ranged from 18 to 63 years and mean age of the study population was 37.8±10.1 years. Majority of them came from Urban area 159 (73.6%) and from Ernakulam district 103 (47.7%). Greater proportion of people were post graduates 114 (52.8%) came from nuclear families 162 (75%) and belonged to upper (class I) socioeconomic class according to modified BG Prasad classification 133 (61.6%). Most of the study subjects belonged to the educational sector 57 (26.4%) and the IT sector 48 (22.2%).

**Table 1: Sociodemographic characteristics of the study population (n=216).**

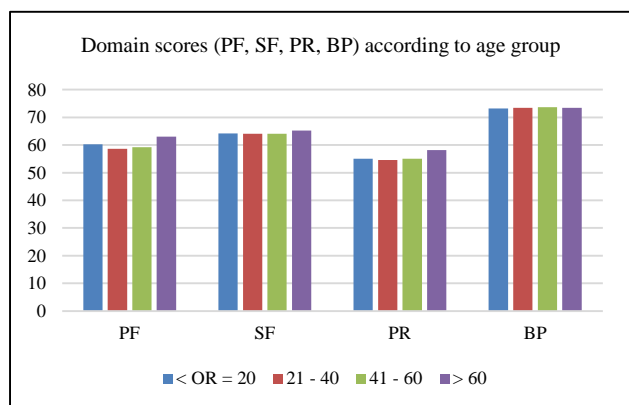
Variables	Frequency	Percentage (%)
<b>Age group (years)</b>		
<20	9	4.2
21-40	112	51.9
40-60	92	42.6
>60	3	1.4
<b>Gender distribution</b>		
Female	100	46.3
Male	116	53.7
<b>District of origin of study subjects</b>		
Ernakulam	103	47.7
Idukki	5	2.3
Kannur	8	3.7
Kasaragod	5	2.3
Kollam	4	1.9
Kottayam	13	6.0
Kozhikode	4	1.9
Malappuram	6	2.8
Palakkad	31	14.4
Thrissur	30	13.9
Trivandrum	6	2.8
Wayanad	1	0.5
<b>Place of origin</b>		
Rural	57	26.4
Urban	159	73.6
<b>Educational categories</b>		
Higher secondary	20	9.3
Degree/diploma	82	38.0
Post graduate	114	52.8
<b>Modified BG Prasad socioeconomic classification</b>		
I	133	61.6
II	80	37.0
III	3	1.4
Total	216	100.0
<b>Type of family</b>		
Three generation family	14	6.5
Joint family	40	18.5
Nuclear family	162	75.0
Total	216	100.0
<b>Occupation</b>		
Business	5	2.3
Educational sector	57	26.4
Financial services (banking and insurance)	30	13.9
IT	48	22.2
Retail sector	35	16.2
Service sector	23	10.6
Telecom	18	8.3
Total	216	100.0

The mean values were calculated for all the eight domains of health and scores calculated according to SF-36 scale are given in the table. The highest domain score was seen for bodily pain (73.55±24.5). The mean physical

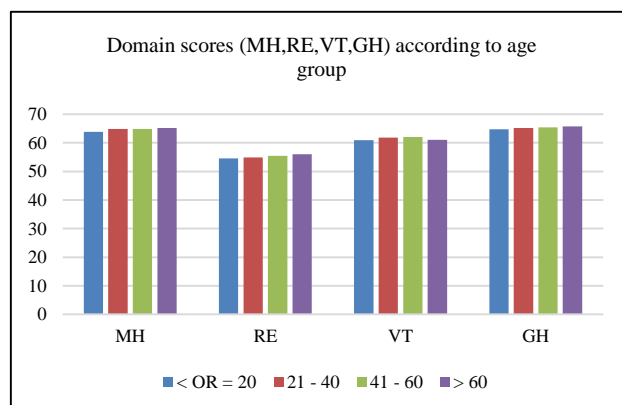
functioning score (58.73±27.9), role limitation due to physical (54.86±37.1) and emotional problems (55.19±43.1) were lower as compared to other scores (Table 2).

