

An online survey of factors associated with self-perceived stress during the initial stage of the COVID-19 outbreak in Nepal

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Abstract

Background: The novel coronavirus (COVID-19) is global challenge humankind has ever witnessed in recent times. After its outbreak in late December in Wuhan China, it has expanded to affect the entire world. In as much as it is a new disease, there is dearth of evidence.

Aim: The aim of this study is to find and assess the factors associated with self-perceived stress during the COVID-19 outbreak in Nepal.

Method: We evaluated 374 respondents from an online survey, using the Sheldon Cohen Perceived Stress Scale, to assess stress levels during the COVID-19 outbreak in Nepal.

Results: Nearly three-quarters of the respondents rated their self-perceived stress as moderate to high, and about one quarter reported to have low self-perceived stress. Age and employment status were associated with a greater psychological impact of the outbreak.

Conclusions: There is a need to carry out psychological intervention activities through various mediums to help people become more resilient during the COVID-19 epidemic. [*Ethiop. J. Health Dev.* 2020; 34(2):84-89]

Keywords: COVID-19, psychological response, stress, Nepal

Introduction

The novel coronavirus (COVID-19), first detected in late December in Wuhan China, is one of the largest outbreaks of an infectious disease in recent years, and has overtaken the number of cases and deaths caused by SARS(1-3). As the number of cases began to escalate across the globe, on 30 January 2020 the World Health Organization (WHO) declared the outbreak a public health emergency of international concern (4). At the time of writing, it has spread to 207 countries or territories and caused 56,985 deaths (5). WHO declared the outbreak a pandemic on 11 March 2020 (6). According to WHO, the case fatality rate is around 2%. However, some reports suggest the rate ranges from 0.3% to 0.6% (7).

The first case of COVID-19 in Nepal was seen on 24 January 2020, with a long gap until the second case on 23 March 2020 (8-9). The following day, the government of Nepal imposed a lockdown to halt the spread of the virus(10). By 05 April 2020, nine people had been infected. Nepal is currently in the second stage of transmission, as locally transmitted cases have been detected (11). Since the beginning of the lockdown, the majority of people have stayed at home and self-isolated to protect themselves from transmitting and contracting the virus (12).

Previous research has revealed a profound and wide range of psychosocial impact at the individual, community, and international levels during outbreaks of infection, including the impact on individual wellbeing (13-15). A study carried out in a community that was not infected during the SARS outbreak suggested non-infected communities had a higher risk of psychiatric morbidities associated with those at a younger age (16). In addition, older people, females

and highly educated people were more likely to take measures to be free from stress (17).

Nepal has been prone to various disasters and epidemics in recent times. For example, an earthquake measuring 7.8 on the Richter scale hit Kathmandu on 25 April 2015. A study showed that in addition to the 8,702 people who lost their lives and 22,493 who were severely injured, the earthquake had economic, social and psychological impacts. In terms of the psychological impact, the study showed that the age, educational status and sex of the individual were associated with self-perceived stress (18).

At present, there is lack of information regarding the psychological impact on the general population caused by the COVID-19 outbreak, although it is reasonable to assume that people are panicked, concerned and fearful. Accordingly, research is needed to know the status of people's mental health (19). Most current research into COVID-19 is focused on the epidemiological and clinical aspects (15,20). This study aims to provide insights into the psychological impact of COVID-19, and may be of use to help the government, relevant agencies and health care professionals safeguard the psychological wellbeing of the community.

Methods

Objective of the study: The main objective of this study was to find the factors associated with self-perceived stress during the initial phase of COVID-19 outbreak in Nepal. The specific objectives were to identify the socio demographic characteristics of the study population and socio-demographic factors associated with self-perceived stress during the COVID-19 outbreak in Nepal.

