Journal of Chitwan Medical College 2021;11(37):26-30
Available online at: www.jcmc.com.np

ORIGINAL RESEARCH ARTICLE

COVID-19 FACTORS AND MENTAL HEALTH ASSOCIATED WITH PSYCHOLOGICAL DISTRESS LEVEL AMONG DENTISTS AND DENTAL HYGIENISTS IN NEPAL

Harender Singh[1,*], Sanjeeb Chaudhary[2], Smriti Narayan Thakur[3], Abhishek Gupta[4]

[1]Department of Public Health Dentistry, Chitwan Medical College, Bharatpur, Chitwan, Nepal
[2]Department of Conservative Dentistry & Endodontics, Chitwan Medical College, Bharatpur, Chitwan, Nepal
[3]Department of Prosthodontics and Maxillofacial Prosthetics, Chitwan Medical College, Bharatpur, Chitwan, Nepal
[4]Department of Oral Medicine and Radiology, Chitwan Medical College, Bharatpur, Chitwan, Nepal

Received: 1 Aug, 2021

Accepted: 1 Sep, 2021

Published: 30 Sep, 2021

Key words: COVID-19; Dentists; Psychological factors; Psychological distress; Self-efficacy; Subjective overload

***Correspondence to:** Harender Singh, Department of Public Health Dentistry, Chitwan Medical College, Bharatpur, Chitwan, Nepal.*

Email: drharendersingh45@gmail.com

Citation

Singh H, Chaudhary S, Thakur SN, Gupta A.COVID-19 factors and mental health associated with psychological distress level among dentists and dental hygienists in Nepal. Journal of Chitwan Medical College.2021;11(37):26-30.

Peer Reviewed

ABSTRACT

Background: The COVID-19 pandemic, which is caused by a severe acute respiratory syndrome corona virus 2 (SARS-CoV-2), is acknowledged an unprecedented crisis that has adversely affected the population globally and created a situation of emergency in health systems worldwide. The aim of present study was to evaluate the association of COVID-19 factors and psychological factors with psychological distress level among dental professional of Nepal.

Methods: The data was collected through a cross-sectional survey conducted online among 350 dental practitioners in Nepal. The data was collected during the period of December 2020 to April, 2021. A self-measuring questionnaire was prepared throgh Google forms to assess COVID-19 factors. In psychological factors category, self-efficacy and subjective overload was measured. General self-efficacy scale was used for the evaluation of self-efficacy and Demand-Scale (short-version) was used for measuring the subjective overload. Kesslers' K6 scale was used for assessing the distress level among the participants of the study. Multivariate logistic regression was used for statistical analysis.

Results: Findings of the study revealed that elevated psychological distress was found more among female dental staff, having fear of contracting COVID-19 from patient, and who have shown higher subjective overload. Lower psychological distress was associated with higher work-experience, and in those who got higher scores for self-efficacy.

Conclusions: This study was conducted during the outbreak of deadly infectious coronavirus disease. While exploring the COVID-19 factors and psychological factors on the distress level among dental staff, it is warranted as the effects may be long-term because of their psychological implications on the mental health of dental practitioners.

INTRODUCTION

The COVID-19 pandemic, which is caused by a severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), is acknowledged an unprecedented crisis that has adversely affected the population globally and created a situation of emergency in health systems worldwide (including the dental health service system).[1] A nationwide lockdown was declared by the Government of Nepal on 24 March 2020 to 21 July 2020 to prohibit the all non-essential services for prevention the spread of coronavirus.[2]

The virus can be sustained for longer hours in poorly ventilated areas or crowded settings.[3] WHO has recommended that the main precautions to be taken to the virus spread are washing hands several times in a day or using sanitizers, wearing mask and practice social distancing of at least 1 metre (arm's length) and stay in quarantine for 2 weeks to prevent the contagion.[4] The dental professionals are at the top of them, because of their work settings.[5]

Previous studies on epidemics shown a higher level of stress and anxiety among health professionals during any pandemic, including dental professionals.[6-7] Many COVID-19 factors and psychological factors have affected the mental health of all kinds of health service providers at a higher level.[8] The dentists are involved in close contact with patients and they use such instruments that create visible spray having droplets of water and other body fluids i.e. saliva, blood and microorganisms etc.[9] Thus mental health of health professionals (including dental personnel) during COVID-19 pandemic has been notified as a high interest of research nowadays.[10-12] .

