

ORIGINAL ARTICLE

Assessment of Health-related Quality of Life Using EQ-5D Among Residents of Mysore during the Coronavirus Disease Pandemic

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ABSTRACT

The coronavirus disease (COVID 19) caused by novel coronavirus emerged in Wuhan, China in late 2019 and it causes severe respiratory infection in humans. COVID 19 not only affects the physical health of the patients but also adversely impacts the mental health of the general population. The objective of this study is to understand the impact of the COVID-19 Pandemic on the health-related quality of life (HRQOL) among the general population in Mysore using a European-five dimensional health scale (EQ-5D questionnaire.) **Methods:** An online survey was developed using Google forms and sent to the participants. The Survey was conducted from September 1, 2020, to September 30, 2020. The questionnaires included information on socio-demographic details, health status, and EQ-5D scale. **Results:** Among 1212 participants, 927 (76.5%) were worried of getting infected with COVID 19, the most frequently reported problem was anxiety/depression (47.3%). The elderly (>60 years) reported more problems in mobility, usual activities, pain/discomfort, and anxiety/depression. Furthermore, the respondents with chronic diseases were more likely to report problems in all five dimensions of EQ-5D. Those who were highly worried about COVID-19 were also more likely to report problems in the five dimensions. **Conclusion:** This study concluded that COVID19 has significantly affected all five dimensions in the HRQoL among the Mysore population. This study will help in designing effective preventive and control strategies to tackle this problem among general population.

Key words: COVID-19, Quality of Life, EQ-5D, Mysore

INTRODUCTION

The coronavirus disease (COVID 19) caused by novel coronavirus emerged in Wuhan, China in December 2019 and spread to many parts of the world.^[1] On January 30, 2020, the WHO declared it as Public Health Emergency of International Concern and on March 11, 2020, WHO declared COVID-19 as a pandemic.^[2] As per the Ministry of Health and Family Welfare of India, on January 9, 2021, a total of 10.4 million cases have been reported in India. The COVID-19 pandemic poses a huge threat to global public health due to unprecedented individual and societal fear and anxiety, causing significant stress and affecting the health-related quality of life (HRQOL) of the people.^[3] Due to COVID-19, not only adults but even children are feeling disrupted in their lives. Children are experiencing fear and anxiety similar to adults. Geriatric population amounting to about 8% of the population seems to be at higher risk of

this infection, thereby contributing to the increased stress levels among them. Some elderly people are already socially isolated from their families which worsens their mental health.^[4] To prevent the large scale spread of the disease during this pandemic, preventive measures such as lockdown, social distancing, compulsory wearing of masks, and work from home were implemented. People who came in contact with COVID-19 confirmed cases are home quarantined if they are secondary suspects. Primary suspects are isolated in the hospitals. All these measures further intensified distress among the general population.^[5] Quarantine is an unpleasant

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experience for the people. In a review article, it is mentioned that there were negative psychological effects, including post-traumatic stress symptoms, confusion, and anger due to quarantine. Prolonged duration of quarantine leads to, fear of the disease, frustration, lack of supplies, economic distress, lack of awareness, and feelings of stigma.^[6] COVID 19 not only affects the physical health of the patients but also has an impact on the mental health of the general population.^[3] In addition, myths and misinformation about this pandemic, travel bans, and executive orders to quarantine travelers had also influenced the quality of life of the population.^[7] In the view of current pandemic and lack of studies on this topic among the people of India, this study is proposed with the objective to assess the HRQoL among the people of Mysore due to the pandemic.

METHODS

A cross-sectional descriptive study was conducted among 1212 people aged 18 years and above between September 1, 2020, and September 30, 2020. The survey was carried out using Google forms. The Google forms were initially forwarded to close contacts of the authors and they were further encouraged to send it to their contacts. Data were also collected from patients who came to the hospital. In the study period of 1 month, 1212 responses were obtained which were analyzed. Ethical Clearance was obtained from the Institutional Ethical Committee. Informed consent was obtained from the participants as the very first question in the beginning of the Google form. Anonymity and confidentiality of the responses were assured to the participants taking part in the study.

The Google form included informed consent, followed by demographic information, factors influencing the daily activities of the people during the COVID 19 pandemic, European Five-Dimensional Health Scale (EQ-5D) was used to assess HRQOL among the participants.

