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Psychological Distress and Quality of Sleep among Urban Community People during COVID-19 Pandemic

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ABSTRACT

Introduction: Corona Virus Disease (COVID-19) had spread all over the world resulting in a large number of deaths. As COVID-19 is highly contagious and directly threatens life, it has caused high level of distress around the globe and impacts quality of sleep as well. This study aimed to analyse psychological distress and quality of sleep during COVID-19pandemic among community people.
Methods: A cross-sectional analytical study was conducted to find out psychological distress and sleep quality among 360 community people residing in Lalitpur, Nepal during COVID-19 pandemic from May to June 2021. Proportionate stratified and snowball sampling techniques were used to select the sample from each stratum. Data were collected through telephone interview using K6 Psychological Distress Scale and sleep quality scale. Data were analysed using descriptive and inferential statistics.
Results: Moderate to high psychological distress was found among 40% and 79.7% had good to excellent sleep. Gender and marital status had significant association with distress and history of COVID-19 had significant association with sleep quality at 95% of significance level (p-value=.00, .00, .00) respectively. Psychological distress and sleep quality had significant negative relationship (r=-.46, p=.00).
Conclusion: Based on the findings of this study, it can be concluded that urban community people had low distress and most of the respondents had good sleep quality. Gender, marital status and history of COVID-19 were associated with distress level and sleep quality. Negative relationship between distress level and sleep quality suggests that there is a need to take consideration of distress level of community people so that their sleep quality can be promoted.

Keyword: Community, COVID-19 pandemic, Nepal, Psychological distress, Sleep quality

INTRODUCTION

Corona Virus Disease (COVID-19) was first reported in Wuhan, China in December 2019and had spread all over the world resulting in a large number of hospitalizations and deaths [1]. Apart from the evident physical symptoms in covid-19 infected cases, it has caused serious damage to public mental health. [2] As COVID-19 is highly contagious, devastating and uncertainty of eradication, the long term consequences of this pandemic situation on mental health and well being at personal and population level are manifold. [3] For instance, cognitive distress, psychological distress, anxiety and fear in the society [4]. Psychological distress is defined as broader manifestation of mental health related problems that are characterized by depression and anxiety symptoms and known to continue to show severity with stress related concerns. [5] High levels of

psychological distress are indicative of impaired mental health of the population. [6]

As of August 18, 2021, the total case of COVID-19 was208,773,256 with 4,384,989 deaths worldwide and 739907 total cases with 10,396 deaths in Nepal [7] where the first death of COVID-19 patient was on March 28, 2020 [8]. Covid-19 pandemic is still evolving in Nepal. [7] First case was detected in January 23 [8] which created unprecedented health and economic impact. Individuals or communities experience mental instability along with social and economic losses which might precipitate as mental stress, anxiety and depression. [9] As COVID-19 is a disease that directly threatens life and concerns of getting infected, sleep disorders were reported in the general population[10]. Heightened level of anxiety and its related conditions during covid-19 pandemic have been equally as infectious as the corona virus itself which impacts quality of sleep as well. [11, 12]

An online based cross-sectional survey conducted among 7,236 participants during COVID-19 outbreak in China showed that the overall prevalence of generalized anxiety disorder (GAD) was 35.1% and poor sleep quality was 18.2%. Young people aged< 35 years reported a significantly higher prevalence of GAD symptoms than older people. Healthcare workers were more likely to have poor sleep quality than other professionals. [13]Another study conducted among 1242 residents of Wuhan China during covid-19 pandemic showed that 27.5% had anxiety, 29.3% had depression and 30% had sleep disorder. [14]Another online cross-sectional study among 1,427 respondents regarding the impact of COVID-19 pandemic on the mental health of the adult population in Bangladesh showed the prevalence of anxiety symptoms was 33.7%. [15]

