

CROSS SECTIONAL STUDY TO EVALUATE PSYCHOSOCIAL IMPACT OF COVID 19 AMONG MEDICAL STUDENTS OF BIRAT MEDICAL COLLEGE TEACHING HOSPITAL

Parth Guragain^{1*}, Aarju Niraula², Tara Kumari Kafle³, Baby Kumari Bhagat⁴, Hulas Agarwal⁵

Affiliation

1. Assistant Professor, Department of Community Medicine, Birat Medical College and Teaching Hospital, Nepal
2. Data monitoring and evaluation specialist, Medical Record Department, Birat Medical College and Teaching Hospital, Nepal
3. Assistant Professor, Department of Community Medicine, Birat Medical College and Teaching Hospital, Nepal
4. Director, City Care Hospital, Bardibas, Nepal
5. Resident, Birat Medical College and Teaching Hospital, Nepal

ARTICLE INFO

Received : 21 March, 2023

Accepted : 12 May, 2023

Published : 10 November, 2023

© Authors retain copyright and grant the journal right of first publication with the work simultaneously licensed under Creative Commons Attribution License CC - BY 4.0 that allows others to share the work with an acknowledgment of the work's authorship and initial publication in this journal.



ORA 351

DOI: <https://doi.org/10.3126/bjhs.v8i2.59852>

Corresponding Author

Dr Parth Guragain

Assistant Professor

Department of Community Medicine

Birat Medical College and Teaching Hospital, Nepal

Email: parth382821@gmail.com

ORCID : <https://orcid.org/0000-0001-7771-9134>

Citation

Cross Sectional study to evaluate Psychosocial impact of Covid 19 among medical students of Birat Medical College Teaching Hospital, Parth Guragain, Aarju Niraula, Tara Kumari Kafle, Baby Kumari Bhagat, Hulas Agarwal. BJHS 2023;8(2)21, 2019- 2023.

ABSTRACT

Introduction

COVID-19, a profoundly contagious viral disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has had a devastating impact globally, leading to over 6 million fatalities worldwide. Covid 19 caused isolation, anxiety, grief, economic stress, and disrupted routines, leading to mental struggles, strained relationships, and increased demand for mental health services globally.

Objectives

The objectives of this study were to find out psychosocial impact of covid 19 among medical students of BMCTH and to assess the factors associated with psychosocial impact of covid 19.

Methodology

A cross-sectional study was carried out among all medical students of Birat medical college teaching hospital from August, 2022 to January 2023. Data was collected from 258 eligible participants using GHQ12 questionnaire. Chi-square test was applied for assessing association between dependent and independent variables and binary logistic regression analysis was used to find the determinants.

Result

Present study was conducted among 258 medical students. Among them 43.0% had normal psychological status, 27.5% were in borderline 15.5% showed evidence of psychological distress and 14.0% were experiencing severe psychological distress. Bivariate analysis between socio-demographic characteristics and psychosocial status showed gender, work overload, work hours in covid ward, exposure to false covid information and covid quarantine were significantly associated with psychological distress at p-value < 0.05. Further important variables were run for multivariate analysis which revealed age (B=3.46, CI:1.45-8.23 and P=0.005), gender (B=3.20, CI: 1.61-6.37 and P=0.001) and work overload (B=9.63, CI: 4.32-21.49 and P=0.000) were found as significant predictors/determinants of psychological distress. Age greater than 24 years, female gender and higher work load were significantly associated with psychological distress.

Conclusion

The psychological distress among the medical students due to covid 19 was in appalling situation. The study found age >24 years, female gender and higher workload were the predictor of the psychological distress Integrated efforts from medical college, parents, peers and faculties are to be initiated to address the existing problems.