Survey Questionnaire

EQ-5D scale

It is a self-completed instrument for describing and assessing the quality of health states. It measures five dimensions of health: Mobility, self-care, usual activities, pain/ discomfort, and anxiety/depression. Each dimension has three levels, corresponding to “no problem,” “some problem,” and “extreme problem,” allowing for 243 possible health combinations.^[8,9] The data were analyzed using SPSS version 23.

Statistical Analysis

The data are presented as percentages and association between variables is tested using Chi-square test, and

Fischer’s exact test. $P < 0.05$ was taken as statistically significant. Logistic regression model was used to test the association between the five health dimensions as dependent variables and their influencing factors as independent variables.

RESULTS

A cross-sectional online survey was conducted among the people of Mysore. In 1 month, 1212 responses were obtained. Among the respondents, 756 (62.4%) were male and 456 (37.6%) were female. Most of the participants, 561 (46.3%), were 18–29 years of age, followed by the age group of 30–39 years (18.6%) and only 18 subjects (1.5%) were above 60 years of age.

As per marital status, married participants were 552 (45.5%) and 600 (49.5%) were unmarried, whereas 60 (5%) were divorced, separated, or widowed. Of the 1212 participants, 468 (38.6%) were students, 561 (46.3%) were employed, and 159 (13.1%) were unemployed, and a small proportion of subjects, 24 (2%) participants, were retired.

Among the participants, 192 (15.8%) had chronic disease conditions such as hypertension, diabetes, asthma, and heart disease. Majority of the participants, 927 (76.5%), were worried of getting infected with COVID 19 [Table 1].

Chart 1 shows the influence of COVID 19 on daily activities. Majority of the participants had a negative influence on social aspects (63%), on their daily life and schedule (52%), working stability (44%), and children education (50%). Quite a good number of participants had a positive influence on their relationship with their friends (39%).

The most frequently reported problems were anxiety/depression (47.3%), followed by difficulty in doing usual activities and restricted mobility (25.2%). Men were more likely to report problems in mobility (19%) than women (6.1%). The elderly (>60 years) reported more problems in mobility, usual activities, pain/discomfort, and anxiety/depression. Furthermore, the respondents with chronic diseases were more likely to report problems in all five dimensions of EQ-5D. Those who were highly worried about COVID-19 were also more likely to report problems in the five dimensions [Table 2].

Logistic Regression Analysis

EQ-5D health dimensions were considered as dependent variables and sex, age, marital status, employment status, chronic disease condition, and worrying about getting infected with COVID-19 were included as independent variables, and multivariate logistic regression models were conducted. Only

those variables which exerted a significant relationship with any dimension from EQ-5D were reported in Table 3.

The results showed that the variables sex (OR = 0.396, 95% CI: 0.277–0.565), age (OR = 1.248 95% CI: 1.087–1.434), and chronic disease (OR = 2.428, 95%CI: 1.790–3.293), demonstrated a significant relationship in mobility dimension.

Age (OR = 2.689, 95%CI: 0.105-3.184), occupation (OR = 1.964, 95%CI: 1.022–3.773), and chronic disease (OR = 3.212, 95%CI: 1.787–5.774) showed a significant relationship in self-care dimension.

Age (OR =2.349, 95%CI: 1.982–2.783), sex (OR = 1.074, 95% CI: 0.767–1.504), occupation (OR = 1.144, 95%CI: 1.037–1.262), chronic disease (OR = 2.365, 95% CI:

1.459–3.835), and worrying about COVID-19 (OR = 0.701, 95%CI: 0.558–0.881) demonstrated a significant relationship in usual activities dimension;

Age (OR = 1.699, 95%CI:1.453–1.986), chronic disease (OR = 0.248, 95%CI: 0.168–0.367), and worrying about COVID-19 (OR = 0.528, 95%CI: 0.404–0.68) were significantly associated with the pain/discomfort dimension.

Chronic disease (OR = 1.632, 95% CI: 1.137–2.344), family income (OR = 1.251, 95%CI: 1.078–1.451), and worrying about COVID-19(OR = 0.581, 95%CI: 0.484–0.698) showed a significant relationship in the anxiety/depression dimension.

DISCUSSION

This study showed that elderly people reported problems in all of the five dimensions of HRQOL as compared to younger people and that having chronic disease is the most significant variable in this regard. Anxiety/depression (47.3%) is the most commonly reported problem in this study [Table 4].