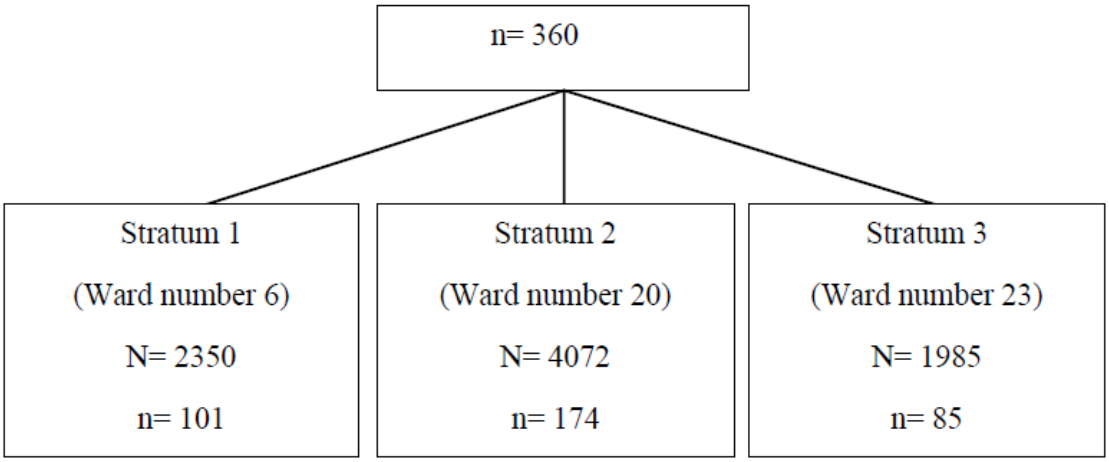
Similarly, in Nepal among 349 participants, 34.1% showed depression and 31.2% showed anxiety and the distress level was higher among female and health care professionals. population.[16]Another study conducted in all 7 provinces of Nepal on psychological distress in Nepalese residents during covid-19 pandemic: a community level survey among 410 participants showed 11% had mild to moderate distress and 0.5% had severe distress.[9]

Poor sleep leads to impairment in attention and memory, increases irritability and emotional instability which leads to anxiety, depression and even suicide. [17] These problems should be addressed quickly and properly and attention must be paid on time in order to overcome and or prevent these problems. Therefore, the aim of the study was to analyze psychological distress, quality of sleep and their associated factors during COVID-19pandemic among urban community people.

MATERIALS AND METHODS

This was a cross-sectional analytical study carried out among 360 community people residing in three wards (ward 6, 20, and 23) of Lalitpur Metropolitan City, Nepal during COVID-19 pandemic. The sample size was calculated using Cochran formula. These three wards consisted total number of 8407 permanent residents 18 to 60 years of age. All those residents were the study population. Proportionate stratified sampling technique was used to select the sample from each stratum. Snowball sampling technique was used to select the sample until the sample size was achieved from May 2021 to June 2021. Permanent residents of aged 18 to 60 years in Ward no. 6, 20 and 23 of Lalitpur Metropolitan City who were willing to participate in the study were included in the study. Permanent residents whose telephone number was not available and who reported that they were diagnosed as depression, anxiety or other mood disorders and on medication for the specific problem were excluded.

The sample size was calculated 360 out of 8407



Data collection instruments

Data collection instrument used for this study was consisted of three parts:

Part-I consisted of self developed structured questionnaire to assess socio-demographic characteristics that included age, gender, educational status, occupation, marital status, and history of covid-19 positive (self/family member).

Part-II consisted of Kessler 6 (K6) Psychological Distress Scale. [18] The Kessler 6 (K6) Psychological Distress Scale is the brief anxiety and depression screening scale which consists of 6 items. It is a standardized validated tool for non-specific psychological distress. Nepali version scale was used to measure psychological distress among community people. The Cronbach's alpha coefficient for Nepali version is .81. [19] K6 is a 5-point Likert scale ranging from 0 (never) to 4 (always) to establish how often an individual has experienced psychological distress over the previous 30 days. Total score ranges from 0 to 24. The cut off score of 5 or less than 5 was taken as no distress, 6-13 as moderate distress and >13 as severe distress. [20]

Part-III consisted of a single-item sleep quality scale (SQS), [21] was developed as a simple and practicable sleep quality assessment tool. Test re-tests reliability coefficients of the Sleep Quality Scale was 0.91. Intra-class correlation coefficient (ICC) for test-retest reliability was .81. Single item sleep quality scale was used to assess the sleep quality. It is an 11 point rating scale where 0 indicates terrible sleep and 10 indicates excellent sleep. The score was categorized as: 0 = terrible sleep, 1–3 = poor sleep, 4–6 = fair sleep, 7–9 = good sleep and 10 = excellent sleep. Face validity of the translated version of Nepali language tool was maintained. [22]

Data were collected through telephone interview. Initial participants' phone number was obtained from the chair of each ward. After that each participant was asked to tell another person's phone number whom they know. It took about 10 minutes to complete the interview. The respondents' right was protected by obtaining informed verbal consent by using PAHS Generic Form after explaining about the study, before collecting the data. Data was collected by the Principal Investigator.

Ethical approval was obtained from Institutional Review Committee (IRC), PAHS before conducting the study (IRC approval number Ref: nrs2105071520). Privacy of the participants was assured and the phone number used to conduct the interview was not shared to anyone for any other purposes. Confidentiality of the respondents was maintained by coding and decoding and explaining the participants as the obtained data was used only for study purpose. Anonymity of the respondents was assured by not writing participants' name on the questionnaires and by keeping the collected information confidential in locked file in the computer in a cupboard.