This study aimed to explore psychological distress among dentists and dental hygienists in Nepal during the COVID-19 pandemic outbreak. In addition, we are interested to explore several COVID-19-related factors and mental health which may be associated with psychological distress.

METHODS

This was a cross sectional study which had been conducted online and the data was collected through Google forms, after getting an ethical approval for this research from Institutional

Review Committee (IRC) (CMC-IRC/077/078-056).

The participants in this study were approached through emails, social media and forums during the period of December 2020 to April, 2021. The data was collected from dentists and dental hygienists in Nepal (n = 350). An electronic informed consent form was signed by each participant before collecting the data for the study.

The demographic details in this study included- gender, qualification, work experience and marital status. The COVID-19 related factors and psychological factors are given below:

COVID-19-Related Factors

The first COVID-19 factor was- Being in a risk group. The question in this category is given below:

- "Are you defined as being in a high-risk population (suffering from systemic disease i.e. serious heart conditions/ asthma/chronic kidney disease/chronic lung disease/ undergoing dialysis/liver disease or any immune compromised disease, including cancer treatment/diabetes)?" The response coding is: 0 for "No" and 1 for "Yes". and 12.85% (n = 45) answered "Yes".

The second COVID-19 factor was- Fear of contracting COVID-19 from patients. The question in this category is given below:

- "Are you afraid to be infected with COVID-19 because of your profession?" The response coding is: 0 for "Not at all" to 4 for "Very afraid". The mean score of this item was 3.08 (SD = 0.658).

The third COVID-19 factor was -Receiving enough professional knowledge regarding COVID-19. The question in this category is given below:

- "Do you feel that you have acquired sufficient knowledge (through lectures, information leaflet, seminars, etc.) about maintaining a safe working environment since the COVID-19 outbreak?" The response coding is: from 0 for "Not at all" to 4 for "Very much". The mean score of this item was 2.92 (SD = .527).

Psychological Factors

The psychological factors- i) Subjective Overload are a psychological expression or term. In dentists' cases, it might be related to their job perceptions and understanding in the given circumstances.[12]

ii) Self-efficacy is known as an individual's belief in his or her efficiency to perform at different levels to meet the real time demands.[13] Various studies have shown the importance of higher self efficacy to manage stressful events and in handling traumatic situations like COVID-19 pandemic.[14]

The first psychological factor is subjective overload, which has been explained above. The Demands Scale—Short Version was used for measuring this.[15] This scale has six items (measuring various aspects of personnel stress) which are as follows Table 1.

Table 1: Demand-Scale questionnaire

1.	"I can't handle the contradicting demands made on me during my work."
2.	"The amount of work-time available to me is insufficient."
3.	"My job poses demands without having the right equipment and resources."
4.	"I never leave my work feeling like I have finished all my chores."
5.	"I am unable to perform my job to the best of my ability in the given time."
6.	"I am required to perform simple tasks that prevent me from performing more sophisticated ones."

The response coding is - 1 for "Not at all" to 5 for "Very much". Cronbach's Alpha for the demands scale in the current study was 0.72.

ii) The second psychological factor was - Self-Efficacy. The General Self-Efficacy Scale was used for measuring this.[16] It has 10 questions based on four-category Likert scale. The response coding was -1 for "Strongly disagree, 2 for "Disagree", 3 for "Agree" and 4 for "Strongly agree". The sample question of this questionnaire is, "I can always manage to solve difficult problems if I try hard enough."

Cronbach's Alpha for the demands scale in the current study was 0.85.

