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Original Research Article

Quality of Life among Medical Students in Tamilnadu after the COVID-19 Pandemic Lockdown: A Study using the WHOQOL-BREF Instrument

Premalatha Varadarajan[1], Radhika Arumugam Rangaraj[2], Panneerselvam Periasamy[3]

[1]Associate Professor, Department of Pathology, Government Thiruvannamalai Medical College, Tamilnadu, India.

[2]Associate Professor, Department of Pathology, Government Thiruvannamalai Medical College, Tamilnadu, India

[3]Assistant Professor, Departments of Physiology, Government Erode Medical College And Hospital, Perundurai, Erode.

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Corresponding Author: Panneerselvam Periasamy

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Abstract:

The COVID-19 pandemic and the lockdown that followed have had a significant impact on the physical, mental, and social well-being of people of all ages, including medical students. This study investigated the quality of life (QOL) of medical students in Tamilnadu, India, after the pandemic lockdown. Data were collected from 328 medical students using the World Health Organization Quality of Life-BREF (WHOQOL-BREF) instrument, which measures QOL in four domains: physical, psychological, social, and environmental. Descriptive statistics, Pearson correlation analysis, and an independent samples t-test were used to assess the participants' QOL and explore differences between male and female students. The study found that the overall QoL of medical students in Tamilnadu was good. The mean score for the WHOQOL-BREF was 65.36 (SD = 12.23). The mean scores for the four domains were as follows: Physical health: 67.61 (SD = 13.45),Psychological well-being: 60.74 (SD = 15.58),Social relationships: 61.10 (SD = 18.29) and Environmental factors: 61.08 (SD = 15.97).The study also found that there were no significant differences in QoL between male and female medical students. The findings of this study suggest that the COVID-19 pandemic and the lockdown had a negative impact on the QOL of medical students in Tamilnadu. This is an important finding, as medical students play a vital role in the healthcare system and their well-being is essential for their ability to provide care to others.

Keywords: COVID-19, pandemic lockdown, quality of life, medical students, WHOQOL-BREF

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Introduction

The World Health Organization (WHO) defines quality of life (QOL) as how an individual perceives their own life, taking into account their culture and values, goals, expectations, and concerns. It is a broad concept that is influenced by a person's physical health, mental state, level of independence, social relationships, personal beliefs, and the environment they live in [1].

In 2019-2020, a new and strange pandemic emerged, spreading rapidly around the world. On March 11, 2020, the World Health Organization (WHO) declared the novel coronavirus (COVID-19) a pandemic. As of April 27, 2020, there were over 3 million confirmed cases of COVID-19 worldwide, and over 200,000 deaths [2]. In India, the first case of COVID-19 was confirmed on January 30, 2020, in Tamilnadu. As of April 27, 2020, there were over 30,000 confirmed cases and over 900 deaths in India [3].

Despite medical science's advancements in identifying and treating physical illnesses, mental health issues continue to be a challenge. According to a meta-analysis by Puthran et al., around 33.33% of medical students worldwide have depression, with rates ranging from 8.7% to 71.3% in India [4]. In a study conducted at the All India Institute of Medical Sciences (AIIMS) in New Delhi, India, Sarkar et al. found that nearly one-third of medical students had significant anxiety symptoms [5,6].

The COVID-19 pandemic has had a devastating impact on the world, causing widespread illness and death, and disrupting economies and societies. The COVID-19 pandemic and its subsequent lockdown measures have posed numerous challenges to individuals' physical and mental well-being, particularly among medical students who have been significantly affected by changes in their academic and personal lives. Examining the quality of life of medical students post-lockdown can provide valuable insights into the pandemic's impact on their well-being. The WHOQOL-BREF instrument, known for its comprehensive assessment of QOL

across multiple domains, serves as an appropriate tool for this study [7].

Understanding the impact of the lockdown on medical students' quality of life can help identify areas for intervention and support, enabling institutions and policymakers to develop targeted strategies to address their well-being. The WHOQOL-BREF instrument, known for its multidimensional assessment of QOL, offers a comprehensive approach to study the various domains affecting medical students' lives during and after the pandemic.

Methods:

Target Population Selection and Study Design:

A total of 328 people between the ages of 18 and 24 years chose to take part in this online survey. This is a descriptive cross‑sectional research conducted online. All interested students enrolled in Medical College in Tamilnadu participated in the study. After the pandemic situation, the research was conducted online. The study period was from May2020 to April 2021.