**Table 2: Mean and scores of the study population in different domains of health (n=216).**

Parameters	Males	Females	Total score
<b>Physical Functioning (PF)</b>	58.72±27.97	58.58±27.79	58.73±27.9
<b>Social Functioning (SF)</b>	64.06±22.85	63.93±22.87	64.12±22.9
<b>Role limitation due to physical problems (PR)</b>	55.00±37.02	54.78±36.79	54.86±37.1
<b>Bodily pain (BP)</b>	73.43±24.53	73.43±24.58	73.55±24.5
<b>General mental health (MH)</b>	64.85±19.30	64.87±19.39	64.91±19.3
<b>Role limitation due to emotional problems (RE)</b>	54.88±31.90	55.31±42.20	55.19±43.1
<b>Vitality (VH)</b>	61.79±19.89	61.79±19.98	61.81±19.9
<b>General health perceptions (GH)</b>	65.27±17.01	65.23±16.97	65.37±17.1



**Figure 1: Domain scores (PF, SF, PR, and BP) according to age group.**



**Figure 2: Domain scores (MH, RE, VT, GH) according to age group.**

**Table 3: One-way ANOVA results showing comparison between mean of health domains and age groups (n=216).**

		Sum of squares	df	Mean square	F	P value
<b>PF</b>	Between groups	5884.766	3	1961.589	2.561	0.056
	Within groups	162390.118	212	765.991		
	Total	168274.884	215			
<b>SF</b>	Between groups	5862.001	3	1954.000	3.871	0.010
	Within groups	107008.369	212	504.756		
	Total	112870.370	215			
<b>PR</b>	Between groups	10512.962	3	3504.321	2.601	0.053
	Within groups	285632.872	212	1347.325		
	Total	296145.833	215			
<b>BP</b>	Between groups	3417.288	3	1139.096	1.907	0.130
	Within groups	126649.350	212	597.403		
	Total	130066.638	215			
<b>MH</b>	Between groups	10365.421	3	3455.140	10.443	0.0001
	Within groups	70144.727	212	330.871		
	Total	80510.148	215			
<b>RE</b>	Between groups	24141.596	3	8047.199	5.086	0.003
	Within groups	151902.848	96	1582.321		
	Total	176044.444	99			
<b>VT</b>	Between groups	7266.342	3	2422.114	6.564	0.0001
	Within groups	78229.491	212	369.007		
	Total	85495.833	215			
<b>GH</b>	Between groups	3140.012	3	1046.671	3.737	0.012
	Within groups	59380.358	212	280.096		
	Total	62520.370	215			

p value less than 0.05 is considered significant.

The quality of life under different domains were categorized according to the age groups and represented as bar graphs (Figures 1 and 2). Almost all the domain scores were found to be higher for the age group above 60 years.

There was statistically significant relation between the mean values of social functioning (p=0.010), mental health (p=0.0001), role limitation due to emotional problem (p=0.003), vitality (p=0.0001) and general health

(p=0.012) when compared with age groups using ANOVA test. The other parameters of quality of health did not show significance (Table 3).

There was statistically significant relation between the mean values of physical functioning (p=0.038), role limitation due to physical problem (p=0.047), mental health (p=0.009), vitality (p=0.002) and general health (p=0.016) when compared with socioeconomic classes using ANOVA test.

