Original Article

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Psychological Reactions among Staffs of a Tertiary Eye Hospital in Eastern Nepal during COVID-19 Pandemic

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ABSTRACT

Introduction: Eye examination and different procedures performed in close contact with eye and face, put medical and non medical staff of an eye hospital at higher risk for COVID-19. This causes increased psychological burden. The objective of this study was to find out depression, anxiety, stress and insomnia among Mechi Eye Hospital staff.

Materials and methods: A web based cross-sectional study among Mechi Eye Hospital staff was done from 1st to 20th July 2020. Insomnia Severity Scale and DASS-21 were used.

Results: Out of 220, 190 (86.6%) participated, 63.2% were female and 61.05% were medical staff with an overall mean age of 31.1±8.4 years. Overall prevalence of anxiety, depression, insomnia and stress were 20.5%, 18.9%, 16.3% and 12.6% respectively and those were common in female with 63.9% (p value <0.02), 64.1% (p value 0.5), 58.4% (p value 0.2) and 100% (p value <0.01) respectively. Depression, anxiety and insomnia were common in the age group 30-39 years (50%, p value< 0.02), 20-29 years (56.4%, p value 0.1) and 20-29 years (70.9%, p value 0.8) respectively. Stress was common in 20-29 years and 30-39 years, 45.8% each (p value <0.03). Depression (75%, p value 0.2), anxiety (71.7%, p value 0.9) and stress (70.8%, p value 1.0) were common in medical staff. Insomnia was present in medical staff only (p value<0.01).

Conclusion: Mechi Eye Hospital staff had greater prevalence of psychological reaction than the national baseline during the pandemic which was more common in female, younger age and medical staff.

Key words: Anxiety, COVID-19 pandemic, Depression, Eastern Nepal, Eye care service providers, Insomnia, Stress.

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INTRODUCTION

Nepal recorded its first case of COVID-19 on 5th January 2020 (Bastola et al., 2020), WHO declared this condition a global pandemic on 11th March 2020 (WHO, 2020b). Nepal Government declared a nationwide lockdown except for essential services from 24th March 2020 to 21st July 2020. In the meantime, from 15th June, all medical services and hospitals were allowed to open.

Dr Li Wenliang, an ophthalmologist from Wuhan, China first brought into notice COVID-19 (Green, 2020). He contracted COVID-19 while managing his asymptomatic glaucoma patient and succumbed to COVID-19 on 7th February 2020. Mechi Eye Hospital (MEH) is a charitable eye hospital situated in Jhapa District of Mechi Zone providing service to the eastern Nepal. In this pandemic, during the lockdown, only the emergent and urgent cases were seen till 15th June 2020, then after, the hospital was opened for all the cases as advised by the Government of Nepal. Screening of the patients coming to the hospital was done as per guidelines provided by Nepal Ophthalmic Society (NOS), and no definitive tests for COVID-19 were done (NOS, 2020). Each and every patient was treated as a COVID-19 suspect. In eye hospitals, eye examination and procedures are performed in close contact with the eyes and face of the patients, putting the eye care service providers like ophthalmologists, optometrists, ophthalmic assistants, eye health workers and non-medical support staff at an increased risk for COVID-19 transmission. Aerosolized particles on the equipment contributed to a high risk of transmission. (Van Doremalen et al., 2020). In addition to this, within MEH premises, there is a Government quarantine centre for the COVID–19 suspected persons.

Early evidence and studies show that a substantial proportion of health care professionals (HCPs) performing their duty in this pandemic experience mood and sleep disturbances. In the past, during severe acute respiratory syndrome (SARS) outbreak as well, studies showed adverse psychological reactions among the HCPs and the common psychological reactions were sleep disorder, stress, anxiety and depression. (Bai Y et al, 2004) Globally in this pandemic, the prevalence of anxiety, depression, insomnia and stress in general population were 21.6%, 20.1%, 18.2% and 35% respectively whereas in HCP it were 13% to 40%, 5.3 to 48%, 18% to 60% and 2.2% to 37% respectively. (Tan et al., 2020; Luo et al., 2020; Shechter et al., 2020; Tu et al., 2020; Huang and Zhao, 2020; González-Sanguino et al., 2020; Chew et al., 2020; Liu et al., 2020; Kang et al., 2020; Zhou et al., 2020; Zhang et al., 2020a; Liang et al., 2020; Gambin et al., 2020; Pappa et al., 2020; Albert, 2015; Hatcher et al., 2016; Lai et al., 2020; Zhang et al., 2020b; Lu et al., 2020). These are the studies done on the frontline HCP, directly involved with COVID-19 patients, but the pandemic also adversely affects the mental health of non-frontline HCP such as those in eye care delivery.