Based on earlier experiences of SARS, MERS,^[16,17] and the limited recent evidence about get COVID-19,^[18,19] anxiety/depression was associated with higher age, low educational level, clinical severity, and low quality of life. The bivariate analysis in this study showed that people who were aged, unemployed, with chronic disease, and worried about getting infected with COVID-19 infection were more likely to report the problem of anxiety/depression. The logistic regression analysis also showed a similar trend in anxiety/depression domain. It is important to address this element of anxiety/depression in the population during the COVID pandemic.

Lius’ study about SARS^[16] in 2003 showed that perceived SARS-related risk level during the outbreak increased the odds of having a high level of depressive symptoms

Table 1: Socio-demographic profile of the participants

Characteristics	Frequency (n)	Percentage
Total	1212	100
Sex		
Male	756	62.4
Female	456	37.6
Age		
18–29	561	46.3
30–39	225	18.6
40–49	222	18.3
50–59	186	15.3
>60	18	1.5
Marital status		
Married	552	45.5
Unmarried	600	49.5
Divorced/Widowed	60	5
Education level		
Illiterate	135	11.1
Primary School	33	2.7
High School	39	3.2
PUC	177	14.6
Graduate and above	828	68.3
Employment status		
Employed	561	46.3
Retired	24	2
Unemployed	159	13.1
Students	468	38.6
Chronic disease condition		
Yes	192	15.8
No	1020	84.2
Worry about getting COVID 19		
Very high	174	14.4
High	753	62.1
Low	246	20.3
Very low	39	3.2

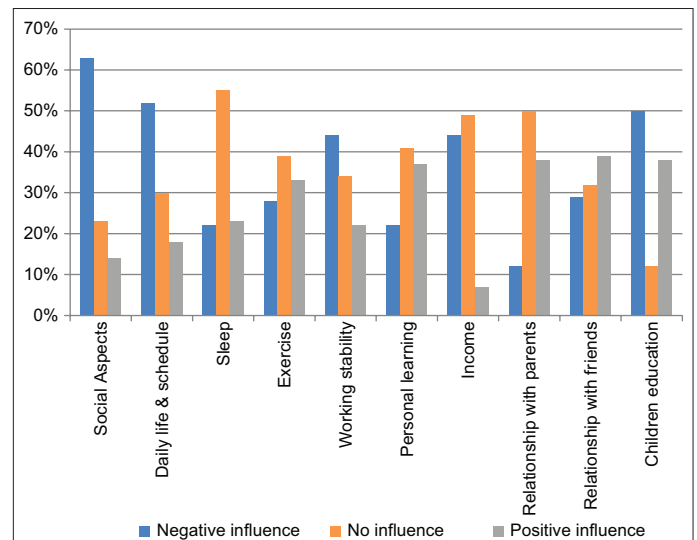


Chart 1: Influence of COVID 19 on daily activities

Table 2: Association between five dimensions of EQ-5D and influencing factors

Characteristics	Mobility			Self-care			Usual activities			Pain/Discomfort			Anxiety/Depression		
	No	Some or extreme	P value	No	Some or extreme	P value	No	Some or extreme	P value	No	Some or extreme	P value	No	Some or extreme	P value
Sex															
Male	525	231	0.001*	717	39	0.001*	537	219	0.163	609	147	0.012	393	363	0.507
Female	381	75		450	6		369	87		393	63		246	210	
Age															
18–29	444	117	0.000	561	0	0.001	468	93	0.001	513	48	0.000	321	240	0.001
30–39	180	45		225	0		186	39		176	49		91	134	
40–49	156	66		216	6		165	57		196	26		143	79	
50–59	126	60		159	27		87	99		117	69		78	108	
>60	0	18		6	12		0	18		0	18		6	12	
Marital status															
Married	399	153	0.136	525	27	0.480	396	156	0.000	435	117	0.001	276	276	0.084
Unmarried	489	111		600	0		501	99		540	60		348	252	
Divorced/ Widowed	18	42		42	18		9	51		27	33		15	45	
Education level															
Illiterate	72	63	0.04	108	27	0.516	45	90	0.000	81	54	0.486	45	90	0.003
Primary School	33	0		33	0		24	9		24	9		24	9	
High School	33	6		39	0		33	6		24	15		6	33	
PUC	135	42		171	6		150	27		147	30		108	69	
Graduate and above	633	195		816	12		654	174		726	102		456	372	
Employment status															
Employed	426	135	0.000	561	0	0.000	441	120	0.001	489	72	0.001	324	237	0.000
Retired	6	18		12	12		6	18		6	18		6	18	
Unemployed	72	87		126	33		63	96		75	84		39	120	
Students	402	306		468	0		396	72		432	36		270	198	
Chronic disease condition															
Yes	96	96	0.001	153	39	0.001	81	111	0.001	99	93	0.001	66	126	0.001
No	810	210		1014	6		825	195		903	117		573	447	
Worry about getting COVID 19															
Very high	111	63	0.001	147	27	0.001	102	72	0.001	111	63	0.001	60	114	0.001
High	570	183		735	18		576	177		630	123		381	372	
Low	195	51		246	0		195	51		228	18		177	69	
Very low	30	9		39	0		33	6		33	6		21	18	