It includes Psychological distress which was measured by Kessler's K6.[17] The items of this scale is measuring- restless/ fidgety, feeling nervous, hopeless, depressed, like everything was an effort and worthless during the previous 30 days. Scores are ranging from 0 to 30. Scores 19 or above 19 shows elevated psychological distress. Cronbach's Alpha for the Kessler's K6 in the current study was 0.82 which can be considered as good.
We used multivariate logistic regression to measure the association of elevated psychological distress (K6-19), as the outcome, with the following variables entering the equation: (1) Demographics (gender, qualification, committed relationship, work experience); (2) COVID-19-related factors (being in a risk group, fear of contracting COVID-19 from patients, receiving enough professional knowledge regarding COVID-19); (3) Psychological factors (subjective overload and self-efficacy). For each variable, we calculated the odds ratio (OR) and 95% CI using SPSS version 22 (IBM, Armonk, NY, USA).

RESULTS

The data was collected from dentists and dental hygienists in Nepal (n = 350). Demographic distribution of the data presented in table2. The mean age of these participants was 30.61 years (SD = 5.887, range = 22–45), 61.7% were female (n = 216), 38.3%

(n =134) 56.6% (n=198) were in a committed relationship, and 53.7% were dentists (n = 188).

Risk of elevated psychological distress was found in 12.9% of the sample (n = 45). Elevated psychological distress was found positively associated with gender (females) (OR = 0.270 (95% CI: 0.109–0.666); p = 0.004), fear of contracting COVID-19 from a patient (OR = 5.027 (95% CI: 2.346–10.772); p = 0.000), and higher subjective overload (OR = 0.780 (95% CI: 0.663–0.918); p = 0.003). However, higher work experience is associated with lower psychological distress (OR = 0.221 (95% CI: 0.097–0.504); p = 0.000), and higher self-efficacy (OR = 0.783 (95% CI: 0.708–0.886); p = 0.000).

Table 2: Data Distribution according to demographic details

Variables		Frequency (%)
Gender	Male	134(38.3)
	Female	216(61.7)
Qualification	CDS	35(10.0)
	BDS	153(43.7)
	MDS	162(46.3)
Experience	1-5 yrs	233(66.6)
	6-10 yrs	63(18.0)
	Above 10 yrs	54(15.4)
Marital status	Unmarried	152(43.4)
	Married	198(56.6)

Table 3: Factors associated with psychological distress among dentists and dental hygienists

Demographics	Adjusted OR (95% CI)	p value
Gender	0.270 (0.109-0.666)	0.004*
Qualification	1.212 (0.452-3.252)	0.703
Work Experience	0.221 (0.097-0.504)	0.000**
Being in a committed relationship "Yes"	1.060 (0.359-3.123)	0.917
COVID-19 Factors		
Being in a risk group "Yes"	0.000 (0.000)	0.998
Fear of contracting	5.027 (2.346-10.772)	0.000**
Aquired sufficient knowledge	0.522 (0.251-1.086)	0.082
Psychological Factors		
Self-Efficacy (Low)	0.783 (0.708-0.866)	0.000**
Subjective-Overload (High)	0.780 (0.663-0.918)	0.003**

*$p \leq 0.05$; **$p \leq 0.01$.

DISCUSSION

The present study focused to evaluate the level of psychological distress experienced by Nepali dentists and dental hygienists amidst the outbreak of COVID-19 pandemic and in addition the possible factors that might be related with it (COVID-19 factors and psychological factors) were also evaluated. The findings of the present study support the association of COVID-19 factors and Psychological factors on the elevated distress level of dental professionals as they are at the high risk to get infected because of their dental settings.

In the demographic data, this study showed a positive relation of COVID-19 impact on the mental health and distress level of females more than males. Many researches have been conducted in various countries to find the effect of COVID-19 on the mental health of healthcare providers. Studies conducted in Norway, Nepal, Washington DC. and Pakistan give a scientific evidence of elevated psychological distress in female healthcare professionals more than males during COVID-19 outbreak. The findings of the result confirmed this hypothesis that females are tending to show higher level of distress during such kind of crisis like COVID-19 pandemic. [10,11,18,19]