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For the MEH staff, factors like no definitive treatment or vaccine for COVID-19, unknown status of the patient, asymptomatic transmission, quarantine centre within the hospital premises and the eye care profession itself might add psychological burden. This study aims to provide a prevalence of stress, anxiety, depression and sleep disorder among the staff of MEH.

MATERIAL AND METHODS

This is a web based cross-sectional study among the MEH staff and responses were collected from 1st to 20th July 2020. The study was approved by the MEH board and adhered to the tenets of the declaration of Helsinki. The semi structured proforma, DASS-21 (Depression, Anxiety and Stress Scale) and ISI (Insomnia Severity Scale) were uploaded through Google Forms. The link was shared by email and instant messaging apps to all. The first section included the introduction of the study and the consent to participate. Only after the participant gave consent, they could access other sections. The second section was a semi structured proforma including demographic variables like age, sex, marital status, residence, position and department. The third section was the DASS-21 questionnaire and the fourth section was the ISI questionnaire. The confidentiality of each participant was assured and they could opt out at any time. Also, the survey was kept anonymous.

MEH staff included medical HCP (ophthalmologists, staff nurses, optometrists, ophthalmic assistants, eye health workers) and non-medical or administrative HCP (pharmacists, opticians, technicians, administrators, waste management staff, security guards and maintenance staff).

DASS-21: A shorter 21 –item version DASS is the modification of the original 42-item DASS of Lovibond (Antony et al., 1998) in which the participants themselves report the frequency and severity of experiencing negative emotions over the previous week, rated on a series of 4-point scales (0 – not applicable to me to 3 -applied to me very much or most of the time). The interpretation is made based on the total score obtained as follows: for depression: Score less than 10 is considered normal, while score of 10 – 13 is considered mild, 14 – 20 is moderate, 21 – 27 is severe and more than 27 is extremely severe; anxiety: Score less than 8 is considered normal, while score of 8 – 9 is considered mild, 10 – 14 is moderate, 15 – 19 is severe and more than 19 is extremely severe and stress: Score less than 15 is considered no stress, while score of 15 – 18 is considered mild, 19 – 25 is moderate, 26 – 33 is severe and more than 33 is extremely severe.

ISI: The nature, severity, and impact of insomnia was assessed using a 7- item self reported questionnaire in the ISI (Morin et al., 2011). Severity of sleep onset, sleep dissatisfaction, sleep maintenance and early morning awakening problems, noticeability of sleep problems by others, distress caused by sleep difficulties and interference with daytime functioning are the

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dimensions evaluated in the usual recall period of 'last month'. Total score yielded ranges from 0 to 28 using a 5 point Likert scale, with score of 0-7 interpreted as absence of insomnia, 8-14 as subthreshold insomnia, 15-21 as moderate insomnia and 22-28 as severe insomnia.

Data were transferred to Microsoft Excel and were analyzed using SPSS version 23 and appropriate tests applied. All tests were performed at 95% Confidence Interval (CI) and a p-value of <0.05 was considered statistically significant.

RESULTS

Total 190 MEH staff out of total 220 staff constituting 86.6% participated in the study. Among them 116 (61.05%) were medical staff whereas 74 (38.95%) were non-medical administrative staff. There was female preponderance in the overall staff (120, 63.2%) and medical staff 83 (71.6%), but, gender distribution was equal (37, 50%) in administrative staff. The mean age group of the participants was 31.11±8.41 years. Table 1 shows the characteristics of the participants.