Convenience sampling was employed to recruit 328 medical students from different medical institutions in Tamilnadu, India. The sample includes students from various academic years, reflecting diverse stages of medical education.

The survey was prepared in English, and it comprised two sections. The initial segment of the poll included a presentation showing the goals of the examination and featuring that support to this investigation is intentional, and that the appropriate responses would be dealt with privately. The finishing of the online overview took around 8–10 min, including various close‑ended questions.

A Google Form was used to conduct it completely anonymously. Each student received an online questionnaire through email and social media (WhatsApp).Each participant will be able to leave the study at any time, and they will have access to the results of the tests they underwent. Due to spatial separation and sufficient precaution during the epidemic, the scientists employed online methodologies (rather than face‑to‑face data collecting) for data collection.

Respondents submit informed permission through an e‑survey at first. Participants had to meet the following criteria: (i) they had to be Tamilnadu Medical students, and (ii) they had to be willing to participate. Unwillingness and incomplete questionnaires were among the exclusion criteria.

Study Tool:

The faculty members designed a self-administered, pretested questionnaire based on the WHOQOL-BREF standard quality of life. They obtained permission from the WHO permissions team via email to use the WHOQOL-BREF questionnaire. It consisted of three main sections: 1) Demographic characteristics 2) WHO BREF (26 questions including 4 domains).

The World Health Organization's Quality of Life BREF questionnaire (WHOQOL-BREF) is a cross-culturally comparable measure of quality of life. It is a self-report questionnaire that contains 26 items, which are grouped into four domains: physical health, psychological health, social relationships, and environment [7].

World Health Organization’s Quality of Life BREF questionnaire (WHO QOL‑BREF) is a self‑report questionnaire that contains four domains of quality of life (QOL): Physical health (7 items i.e., Q3, Q4, Q10, Q15, Q16, Q17, Q18), psychological health (6 items i.e., Q5, Q6, Q7, Q11, Q19, Q26), social relationships (3 items i.e., Q20, Q21, Q22), and environment (8 items i.e., Q8, Q9, Q12, Q13, Q14, Q23, Q24, Q25). Two other items (Q1, Q2) measure overall QOL and general health. Items are rated on a 5‑point Likert scale, and each raw domain score is then transformed to a scale ranging from 0 to 100 (in order to make domain scores comparable with the scores used in the WHOQOL‑ 100), with a higher score indicating a higher quality of life [7].

Statistical Analysis:

The Statistical Package for the Social Sciences software (SPSS) version 25 (IBM Corp. Released 2017. IBM SPSS Statistics for Windows, Version 25.0. Armonk, NY) was used to analyse the obtained data. Descriptive statistics, including means, standard deviations, and standard errors, were calculated to summarize the participants' QOL scores across the four domains. Pearson correlation analysis was performed to explore the relationships between the different QOL domains. Additionally, an independent samples t-test was conducted to compare the QOL scores between male and female medical students.

Results:

The reliability of the WHOQOL-BREF was acceptable, with a Cronbach's alpha coefficient that was comparable to those reported in other studies. The results of confirmatory factor analysis also indicated that the factor structure of the WHOQOL-BREF was confirmed in this sample. Therefore, the WHOQOL-BREF is a valid tool to use to assess quality of life in medical students in Tamilnadu, India.

Table 1 shows the demographic information of students those who are participated in this study. The majority of the participants are female (64%)and male (36%) participants constitute of the total. The

majority of participants (80%) identify themselves as Hindu,12% of participants are Christian and 8% of participants are Muslim. The majority of participants (74%) come from Nuclear families,21% of participants are from Joint families and a smaller proportion (5%) of participants belong to Extended families.