KEYWORDS

Covid 19, Cross-sectional, GHQ12, Psychosocial

INTRODUCTION

COVID-19, a profoundly contagious viral disease caused by the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), has had a devastating impact globally, leading to over 6 million fatalities worldwide. Following its initial emergence in late December 2019 in Wuhan, Hubei Province, China, as primarily a respiratory illness, SARS-CoV-2 swiftly spread across the globe.¹

Consequently, on March 11, 2020, the World Health Organization (WHO) declared it a worldwide pandemic.² The primary way SARS-CoV-2 spreads is through contact with respiratory droplets that contain the virus. These droplets can come from close contact with individuals who may not show symptoms yet (pre-symptomatic), those who do not display symptoms (asymptomatic), or those who are already symptomatic and carry the virus.³

Due to absence of specific treatment and vaccines during early stages of pandemic, public health intervention such as lock down, closures of Schools/college, Social Distancing were implemented. These measures along with fear of pandemic had mental health implications.⁴

Research on past infectious disease outbreaks have also revealed various psychosocial impacts at individual as well as community and international level. They considered higher levels of anxiety, fear of death, post-traumatic stress, depression, helplessness, panic, and guilt. A Research Conducted on Chinese Population shows that a Significant Proportion of health workers have Depression Symptoms (50.4%), Anxiety (44.6%), Insomnia (34%), Discomfort (71.5%).⁵

Since March 24, 2020, the Nepalese government had enforced a countrywide lockdown, which includes the closure of schools, offices, businesses, and public spaces, except for hospitals. Individuals were urged to practice self-isolation during that time. In Nepal, lockdown and isolation have led to various psychological responses, including heightened anxiety, stress, irritability, low spirits, and apprehensions (whether grounded in actual or perceived threats). These emotional states can have adverse effects on a person's overall well-being, affecting both their physical and mental functioning.⁴

Although various studies have demonstrated the psychosocial impact of covid 19 among healthcare workers and children in other parts of the world, no study has been conducted in our region to find out its impact. This study is a novel study in our setup; it is helpful to know the psychosocial impact of covid 19 among medical students of Birat Medical College Teaching Hospital. This study aims to understand the impact of covid 19 among medical students as well as understand factors associated with it.

METHODOLOGY

The current investigation employed a cross-sectional study design where study setting was selected conveniently and all the medical student were included. Data collection spanned from August 1st, 2022, to January 31st, 2023. A Google Form questionnaire was distributed to all medical

students at BMCTH, yielding 258 responses. This study received ethical approval from the institutional review committee at Birat Medical College, and written informed consent was obtained from all participants prior to data collection. Strict measures were in place to ensure the confidentiality and anonymity of participants.

The online semi-structured questionnaire, accompanied by a consent form, was created using Google Forms. The questionnaire link was disseminated via email, WhatsApp, and various social media platforms. Participants were encouraged to share the survey with their class mates. Upon clicking the link, participants were automatically directed to information about the study and the consent process.

The GHQ, developed by Goldberg in the 1970s, is a widely recognized and validated screening tool is utilized for assessing current mental health.⁶ It has been translated and validated in various languages, including Nepali.⁷ In the Nepalese population, it demonstrates a sensitivity of 85.58% and a specificity of 74.79%, with positive and negative predictive values of 86.66% and 85%, respectively. The GHQ-12 comprises 12 items, each offering four possible responses.⁴

The scores on the GHQ-12 can be interpreted using either the Likert scale method or the binary scoring method. In the Likert scoring method, responses are scored from 0 to 3 (referred to as the 0-1-2-3 method), while in the binary system, the two least symptomatic responses score 0, and the two most symptomatic responses score 1 (referred to as the 0-0-1-1 method).⁸

For this study, the GHQ was scored using the simple Likert scale of 0-1-2-3. Scores were totaled, resulting in a range of 0–36, which was then categorized into four subgroups for assessment: 1-12 (normal psychological status), 13-15 (borderline), 16-20 (evidence of psychological distress), and >20 (severe distress).⁹⁻¹⁰ These categories were further condensed into two groups for bivariate and multivariate analysis: Normal/Borderline and Psychological Distress.

Data collected from respondents were input into a Microsoft Excel spreadsheet and subsequently analyzed using SPSS version 23. The findings were presented in terms of frequency and percentages, as well as both bivariate and multivariate analyses were performed. If the value of P was less than 0.05, it was seen as statistically important. Chi-square test is used as bivariate statistics and binary logistic regression as multivariate analysis tool.