Table 1: Characteristics of the participants.

Characteristics		Total (190)	Medical health care personnel 116, (61.05%)	Administrative health care personnel 74, (38.95%)
Gender	Male	70 (36.8%)	33 (28.4%)	37 (50%)
	Female	120 (63.2%)	83 (71.6%)	37(50%)
Age in years	Range	20-59	20-45	20-59
	Mean ± SD	31.11±8.41	28.45±5.03	35.30±10.70
	Median	29	28	34.5
	Mode	28	26	28
	20-29	101 (53.2%)	73 (72.2%)	28 (27.8%)
	30-39	63 (33.1%)	40 (63.5%)	23 (36.5%)
	40-49	15 (7.9%)	3 (20%)	12 (80%)
	50-59	11 (5.8%)	0	11 (100%)
Marital Status	Unmarried	73 (38.4%)	51 (43.9%)	22 (29.7%)
	Married	114(60%)	65 (56.1%)	49 (66.3%)
	Widow	2 (1.1%)		2 (2.7%)
	Divorce	1 (0.5%)		1 (1.3%)
Accommodation	Hospital Quarter	13 (6.8%)	13 (100%)	0
	Rented flat	39 (20.5%)	30 (76.9%)	9 (23.1%)
	Home	138 (72.6%)	73 (52.8%)	65 (47.2%)
Living	Alone	35 (18.4%)	28 (80%)	7 (20%)
	Family	155 (81.6%)	88 (56.7%)	67 (43.3%)

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Occupation	Ophthalmologist		14 (12.1%)	
	Optometrist		10 (8.6%)	
	Ophthalmic Assistant		33 (28.4%)	
	Staff Nurse		5 (4.4%)	
	Eye Health Worker		54 (46.5%)	
	Administration			19 (25.7%)
	Pharmacy			3 (4.1%)
	Optical			29 (39.2%)
	Waste Management			16 (21.6%)
	Security			7 (9.4%)

The overall prevalence of depression, anxiety, stress and insomnia were 36 (18.9%), 39 (20.5%), 24 (12.6%) and 31 (16.3%) respectively. Mild depression (19, 10%), moderate anxiety (17, 8.9%), mild stress (16, 8.4%) and subthreshold insomnia (24, 12.6%) were the most common as shown in Table 2.

Table 2: Participants score on Depression, Anxiety, Stress and Insomnia.

Diagnosis	Total (190)	Mean Scores Overall Cases	Mean Score in Positive Cases	DASS21 scale and grading			
				Mild	Moderate	Severe	Extremely Severe
Depression≥10	36 (18.9%)	4.42±6.21	14.89±6.70	Score 10-13	14-20	21-27	28+
				19 (10%)	12 (6.3%)	3 (1.5%)	2 (1.1%)
Anxiety ≥ 8	39 (20.5%)	4.02±5.55	12.67±6.30	Score 8-9	10-14	15-19	20+
				13 (6.8%)	17 (8.9%)	5 (2.6%)	4 (2.2%)
Stress ≥ 15	24 (12.6%)	5.81±6.57	19.33±5.86	Score 15-18	19-25	26-33	34+
				16 (8.4%)	5 (2.6%)	2 (1.1%)	1 (0.5%)
Insomnia ISI score ≥8	31 (16.3%)	3.21±4.14	10.97±4.61	ISI scores and grading			
				Subthreshold Insomnia	Clinical Insomnia	Clinical Insomnia	
				Score 8-14	Moderate 15-21	Severe 22-28	
				24 (12.6%)	5 (2.6%)	2 (1.1%)	

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The prevalence of all these conditions were high among females, with only female staff found to be suffering from insomnia, while relation between gender and depression using Mann-Whitney U test was found to be statistically significant. The DASS-21 mean score was more in male than female as shown in Table 3.

Depression, anxiety, and insomnia were most common in the age group 30 – 39 years (18, 50%), 20 – 29 years (22, 56.4%) and 20 – 29 years (22, 70.9%) respectively. Stress was common in the age group 20 – 29 years and 30 – 39years, 11(45.8%) in each. Using the non-parametric one way ANOVA (Kruskal-Wallis H test) the relation between age and depression; and age and stress was statistically significant as shown in Table 4.