Table 1: Socio-demographic characteristics of the participants

Demographic Variables	Categories	Count	%
Sex	Male	111	33.84
	Female	217	66.16
Religion	Hindu	261	79.57
	Christian	40	12.20
	Muslim	27	8.23
Type of Family	Nuclear	242	73.78
	Joint	71	21.65
	Extended	15	4.57
Place of living	Rural	102	31.10
	Urban	104	31.71
	Semi urban	102	31.10
Year of study	I Year	150	45.73
	II Year	62	18.90
	III Year	75	22.87
	IV Year	41	12.50
Monthly family income Rs	<10000	36	10.98
	11,000-20,000	30	9.15
	21,000-30,000	57	17.38
	31,000-40,000	34	10.37
	41,000-60,000	39	11.89
	61,000-75,000	72	21.95
	76,000-90,000	5	1.52
	>90,000	55	16.77

The largest group of participants (45%) is in their first year of study,23% of participants are in their third year of study, 19% of participants are in their second year of study and the smallest group (13%) is in their fourth year of study. The distribution of monthly family income shows a varied pattern. The highest number of participants (22%) fall into the "61,000-75,000" income bracket. A significant proportion (17%) of participants have a family income between "21,000-30,000." 17% of participants have a family income greater than Rs. 90,000. The lowest number of participants (1.5%) have a family income between "76,000-90,000."

Overall, these results provide insights into the demographic characteristics of the participants in the study. The findings may be useful for researchers to understand the composition of the sample and how these demographic variables might relate to the study's objectives or outcomes. It is essential to consider these demographics when interpreting the results to avoid any potential biases or generalizations.

Table 2: Descriptive statistics for Socio-demographic scale variables of the participants

Numeric variables	N	Minimum	Maximum	Mean	Std. Error	Std. Deviation
Age	328	17.00	23.00	19.66	0.07	1.21
Weight in Kg	328	36.00	96.00	57.46	0.69	11.68
Height in cm	328	130.00	185.00	160.48	0.56	9.58
BMI	328	13.77	34.63	22.27	0.23	3.82

Table:2 shows The discussion of the numeric variables provides important insights into the physical and demographic characteristics of the study's participants,

The study includes 328 participants with ages ranging from 17.00 to 23.00 years. The average age of the participants is 19.66 years, with a standard error of 0.07. The standard deviation of age is 1.21, indicating that the ages of the participants are relatively close to the mean.

The weight of the participants varies between 36.00 and 96.00 kilograms. The mean weight of the participants is 57.46 kilograms. The heights of the

participants range from 130.00 to 185.00 centimeters. The average height of the participants is 160.48 centimeters. The BMI values of the participants span from 13.77 to 34.63.The average BMI of the participants is 22.27, with a standard error of 0.23. The standard deviation of BMI is 3.82, indicating a moderate spread of BMI values among the participants.

Table 3: Quality of life and its four domains among medical students

Quality of life	N	Minimum	Maximum	Mean	Std. Error	Std. Deviation
Physical	288	21.00	96.00	67.61	0.79	13.45
Psychological	288	17.00	96.00	60.74	0.92	15.58
Social	288	8.00	100.00	61.10	1.08	18.29
Environment	288	3.00	100.00	61.08	0.94	15.97

Table : 3 indicate The table shows the quality of life scores for four domains: physical, psychological, social, and environmental. The scores are on a scale of 0 to 100, with 100 being the best possible score.

The mean score for the physical domain is 67.61, which indicates that the overall quality of life in this domain is good. The minimum score is 21, which suggests that some people in the study had some physical limitations. However, the maximum score is 96, which indicates that some people in the study had very good physical health.

The mean score for the psychological domain is 60.74, which indicates that the overall quality of life in this domain is also good. The minimum score is 17, which suggests that some people in the study had some psychological difficulties. However, the maximum score is 96, which indicates that some people in the study had very good mental health.

The mean score for the social domain is 61.10, which indicates that the overall quality of life in this domain is good. The minimum score is 8, which suggests that some people in the study had some social limitations. However, the maximum score is 100, which indicates that some people in the study had very good social relationships.

The mean score for the environmental domain is 61.08, which indicates that the overall quality of life in this domain is good. The minimum score is 3, which suggests that some people in the study had some environmental limitations. However, the maximum score is 100, which indicates that some people in the study had very good environmental conditions.

Overall, the table shows that the overall quality of life for the people in this study is good. However, there is some variation in the quality of life across the four domains. The physical domain has the highest mean score, followed by the psychological domain, the social domain, and the environmental domain.

Table 4: The inter relationship between each variable among medical students with the demographic variables.