**Table 4: One-way ANOVA results showing comparison between mean of health domains and socioeconomic class (n=216).**

		Sum of squares	df	Mean square	F	Significance
<b>PF</b>	Between groups	5104.208	2	2552.104	3.331	0.038
	Within groups	163170.677	213	766.060		
	Total	168274.884	215			
<b>SF</b>	Between groups	1305.516	2	652.758	1.246	0.290
	Within groups	111564.855	213	523.779		
	Total	112870.370	215			
<b>PR</b>	Between groups	8383.850	2	4191.925	3.103	0.047
	Within groups	287761.983	213	1350.995		
	Total	296145.833	215			
<b>BP</b>	Between groups	1576.426	2	788.213	1.307	0.273
	Within groups	128490.212	213	603.240		
	Total	130066.638	215			
<b>MH</b>	Between groups	3464.963	2	1732.481	4.790	0.009
	Within groups	77045.185	213	361.714		
	Total	80510.148	215			
<b>RE</b>	Between groups	494.217	2	247.108	0.137	0.873
	Within groups	175550.228	97	1809.796		
	Total	176044.444	99			
<b>VT</b>	Between groups	4811.321	2	2405.661	6.351	0.002
	Within groups	80684.512	213	378.801		
	Total	85495.833	215			
<b>GH</b>	Between groups	2367.625	2	1183.813	4.192	0.016
	Within groups	60152.745	213	282.407		
	Total	62520.370	215			

p value less than 0.05 is considered significant.

## DISCUSSION

Understanding that the pandemic is significantly altering the way of lives of working population across the globe, it is mandatory to assess the changes in quality of life and its comparison with various demographic factors. Poor scores were seen for role limitation due to physical health problems and role limitation due to emotional problems. Bodily pain scored high values (73.55±24.5) in this study which was similar to a study done in Italy which showed worsening of musculoskeletal disorders in work from home population.<sup>2</sup> This could be due to the unhealthy ergonomics practices in homely environment unlike most offices where the posture and ergonomics of the employees are taken care of.

The quality of life scores obtained in another study done in normal Indian population of Pune using the SF-36 questionnaire in the pre-COVID era showed higher mean scores in all the domains of quality of life.<sup>16</sup> This is a clear indication of the turmoil and stress that the COVID-19 pandemic has brought in; especially to the working class which accounts for majority of the middle-class population in our country. The comparison of this study with the Pune study shows a deterioration in the quality of life of our subjects.

It was also surprising to see that in this study, the quality of life of both the genders did not show much difference. Work from home situation could expect to bring down the quality of life more for women due to domestic factors

and multitasking at home as seen in a study done in Shanghai, China.<sup>12</sup> But on the contrary, nuclear families and better involvement of men in the household matters would have brought about this change in our study where most of the subjects were well educated and belonging to the higher socio-economic class

Role limitation due to emotional problems was severely affected in a study done in Philippines during the early phase of COVID-19 pandemic.<sup>8</sup> The role limitation due to emotional problems was better in this study (55.19±43.1) which could be because this study was conducted during the second wave of the pandemic and by this time whole lot of people had started becoming accustomed and attained work-home balance.

A study done in China to assess the health-related quality of life (HRQOL) among COVID-19 patients showed a negative association of age with PF, RP and a positive relation with VT. It was also seen that these patients had suffered severe physical and psychological impairment during the one month follow up.<sup>17</sup> This study shows significant association between age and SF, MH, RE, VT and GH. This could be due to sociocultural differences between the subjects in the two studies.

The use of online platform for data collection could have brought in some limitation in the accessibility to larger population. The results from our survey may not be generalizable to other populations, and the generalizability to the whole Indian population might also be limited because of drawing participants from an online-panel.

These results might not be generalizable to pre- and post-pandemic conditions considering the exceptional characteristics of the second wave in Kerala compared to normal times. The pandemic has a complex nature and thus one-time cross-sectional data may not be sufficient in explicating the quality of life of working population.

## CONCLUSION

There was significant impairment in the quality of life and psychological aspects of the working population of Kerala during the lockdown and work from home phases of the second wave of COVID-19 pandemic. Differences in the age and socioeconomic classes had a direct effect on their quality of life during this phase. Initiation of online team work, socialisation and assistance sessions for identifying and motivating individuals having negative impact of work from home situation is recommended at this stage.

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