Table 3: Psychological symptoms and gender.

Diagnosis	Total	Gender				P value
		Male	Mean Score	Female	Mean Score	
Depression ≥ 10	36	13 (36.1%)	18.92±9	23 (63.9%)	12.61±3.49	0.010
Anxiety ≥ 8	39	14 (35.9%)	14.29±9.04	25 (64.1%)	11.76±4.01	0.539
Stress ≥ 15	24	10 (41.6%)	21.60±8.40	14 (58.4%)	17.71±2.33	0.286
Insomnia ISI score ≥8	31	0		31 (100%)	10.97±4.61	<0.01

Table 4: Age and psychological symptoms.

Diagnosis	Total	Age Group								P value
		20-29 years	Mean Score	30-39 years	Mean Score	40-49 years	Mean Score	50-59 years	Mean Score	
Depression ≥ 10	36	16 (44.4%)	12.25±4.12	18 (50%)	16.78±8.06	0	0	2 (5.6%)	19±1.41	0.014
Anxiety ≥ 8	39	22 (56.4%)	11.09±3.58	16 (41%)	14.50±8.56	0	0	1 (2.6%)	18	0.18
Stress ≥ 15	24	11 (45.8%)	16.91±1.37	11 (45.8%)	22.36±7.63	0	0	2 (8.4%)	16	0.025
Insomnia ISI score ≥8	31	22 (70.9%)	11.50±5.21	8 (25.9%)	9.63±2.61	1 (3.2%)	10	0	0	0.841

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Table 5: Working area and psychological symptoms.

Diagnosis	Total	Working area				P value
		Medical HCP	Mean score	Administrative HCP	Mean score	
Depression ≥ 10	36	27 (75%)	13.70±4.80	9 (25%)	18.44± 10.13	0.215
Anxiety ≥ 8	39	28 (71.7%)	12± 3.92	11 (28.3%)	14.36± 10.23	0.974
Stress ≥ 15	24	17 (70.8%)	18.35±2.93	7 (29.2%)	21.71± 9.96	1.000
Insomnia ISI score ≥8	31	31 (100%)	10.97±4.61	0		<0.01

All the psychological impacts were more common in medical personnel. Depression, anxiety and stress were 27 (75%), 28 (71.7%) and 17 (70.8%) respectively. Insomnia was present only in the medical personnel. Relations between depression, stress and anxiety within the working area was not significant (Mann-Whitney U test) as shown in Table 5.

The psychological symptoms were more common in participants living with family than living alone, but it was not statistically significant (Mann-Whitney U test) as shown in Table 6.

Table 6: Living condition and psychological symptoms.

Diagnosis	Total	Living condition				P value
		Alone	Mean score	Family	Mean Score	
Depression ≥ 10	36	12 (33.3%)	14.67±9.51	24 (66.7%)	15±5	0.147
Anxiety ≥ 8	39	10 (25.6%)	13.80±10.17	29 (74.5%)	12.28±4.46	0.895
Stress ≥ 15	24	5 (20.8%)	21.60±11.44	19 (79.2%)	18.74±3.6	0.732
Insomnia ISI score ≥8	31	8 (25.8%)	8.75±1.39	23 (74.2%)	11.74±5.10	0.117

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DISCUSSION

The study showed the overall prevalence of depression 18.9%, anxiety 20.5% and stress 12.6%, where mild, moderate, severe and extremely severe were respectively 10%, 6.3%, 1.5% and 1.1% for depression; 6.8%, 8.9%, 2.6% and 2.2% for anxiety; and 8.4%, 2.6%, 1.1% and 0.5% for stress.