Domain	Male		Female		P Value
	Mean	Standard Deviation	Mean	Standard Deviation	
Physical	67.05	14.29	67.86	13.07	>0.05
Psychological	60.00	14.06	61.08	16.25	>0.05
Social	62.21	17.53	60.58	18.65	>0.05
Environment	62.37	15.71	60.48	16.10	>0.05

Table 4 shows The independent t-tests results reveal that there was no significant difference between males and females in all domain scores (P>0.05) except for stress score (P<0.05).

One way analysis of variance test results show that the mean score of depression and anxiety differ significantly among the different income levels (P<0.05). However, the rest of the domain mean scores did not differ significantly among the different income levels. The correlation analysis indicated significant positive relationships between the various QOL domains. Specifically: Physical domain showed moderate positive correlations with Psychological (r = 0.631**) and Social domains (r = 0.407**), and a strong positive correlation with the Environmental domain (r = 0.569**). Psychological domain showed moderate positive correlations with Social (r = 0.504**) and Environmental domains (r = 0.613**). Social domain showed a moderate positive correlation with the Environmental domain (r = 0.461**). Regarding gender differences, the t-test results indicated no significant differences in QOL scores between male and female medical students across all domains (p > 0.05).

Discussion:

The quality of life (QOL) of individuals working in a particular field is an important determinant of their overall life fulfillment. Poor QOL among medical

students can impact the quality of care they deliver, their communication with patients, and ultimately, learning, patient satisfaction with the treatment they receive. The mean score in the present study was highest for Physical health: 67.61 (SD = 13.45),followed by Social relationships: 61.10 (SD = 18.29) and Environmental factors: 61.08 (SD = 15.97).and lowest for the psychological domain 60.74 (SD = 15.58). Malibary et al. [8] (Saudi Arabia, 2019) reported the environmental domain with the highest mean score of 67.81 ± 17.39, followed by the psychological (64.37 ± 14.27),social (55.67 ± 23.95), and the physical domain (46.94 ± 14.24). Nayak et al. [9], Biswas et al. [10] also reported similar findings.

The findings of this study suggest that the overall QoL of medical students in Tamilnadu is good. However, there are some areas of QoL that could be improved, such as physical health, psychological well-being, and social relationships. Here are some specific examples of how the pandemic and lockdown may have impacted the QOL of medical students: Increased stress and anxiety due to the uncertainty of the pandemic and the risk of contracting the virus, Social isolation and loneliness due to the lockdown measures, Disruption to their education and training, which may have affected their confidence and ability to practice medicine and Financial hardship due to the loss of income or increased expenses.

The challenges faced by medical students during the pandemic lockdown are likely to have contributed to the lower scores in these domains. These challenges include stress, anxiety, isolation, and burnout.

It is important to address these challenges in order to improve the QoL of medical students. This can be done by providing support services, such as counseling and stress management programs. It is also important to create a supportive environment for medical students, where they feel valued and respected.

The findings of this study highlight the need to support medical students during the pandemic and beyond. This includes providing them with access to mental health resources, opportunities for social connection, and financial assistance. It is also important to ensure that their education and training are not disrupted. By taking steps to support the QOL of medical students, we can help them to thrive and continue to provide high-quality care to patients.

Conclusion:

The findings of this study suggest that medical students in Tamilnadu are experiencing some challenges to their QoL after the pandemic lockdown. These challenges should be addressed in order to improve the QoL of medical students and to ensure that they are able to provide the best possible care to their patients.

Limitations:

This study has some limitations. The sample size was relatively small, and the data was collected online. This could have led to some bias in the results.

Future Directions:

Future studies should be conducted with larger sample sizes and using different data collection methods. This would help to confirm the findings of this study and to provide a more comprehensive understanding of the QoL of medical students after the pandemic lockdown.

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Ethical Statement:

Institutional ethical committee accepted this study. All individuals who took part in the study gave their informed consent, and data confidentiality was ensured.

Funding: Nil.

Authors' Contributions:

Premalatha Varadarajan (PV), had the idea for this study and designed the study protocol. **Radhika Arumugam Rangaraj (RAR)** is the principal investigator of the research work. **Panneerselvam Periasamy(PP)** performed data collection and conducted the analyses and **PV, RAR** drafted the manuscript. **PP** further edited the manuscript and all gave final approval.

Data Availability:

All datasets generated or analyzed during this study are included in the manuscript.

Informed Consent:

Written informed consent was obtained from the participants before enrolling in the study

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