Statistical analysis:

Data cleaning and analysis was done using Statistical Package of Social Sciences (SPPS) software version 16. Descriptive statistics was used to describe the sample characteristics and prevalence of psychological distress and sleep quality. For analyzing the association between socio-demographic factors and psychological distress as well as quality of sleep, inferential statistics (chi-square) was used. P-value was set at 0.05. To analyze the correlation between psychological distress and quality of sleep during COVID-19 pandemic, Pearson correlation was used. Correlation is significant at the 0.01 level (2-tailed).

RESULTS

Table 1: Socio-demographic information of respondents, N=360

Characteristics	Frequency	Percentage
Age in completed years		
Below 20	20	5.5
20-29	69	19.2
30-39	63	17.5
40-49	90	25.0
50-59	118	32.8
Mean age ± SD: 40.72 ±12.27		
Gender		
Male	159	44.2
Female	201	55.8
Education		
Illiterate	18	5
Can read and write	16	16.9
Primary education	42	11.7
Secondary education	106	29.4
Bachelor	97	26.9
Above Bachelor	36	10
Marital Status		
Unmarried	93	25.8
Married	258	71.7
Widow/Widower	9	2.5
Occupation		
Service	90	25
Business	119	33.1
Home maker	81	22.5
Labor	6	1.7
Agriculture	4	1.1
Students	47	13.1
Others (Social worker)	13	3.6
Health professional		
Yes	20	5.6
No	340	94.4
History of COVID-19 in family		
Yes	125	34.7
No	235	65.3
If yes, Affected person (n=125)		
Self	58	46.4
Family member	67	53.6

Table 2: Level of psychological distress, N=360

Characteristics	Frequency	Percentage
No or low distress (0-5)	216	60.0
Moderate distress (6-13)	127	35.3
High distress (14-24)	17	4.7
Mean score ± SD: 4.62±4.26		

Table 3: Level of sleep quality, N=360

Characteristics	Frequency	Percentage
Poor sleep	5	1.4
Fair sleep	68	18.9
Good sleep	216	60.0
Excellent sleep	71	19.7
Mean score ± SD: 7.87 ±1.68		

Table 4: Association between socio-demographic variables and psychological distress, N=360

Factors	Level of Psychological distress			
	No distress	Distress	$\chi 2$	p-value
Age				
<40 years	86(39.8%)	66(45.8%)	1.28	.25
40 years and above	130(60.2%)	78(54.2%)		
Gender				
Male	105(66.0%)	54(34.0%)	11.828	.00
Female	111(55.2%)	90(44.8%)		
Education				
Illiterate and can read and write only	47(59.4%)	32(40.5%)	.011	.91
Primary education and above	169(60.1%)	112(39.9%)		
Marital status				
Unmarried	45(48.4%)	48(51.6%)	7.046	.00
Married	171(64.0%)	96(36.0%)		
Health professional				
Yes	15(75.0%)	5(25.0%)	1.985	.15
No	201(59.1%)	139(40.9%)		
History of COVID-19				
Yes	74(59.2%)	51(40.8%)	.015	.82
No	142(60.0%)	93(39.6%)		

Note: Chi square test: Significant ($p<0.05$ at 95% confidence level)

The mean age of the participants was 40.72±12.27 years and about 56% were female and 72% were married. However, only 5.6% were health care professionals and 35% had history of COVID-19 in the family (Table 1). Regarding the level of psychological distress, 60% of the participants did not have distress (Table 2) and about 80% had good to excellent sleep (Table 3). Regarding the factors associated with psychological distress, gender had significant association with psychological distress where 45% female had psychological distress than 34% male with p-value .00 and unmarried people showed higher distress with p-value .00 (Table 4). In addition, history of COVID-19 had significant association with sleep quality

with p-value .00 (Table 5). Psychological distress and sleep quality had significant negative relationship (r=-.46, p=.00). It means the community people, who had high level of psychological distress, had poor sleep quality (Table 6).

Table 5: Association between socio-demographic variables and quality of sleep, N=360

Factors	Quality of sleep			
	Poor to fair sleep	Good to excellent sleep	$\chi 2$	p-value
Age				
<40 years	33(45.2%)	119(41.5%)	.33	.56
40 years and above	40(54.8%)	168(58.5%)		
Gender				
Male	35(47.9%)	124(43.2%)	.53	.46
Female	38(52.1%)	163(56.8%)		
Education				
Illiterate and can read and write only	15(20.5%)	64(22.3%)	.10	.74
Primary education and above	58(79.5%)	223(77.3%)		
Marital status				
Unmarried	22(30.1%)	71(24.7%)	.88	.34
Married	51(69.9%)	216(75.3%)		
Health Professional				
Yes	2(2.7%)	18(6.3%)	1.38	.23
No	71(97.3%)	269(93.7%)		
History of COVID-19				
Yes	35(47.9%)	90(31.4%)	7.06	.00
No	38(52.1%)	197(68.6%)		

Note: Chi square test: Significant (p<0.05 at 95% confidence level)

Table 6: Correlation between psychological distress and sleep quality, N=360

Variables	Psychological distress	Sleep quality	p-value
Psychological distress	1		.000
Sleep Quality	-.468	1	

Note: Correlation is significant at the 0.01 level (2-tailed).