*Fischer exact test

3 years later. The number of people suffering from mental health impact after a major event is often large, so it is necessary to pay attention to this aspect and also to the people with chronic disease and lower-income populations. In a nationwide study done in China on psychological distress caused due to COVID-19 pandemic, females had more psychological distress as compared to males.^[19] In the present study, statistical association of gender and depression was not significant. However, anxiety/depression percentage was more in the present study as compared to the Chinese study (17.6%).^[3] This may be

due to the dual burden of office work as well as household work to be done as there was no domestic help due to the lockdown.

CONCLUSION

This study concluded that COVID 19 has significantly affected all five dimensions in the HRQoL among the Mysore population. Our study managed to capture some immediate positive and negative health impacts of the COVID-19

Table 3: Multivariate logistic regression showing the association between dimensions of EQ-5D and influencing factors

Dimensions of EQ-5D	Influencing factors	Adjusted Odd's ratio	95%CI	P value
Mobility	Sex	0.396	0.277–0.565	0.001
	Age	1.248	1.087–1.434	0.002
	Occupation	0.973	0.891–1.063	0.549
	With chronic disease	2.428	1.790–3.293	0.001
Self-care	Age	2.689	0.105–3.184	0.001
	Sex	1.771	1.009–7.821	0.929
	Marital status	0.854	0.590–1.236	0.403
	Occupation	1.964	1.022–3.773	0.043
	With chronic disease	3.212	1.787–5.774	0.001
Usual activities	Age	2.349	1.982–2.783	0.000
	Sex	1.074	0.767–1.504	0.001
	Occupation	1.144	1.037–1.262	0.007
	With chronic disease	2.365	1.459–3.835	0.001
	Worrying about getting infected with COVID-19	0.701	0.558–0.881	0.002
	Pain/discomfort	Age	1.699	1.453–1.986
Sex		1.201	0.815–1.769	0.354
Marital status		1.377	1.089–1.721	0.862
With chronic disease		0.248	0.168–0.367	0.000
Worrying about getting infected with COVID-19		0.528	0.404–0.689	0.000
Anxiety/depression		With chronic disease	1.632	1.137–2.344
	Family income	1.251	1.078–1.451	0.003
	Worrying about getting infected with COVID-19	0.581	0.484–0.698	0.000

Table 4: Summary of discussion

Author name/Study Year	Geographical location	Population	Depression/ Anxiety	Pain/ Discomfort	Selfcare	Mobility	Usual activities
Gore <i>et al.</i> ^[10]	Maharashtra, India	General	22%, 17.3%	-	-	-	-
Verma <i>et al.</i> ^[11]	India (all states)	General	25.1%, 28%	-	-	-	-
Gaur <i>et al.</i> ^[12]	India (all states)	General	12.7%, 9%	-	-	-	-
Ping <i>et al.</i> ^[3]	China	General	17.6%	19%	1.1%	3.9%	1.9%
Zozani <i>et al.</i> ^[13]	Iran	Hospital	41.26%	57.97%	87.75%	53.34%	58.97%
Fujikawa <i>et al.</i> ^[14]	Japan	General (Pre-COVID)	20%	30%	3.9%	13.5%	10%
Huang <i>et al.</i> ^[15]	China	General (Pre-COVID)	7.2%	12.1%	3.6%	5.4%	5.4%
Present Study	Karnataka, India	General	47.3%	17.3%	4.4%	25.2%	25.2%

pandemic. This study has highlighted some of the important outcomes on physical and mental health aspects of the people. Further studies in this regard will help in better understanding of this very important aspect of the COVID 19 Pandemic and aid in designing effective preventive and control strategies to tackle this problem.

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