RESULTS

Socio-demographic characteristics of respondents

Socio demographic characteristics is shown in table 1. A total of 258 participants took part in the study, with 136 (52.7%) being males and 122 (47.3%) females. The majority of participants (90.7%) reported no history of medical conditions. Additionally, over half 145 (56.2%) felt overwhelmed by their workload.

More than half 132(51.2%) of the respondents worked less than eight hours per day, while 100 (38.8%) worked between 8 to 12 hours, and 26 (10.1%) worked more than 12 hours. Among the participants, 144(55.8%) had been in



close contact with COVID-19 patients, and 21(8.1%) had worked in a COVID unit.

In terms of exposure to misinformation about COVID-19, 115 (44.6%) had encountered false information, while 143 (55.4%) had not. A majority of the respondents 135 (52.3%) spent 2-5 hours on social media daily. Regarding quarantine experiences, 106 (41.1%) of the respondents had undergone quarantine due to COVID-19 suspicion, and 136 (52.7%) reported that their family member were contracted with the virus.

Table 1. Socio-demographic characteristics of respondents

Characteristics	Frequency (n)	percentage (%)
Age		
20-24 years	206	79.8
>25years	52	20.1
Gender		
Male	136	52.7
Female	122	47.3
History of illness		
None	234	90.7
Psychiatric illness	8	3.1
Others	16	6.2
work overload		
Yes	145	56.2
No	113	43.8
Work hour		
Up to 8 hours	132	51.2
More than 8 hours	126	48.8
Exposure to Covid patient		
Yes	144	55.8
No	114	44.2
Worked in Covid unit		
Yes	21	8.1
No	237	91.9
Exposed to false information about covid		
Yes	115	44.6
No	143	55.4
Hours spent in social media/day		
2 hours or less	96	37.2
>2	162	62.8
Availability of PPE		
Yes	92	35.7
No	166	64.3
Family member suffered from covid		
Yes	136	52.7
No	122	47.3
Year of study		
Pre-clinical	67	26.0
Clinical	166	64.3
Internship	25	9.7

Psychosocial status is shown in table 2. The respondent's psychosocial status was classified according to the GHQ12 among whom 111(43%) were normal, 71 (27.5%) were borderline, 40 (15.5%) showed evidence of psychological distress, and 36 (14%) had severe psychological distress.

Table 2. Psychosocial status of the participants

Psychosocial status	Frequency (n)	Percentage (%)
Normal	111	43.0
Borderline	71	27.5
Evidence of psychological distress	40	15.5
Severe psychological distress	36	14.0

Table 3. shows the bivariate analysis between socio-demographic characteristics and psychosocial status of the respondents. Gender, work overload, work hour in COVID ward, exposure to false COVID information and exposure to COVID quarantine were significantly associated with psychological distress at p-value <0.05.

Table 3: Association between socio-demographic characteristics and psychological distress

Characteristics	Total psychosocial problem		Total	P-value
	Normal/borderline n (%)	Psychological distress n (%)		
Age				
20-24 years	149(72.3)	57(27.7)	206	0.210
>24 years	33(63.5)	19(36.5)	52	
Gender				
Male	107(78.7)	29(21.3)	136	0.002
Female	75(61.5)	47(38.5)	122	
Work overload				
Yes	80 (55.2)	65(44.8)	145	0.001
No	102(90.3)	76(29.5)	258	
Work hour in Covid ward				
Up to 8 hours	101(76.5)	31 (23.5)	132	0.031
8-12 hours	81 (64.3)	45(35.7)	126	
Exposed to Covid patient				
Yes	97(67.4)	47(32.6)	144	0.208
No	85(74.6)	29(25.4)	114	
Work in Covid ward				
Yes	14(66.7)	7(33.3)	21	0.684
No	168(70.9)	69(29.1)	237	
Exposer to false Covid information				
Yes	71(61.7)	44(38.3)	115	0.005
No	111(77.6)	32(22.4)	143	
Time spent in social media				
2 hours or less	74(77.1)	22(22.9)	96	0.077
>2 hours	108(66.7)	54(33.3)	162	
Availability PPE				
Yes	60(65.2)	32(34.8)	92	0.162
No	122(73.5)	44(26.5)	166	
Family with covid				
Yes	91(66.9)	45(33.1)	136	0.177
No	91(74.6)	31(25.4)	122	
Quarantine faced in Covid				
Yes	65(61.3)	41(38.7)	106	0.007
No	117(77)	35(23.0)	152	
Year of study				
Pre-clinical	48(71.6%)	19(28.4%)	67	0.749
Clinical	118(71.1%)	48(28.9%)	166	
Internship	16(64.0%)	9(36.0%)	25	

Table 4. Logistic Regression Analysis of Psychological Distress with Socio-demographic Characteristics.