DISCUSSION

This study aimed to find out the psychological distress and quality of sleep during COVID-19 pandemic among community people.

Regarding the level of psychological distress, three fifth (60%) of the respondents had no or low psychological distress followed by more than one third (35.3%) had moderate distress and only about 5% had high level of psychological distress. The mean score of distress was 4.26 which fall on no or low distress. However, it is on the lower borderline for moderate distress. The data collection period was during national level lock down which might be associated with the lower level of distress as during this period all the respondents were not supposed to go outside and living with their family member at home. This study finding was similar to a study conducted among 7,236 Chinese public during COVID-19 outbreak in China that showed 35.1% overall prevalence of generalized anxiety disorder (GAD). [13] This study finding was higher in compared to a study conducted in China among 56,679 general populations during COVID-19 pandemic where anxiety was found among 31.6%.[23] Another cross-sectional study conducted among 1242 residents of Wuhan, China revealed that 27.5% of the respondents had anxiety. [14]

In our study, three fifth of the respondents (60%) had good sleep followed by one fifth (19.7%) had excellent sleep and one fifth (20.3%) of the respondents had poor sleep, the mean score of sleep quality was 7.87 which falls on good sleep category. About 20% of respondents had poor sleep in this study is similar to the study finding conducted among 7,236 Chinese public during COVID-19 outbreak in China that showed 18.2% of poor sleep quality. Another cross-sectional study conducted among 1242 residents of Wuhan, China found 30% of the respondents had sleep disorder. [14] A cross-sectional study conducted among 269 medical students at KIST medical college teaching hospital, Nepal showed higher results as 36.4% of the respondents had poor quality of sleep.[24]This study finding was contrasted to a study conducted among adults in Turkey during covid-19 positive which showed the prevalence of poor sleep quality was 55.1%.[25]An another study conducted in Kathmandu valley Nepal among 504 college students showed contrasted finding that 59.1% of the respondents had poor quality of sleep.[26]Another study conducted among employees of a nursing campus and their spouses in Lalitpur Nepal also showed contrasted finding that 39.1% had got poor quality of sleep. [27]

Regarding the factors associated with psychological distress, gender had significant association with psychological distress where 45% female had psychological distress than 34% male and unmarried people showed higher distress at 95% of significance level ($p<0.05$). In this study, there was no significant association of age, education, health profession and history of COVID-19 of the respondents with psychological distress at 95% of significance level ($p>0.05$). This study finding was contrasted to a study conducted among 7,236 Chinese public during covid-19 outbreak in China showed that there was statistically significant association of age and health profession with the psychological distress. [13]

Our study finding showed that there was no significant association of age, gender, education, marital status and health profession with quality of sleep during covid-19 pandemic at 95% of significance level ($p>0.05$). A study conducted among employees of a nursing campus and their spouses in Lalitpur Nepal also showed similar findings as there was no significant association of age, gender and status of respondents with quality of sleep [27] There was a statistically significant association of history of covid-19 of the respondents with the quality of sleep at 95% of significance level ($p<0.05$). This study finding is contrasted to the finding of cross-sectional study conducted among 1242 residents of Wuhan, China which found being female was the risk factor for sleep disorder (OR=1.36). [14]Another study conducted among 504 students in Kathmandu valley revealed that there was slightly difference between male and female respondents i.e. 55.21% of male and 65.78% of female had poor sleep quality. [26]

The present study revealed that the psychological distress had negative correlation ($r= -.46$) ($p= .00$) with quality of sleep meaning that the community people, who had high level of psychological distress, had poor sleep quality.

We recruited community people of urban community who were permanent residents only. Thus, the findings of this study might not be generalized to other people who are not permanent residents. The low level of the distress might be associated with this factor as they had their own residence in the capital city of Nepal. Also, the telephone interview might be associated with response bias as researcher could not relate the answer of the respondents they provided.

CONCLUSION

Based on the findings of this study, it can be concluded that the distress level of community people during COVID-19 pandemic was not high and most of the respondent's quality of sleep was good. However, psychological distress and sleep quality was different according to gender, marital status and previous history of COVID-19. In addition, psychological distress and sleep quality was significantly negatively correlated suggesting that there is a need to reduce the level of psychological distress using psychosocial measures to have a good quality sleep of community people.

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Author Contribution

SLB concept, design, data collection, data analysis, wrote manuscript,
BP concept, design, data analysis, wrote manuscript

Both authors read and approve the final draft.

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