The next factor in demographics was work experience. It has been found that higher work experience can lessen the psychological distress during such kind of crisis like COVID-19 pandemic. In this study, we have taken the participants who have experience from 1≥ year to more 10≤ years. The findings of the present study confirmed this hypothesis. Highly experienced professionals are more satisfied with the measures taken by the government, hospitals and institutions to prevent this virus. and they can efficiently manage the situation in comparison of less experienced staff (including dental professionals). The reports of various scientific researches conducted during COVID-19 outbreak in Norway, USA, Pakistan, India and Turkey in this reference support this finding at a large extent that higher work experience can decrease the psychological distress in COVID-19 like pandemic situation. [10,11,18-20]

In the COVID-19 factors category, only the fear of contracting COVID-19 from a patient was found positively associated with the elevated level of psychological distress in dental professionals.[10,18] This may be supported by various scientific studies conducted in this regard. Their findings show that dental professional or practioners tend to show an unwillingness to treat the patients because of fear of getting infected with infectious diseases such as COVID-19 . In the psychological factors category, an invert relationship has been found between the self-efficacy and subjective overload. The reports of researches conducted in India and Romania during this pandemic show that higher subjective overload may affect the score for self-efficacy and might be associated with elevated psychological distress.[21-23]

The Karasek's job demand–control–support model may explain

the association between subjective overload and psychological distress. According to this model the feeling of stress is an outcome of the interaction between the three factors: the stressor (e.g., job demands), the individual's discernment of their ability to have control over the stressor (e.g., job control), and his/her social support.[24] In this pandemic of Coronavirus, dental staff are experiencing higher subjective overload because of the limited teamwork, low levels of control, social isolation, long working hours etc.[25,26] which has resulted in the elevated distress level and distorted mental health.[27]

In the regard of self-efficacy, the findings of our study reveals that those who got higher score on General Self-efficacy scale, have lower psychological distress score on Kesslers' K6 scale. This result indicates that higher self-efficacy increase the coping efficiency in any individual and help him to perform crucial role in any critical situation with lower psychological stress. It enhances a person's performance to meet the challenges in a given situation efficiently.[28] Furthermore, we find that higher self-efficacy in workers had a significant association between stress meditation and compassion satisfaction.[29,30]

Many studies have revealed that general self-efficacy play a mediator role in establishing association between daily life stressors and psychopathological symptoms. Higher self efficacy is related to subjective well-being. One possible explanation may stem from the Conservation of Resources (COR) theory explains this phenomenon in a better way. This theory is a stress theory that proposes a kind of motivation in an individual to maintain a balance with the current resources and push him to trail new resources. It helps him to mitigate the impact of current loss. In this way they are able to handle such kind of situations in a better way in future because of their higher self-efficacy.[27,30-32]
Some limitations should be come into the focus of this study. This is a cross-sectional study, which interdict causal inferences. There is lower response rate because of short time period of sampling for the study.

The sample size can be considered to be moderate. Some more limitations of this research includes selection bias and sampling error (as participants were contacted via social media platform, dedicated mailing lists, forums etc.).

The present study throws a light on the importance of mental health of healthcare workers (including dental staff), which should be taken into consideration in this deadly pandemic outbreak. Psychological distress may have long term effects in dental professional, because of their work settings and subjective-overload. There are some recommendations for mental health training programme and workshops, which should be conducted by the healthcare management committee to enhance the self-efficacy of their personnel along with adding the mental health education to make a part of the core dental curriculum.

CONCLUSION

This study showed the great impact of COVID-19 factors and psychological factors on the elevated psychological distress level among dental professionals. Findings of this study reveals that elevated psychological distress was found in females more than males. In the regard of COVID-19 factors, elevated psychological stress is associated with fear of contracting COVID-19 from a patient and higher subjective overload in dental staff. Higher work experience and higher self-efficacy is related to lower level of psychological distress in dentists and dental hygienists. These results highlighted the importance of exploring the psychological distress level among dental staff because of its long-term impact for personal and professional welfare. Workshops and training programmes for enhancing the self-efficacy in dental staff and broadening their view towards understanding the importance of mental health is highly recommended. Further researches should be conducted to examine the short-term and long-term psychological impacts of the COVID-19 pandemic among dental staff.

CONFLICT OF INTEREST: None

FINANCIAL DISCLOSURE: None

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