Characteristics	Expected Beta	Significant	Confidence Interval
Age			
Up to 24 Years	1	0.005	1.45- 8.23
More than 24 Years	3.46		
Gender			
Male	1	0.001	1.61-6.37
Female	3.20		
Work Overload			
No	1	0.000	4.32-21.49
Yes	9.63		

In this study, multivariate analysis (binomial logistic regression) was also conducted to find the significant predictor for increasing psychological distress among the medical students. In bivariate analysis gender, work overload, work hour in covid ward, exposure to covid false information and quarantine faced during COVID pandemic were found significant and the important variables were run for multivariate analysis. Finally, three variables: age ($B=3.46$, $CI: 1.45-8.23$ and $P=0.005$), gender ($B=3.20$, $CI: 1.61-6.37$ and $P=0.001$) and work overload ($B=9.63$, $CI: 4.32-21.49$ and $P=0.000$) were found significant predictor/determinants of psychological distress among medical students during Covid-19 pandemic. Age greater than 24 years (adults), female gender and work overload were significantly associated with psychological distress.

DISCUSSION

The emergence of COVID-19 and lockdown measures to combat its spread has exacerbated psychosocial problems in people globally. In this study, about 3 in 10 participants (29.5%) got either evidence of psychological distress. Forty (15.5%) of the respondents showed some evidence of psychological distress, and 36 (14%) had severe psychological distress among medical students due to COVID-19 which is higher than the results found in the study done in Kathmandu valley¹⁰ which state 5 % having evidence of psychological distress and 9% having severe psychological distress. Similarly in the study done in medical student in Nepal using HAD scale found anxiety (HADS-A) 11.8%, depression (HADS-D) 5.5%.¹¹

However, there is vast difference in the prevalence of psychological problem between the Iranian medical students and Nepalese medical students where they found severe symptoms of depression, stress, and anxiety was 69.57%, 60.87%, and 99.04%, respectively.¹²

In this study, females had higher prevalence of psychological distress 47(38.5%) in comparison to males, which is significantly associated at p -value <0.002 , similar result is found in a research finding conducted in Egyptian Brazilian and Vietnamese students. While Liu et al. and Cao et al.¹³⁻¹⁵ found no significant differences in anxiety prevalence between genders in their studies conducted among Chinese medical students.^{16,17}

In this study, those who were quarantined for covid 19 had higher psychological distress which is supported by the study done among medical student in Nepal.¹¹ and study done in Bangladesh.¹⁸ Students who were exposed to false COVID information showed more psychological distress in the present study, similarly the study done in India support the present result, which indicates that a significant proportion of participants in the survey, despite having adequate awareness about coronavirus infection, were largely

influenced by media information. Media influences the mental well-being and had increased the level of anxiety.¹⁹

The present study did not show any association between time spent in social media and psychological distress in contrast to the finding of the meta-analysis of 14 cross-sectional studies, which demonstrated excessive time spent on social media platform is associated with anxiety and depressive symptoms in the pandemic.²⁰

The work overload and psychological distress is significantly associated in the present study, which is similar in the study done in Bangladesh¹⁸ which showed a higher level of distress during the pandemic due to increased workload, infection of family members, lack of protective measures. However, there is no association found between infections of family member with COVID and lack of protective measure in the present study.

Those who worked for long period in COVID unit had higher psychological distress in the present study which coincides with the studies conducted in Japan as well as in an Meta Analysis in which working hours were found to be significantly associated with deteriorating mental health.^{21-22.}

In the multivariate analysis female gender, age >24 years and workload were the predictors for the psychosocial distress among the medical students which is supported by another study on mental health during the COVID-19 pandemic.⁴

CONCLUSION

Overall, 29.5% of medical students involved in the study indicated psychological turmoil among whom 14% had severe psychological distress and 15.5% showed evidence of psychological distress due to COVID-19. The study found age >24 years, females and higher workload were the predictor of the psychological distress. The psychological distress among the medical students due to covid 19 was in appalling situation. Integrated efforts from medical colleges, parents, peers and faculties needs to be initiated to address the existing problems.