The findings we reported are higher compared to prevalence of depression (4.2%) and anxiety (16.1%) in general population of Nepal (Risal et al., 2016) and by Tan BY et al (2020) where the prevalence of depression 8.9%, anxiety 14.5% and stress were 6.6%. But prevalence reported by Luo et al(2020) is even higher with depression 28% and anxiety 33%; and Ari Shechter et al(2020) with depression 48%, anxiety 33% and stress 57%; and Tu et al(2020) with 46% depression and 40% anxiety. This may be because these studies were done on the frontline HCPs. But a study done in India among ophthalmologists also showed higher prevalence of depression (32.6%) where 21.4% had mild; 6.9% had moderate and 4.3% had severe depression.(Khanna et al, 2020) However, our study is similar to general population based study by Huang et al(2020) where overall prevalence of depressive symptoms, anxiety and sleep quality were 20.1%, 35.1%, and 18.2%, respectively and by González-Sanguino et al(2020) where depression was in 18.7%, anxiety in 21.6% and stress symptoms in 15.8%.

The proportion of severity of symptoms were similar to the study by Chew et al(2020) who found 5.3% moderate to very-severe depression, 8.7% for moderate to extremely-severe anxiety, 2.2% for moderate to extremely-severe stress, Liu et al(2020) found prevalence of anxiety was 12.5% among healthcare workers, from mild (10.35%), moderate (1.36%) and severe (0.78%). Kang et al(2020) also found similar findings, 36.9% had subthreshold mental health disturbances, 34.4% had mild disturbances, 22.4% had moderate disturbances and 6.2% had severe disturbances.

In this study, 16.3% had insomnia. The subthreshold insomnia was present in 12.6%, moderate clinical insomnia 2.6% and severe clinical insomnia in 1.1%. This is similar to the prevalence of poor sleep quality (18.4%) found by Zhou et al(2020) but lower than that found by Tu et al (2020) and Zhang et al (2020a) which were 60% and 36.1% respectively.

Liang et al (2020) found that younger persons were experiencing clinically significant psychological symptoms than older persons which is similar to this study and also by Gambin et al (2020).

In this study the psychological reactions were more common in females than males, similar to the study by González-Sanguino et al (2020) and by Sofia Pappa et al (2020). This gender gap had also been previously shown by Albert (2015) and Bener et al (2012).

In this study though the prevalence of psychological symptoms were common among the medical staff compared to the nonmedical

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administrative staff, it was not statistically significant and insomnia was only seen in medical staff.

This is similar to the studies done by Lai et al (2020) who reported HCP were associated with statistically significant higher risk of symptoms of depression, anxiety, distress, and insomnia; Zhang et al (2020b) found higher prevalence of anxiety, depression and insomnia among HCPs, and Lu et al (2020) found that medical staff were likely to feet fear 1.4 times more and two times more likely to suffer anxiety and depression. In our study, a higher mean DASS- 21 score was seen among the nonmedical staff similar to the study by Tan et al. But Tan et al found higher prevalence of anxiety in non-medical HCP (Tan et al., 2020). Jing Qiet al (2020) and Jahrami et al (2020) found that frontline HCP had higher prevalence of sleep disturbances.

Considering the vulnerability of the HCP, WHO has issued 30 points of Mental health and psychosocial consideration during the COVID-19 outbreak on 18th March 2020 among which the 5 points from 7–11 are for HCP (WHO, 2020a).

Even in the hospitals which are not directly involved in the management of COVID-19 patients, like MEH, the reporting information about the psychological reaction of HCP is essential to plan future prevention strategies to promote mental well-being in this pandemic and beyond.

CONCLUSION

The staff of MEH had a greater prevalence of psychological reaction than the national baseline at the COVID-19 pandemic. The psychological reaction was more common in females, younger age groups and the medical staff of MEH. The hospital should proactively implement appropriate psychological intervention programmes, to prevent, alleviate or treat increased psychological symptoms of the staff.

Limitation

This study is a hospital-based study so may not be generalized; and was done during the early mid phase of COVID-19 pandemic, when the scientific knowledge about its transmission and treatment was still evolving, so the results may be overestimated. The socioeconomic status was not assessed, where staff faced salary cut-down. Also, the study was self-selected and done electronically and not by the examiner, so there may be confusion or difficulty in understanding the questions, and chance of selection bias.

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