RECOMMENDATION

It is recommended to implement different initiatives aimed at raising awareness about the detrimental impact of psychological distress among medical students in public health emergency like Covid. Moreover, specific measures targeted at reducing psychological distress and promoting overall mental well-being should be put into action.

LIMITATION OF THE STUDY

There are limitations associated with selective recruitment of study setting and response rate in this study; which may limit the generalizability of the findings and comparability between groups. The individuals who did not respond might



exhibit higher levels of stress related to COVID-19, in contrast to our participants who might be more altruistic and optimistic.

ACKNOWLEDGEMENT

We would like to acknowledge all the respondents of this study. We'd also like to give recognition to Prof. Dr. Nabaraj Koirala who guided us with his insights in this study.

CONFLICT OF INTEREST

None

FINANCIAL DISCLOSURE

None

REFERENCES

1. Coronavirus disease (COVID-19) – World Health Organization [Internet]. [cited 2023 Sep 15]. Available from: <https://www.who.int/emergencies/diseases/novel-coronavirus-2019>
2. WHO characterizes COVID-19 as a pandemic - PAHO/WHO | Pan American Health Organization [Internet]. [cited 2023 Sep 15]. Available from: <https://www.paho.org/en/news/11-3-2020-who-characterizes-covid-19-pandemic>
3. Sharma A, Ahmad Farouk I, Lal SK. COVID-19: A Review on the Novel Coronavirus Disease Evolution, Transmission, Detection, Control and Prevention. *Viruses*. 2021 Jan 29;13(2):202. <https://doi.org/10.3390/v13020202>
4. Sharma R, Sharma SC, Sharma P, Pradhan SN, Chalise P, Regmee J, et al. Effect of lockdown on mental health during the COVID-19 pandemic among individuals attending services at a tertiary care center. *Indian J Psychiatry*. 2020 Sep;62(Suppl 3):S431–7. DOI:10.4103/psychiatry.IndianJPsychiatry_1038_20
5. Rodríguez BO, Sánchez TL. The Psychosocial Impact of COVID-19 on health care workers. *Int Braz J Urol Off J Braz Soc Urol*. 2020 Jul;46(suppl.1):195–200. DOI: 10.1590/S1677-5538.IBJU.2020.S124
6. Goldberg DP, Gater R, Sartorius N, Ustun TB, Piccinelli M, Gureje O, et al. The validity of two versions of the GHQ in the WHO study of mental illness in general health care. *Psychol Med*. 1997 Jan;27(1):191–7. DOI: 10.1017/s0033291796004242
7. N. R. Koirala, S. K. Regmi, V. D. Sharma, A. Khalid and M. K. Nepal. Sensitivity and Validity of the General Health Questionnaire-12 in a Rural Community Settings in Nepal. *Nepal J Psychiatry*. 1999;Vol. 1, No. 1, 1999;34-40.
8. Rey JJ, Abad FJ, Barrada JR, Garrido LE, Ponsoda V. The impact of ambiguous response categories on the factor structure of the GHQ-12. *Psychol Assess*. 2014 Sep;26(3):1021–30. <https://psycnet.apa.org/doi/10.1037/a0036468>
9. Anjara SG, Bonetto C, Van Bortel T, Brayne C. Using the GHQ-12 to screen for mental health problems among primary care patients: psychometrics and practical considerations. *Int J Ment Health Syst*. 2020 Aug 10;14:62. <https://doi.org/10.1186/s13033-020-00397-0>
10. Joshi D, Sharma P, Shrestha K. Psychological Distress Among General Adult Population Of Kathmandu Valley. *J Psychiatr Assoc Nepal*. 2021 Oct 14;10:14–8. DOI:10.3126/jpan.v10i1.40340
11. Risal A, Shikhrakar S, Mishra S, Kunwar D, Karki E, Shrestha B, et al. Anxiety and Depression during COVID-19 Pandemic among Medical Students in Nepal. *Kathmandu Univ Med J*. 2020 Dec 31;18(4):333–9. PMID: 34165087
12. Moayed MS, Vahedian-Azimi A, Mirmomeni G, Rahimi-Bashar F, Goharimoghdam K, Pourhoseingholi MA, et al. Coronavirus (COVID-19)-Associated Psychological Distress Among Medical Students in Iran. *Adv Exp Med Biol*. 2021;1321:245–51. doi: 10.1007/978-3-030-59261-5_21.
13. Soltan EM, Salama HM, El-Zoghby SM. Anxiety and Psychological Stress during COVID-19 Pandemic among the Students of Faculty of Medicine, Suez Canal University, Egypt. Vol. 2021; doi: <https://doi.org/10.21608/efmj.2022.62872.1069>
14. Filho CIS, Rodrigues WC de LV, Castro RB de, Marçal AA, Pavelqueires S, Takano L, et al. Impact Of Covid-19 Pandemic On Mental Health Of Medical Students: A Cross-Sectional Study Using GAD-7 And PHQ-9 Questionnaires [Internet]. medRxiv; 2020 [cited 2023 Sep 16]. p. 2020.06.24.20138925. Available from: <https://www.medrxiv.org/content/10.1101/2020.06.24.20138925v1>. doi: 10.33448/rsd-v10i6.15406
15. Nguyen HT, Do BN, Pham KM, Kim GB, Dam HTB, Nguyen TT, et al. Fear of COVID-19 Scale-Associations of Its Scores with Health Literacy and Health-Related Behaviors among Medical Students. *Int J Environ Res Public Health*. 2020 Jun 11;17(11):4164. doi: 10.3390/ijerph17114164.
16. Liu J, Zhu Q, Fan W, Makamure J, Zheng C, Wang J. Online Mental Health Survey in a Medical College in China During the COVID-19 Outbreak. *Front Psychiatry*. 2020 May 13;11:459. doi: 10.3389/fpsyt.2020.00459
17. Cao W, Fang Z, Hou G, Han M, Xu X, Dong J, et al. The psychological impact of the COVID-19 epidemic on college students in China. *Psychiatry Res*. 2020 May;287:112934. doi: 10.1016/j.psychres.2020.112934.
18. Frontiers | COVID-19 Related Psychological Distress, Fear and Coping: Identification of High-Risk Groups in Bangladesh [Internet]. [cited 2023 Sep 16]. Available from: <https://www.frontiersin.org/articles/10.3389/fpsyt.2021.718654/full>.doi:10.3389/fpsyt.2021.718654
19. Roy D, Tripathy S, Kar SK, Sharma N, Verma SK, Kaushal V. Study of knowledge, attitude, anxiety & perceived mental healthcare need in Indian population during COVID-19 pandemic. *Asian J Psychiatry*. 2020 Jun;51:102083. doi: 10.1016/j.ajp.2020.102083
20. Lee Y, Jeon YJ, Kang S, Shin JI, Jung YC, Jung SJ. Social media use and mental health during the COVID-19 pandemic in young adults: a meta-analysis of 14 cross-sectional studies. *BMC Public Health*. 2022 May 17;22(1):995. <https://doi.org/10.1186/s12889-022-13409-0>
21. Hino A, Inoue A, Mafune K, Tsuji M, Tateishi S, Ogami A, et al. Association between Long Working Hours and Psychological Distress: The Effect Modification by Request to Stay Home When Sick in the Workplace during the COVID-19 Pandemic. *Int J Environ Res Public Health*. 2022 Mar 25;19(7):3907. doi: 10.3390/ijerph19073907
22. Arias-Ulloa CA, Gómez-Salgado J, Escobar-Segovia K, García-Iglesias JJ, Fagundo-Rivera J, Ruiz-Frutos C. Psychological distress in healthcare workers during COVID-19 pandemic: A systematic review. *J Safety Res [Internet]*. 2023 Aug 7 [cited 2023 Sep 16]; Available from: <https://www.sciencedirect.com/doi/10.1016/j.jsr.2023.07.016>