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Setting and participants: A cross-sectional study design was conducted to assess the self-perceived stress response during the outbreak of COVID-19 by using an anonymous online questionnaire. A convenience sampling technique was used. Sample size was estimated at 385, using the formula:

$$\text{Sample size} = \frac{z^2 \times p(1-p)}{e^2} \div \left(1 + \left(\frac{z^2 \times p(1-p)}{e^2 N} \right) \right)$$

In total, 374 participants completed the study; 11 failed to complete it. The study participants were people living in seven provinces of Nepal during the outbreak of COVID-19.

Procedure: Potential respondents were invited electronically to participate in this survey after the government of Nepal announced the lockdown and recommended minimum face-to-face interaction, and for people to self-isolate themselves at home. An online study was conducted, as it was not feasible to conduct a community-based study. The questionnaire was forwarded to the respondents by creating a Google form and sharing it through social media. All the respondents were asked for the consent to participate in the study. Data collection took place over four days (01–04 April 2020).

Survey development: The structured questionnaire consisted of questions that covered: (1) socio-demographic data; and (2) Cohen Perceived Stress Scale (CPSS-10). The questionnaire was translated into the Nepali language with the help of public health experts from Nepal.

Socio-demographic data were collected on gender, age, education, corresponding residence during the past 14 days, marital status, employment status, and household size. The self-perception of stress was assessed using the CPSS-10(21). Responses were recorded as “Never”, “Almost Never”, “Sometimes”, “Fairly Often” and “Very Often” using the values 0,1,2,3 and 4 respectively, and scores were obtained by reversing responses to the four positively stated items. The total score was divided into three categories: low stress (0-13), moderate stress (14-26) and high perceived stress (27-40) (22).

Statistical analysis: Statistical analysis was performed using Statistical Package for Social Science 22.0 (SPSS 22.0). Descriptive statistics were calculated for socio-demographic characteristics. Scores of low, medium and high self-perceived stress were calculated using CPSS-10. Logistic regression was used to calculate the associations between socio-demographic characteristics and the self-perceived stress test. The level of significance level was identified at a 95% confidence interval (CI) as $p < 0.05$.

Results

Socio-demographic characteristics: The socio-demographic characteristics of the respondents are presented in Table 1. The total number of respondents in our study was 374. The majority of respondents were from Bagmati Province (50.8%), aged 30 and below (84.2%), female (52.1%), had completed a bachelor’s degree (63.1%), were employed (48.7%), single (74.9%), and had a household size of five or more (53.5%). Table 2 shows the psychological responses of the respondents during the lockdown period announced by the government of Nepal. Of the total respondents, 76.7% had moderate stress, 17.9% had low stress, and 5.3% had high stress.

Table 1: Socio-demographic characteristics of study population

| Variable | Frequency | % |
|----------------------------------|-----------|------|
| Residence | | |
| Province 1 | 34 | 9.1 |
| Province 2 | 13 | 3.5 |
| Bagmati Province | 190 | 50.8 |
| Gandaki Province | 31 | 8.3 |
| Province 5 | 66 | 17.6 |
| Karnali Province | 20 | 5.3 |
| Sudurpaschim Province | 20 | 5.3 |
| Age | | |
| Less than 30 | 315 | 84.2 |
| More than or equal to 30 | 59 | 15.8 |
| Gender | | |
| Male | 179 | 47.9 |
| Female | 195 | 52.1 |
| Education | | |
| No education | 1 | 0.3 |
| Primary | 2 | 0.5 |
| Secondary | 7 | 1.9 |
| Intermediate | 45 | 12 |
| Bachelor's | 236 | 63.1 |
| Master's degree or above | 83 | 22.2 |
| Employment status | | |
| Unemployed | 47 | 12.6 |
| Employed | 182 | 48.7 |
| Student | 145 | 38.8 |
| Marital Status | | |
| Single | 280 | 74.9 |
| Married | 94 | 25.1 |
| Family type | | |
| Nuclear | 174 | 46.5 |
| Non-nuclear | 200 | 53.5 |
| Self-perception of stress | | |
| Low | 67 | 17.9 |
| Moderate | 287 | 76.7 |
| High | 20 | 5.3 |

Factors associated with self-perceived stress: Table 2 shows the association between general characteristics and self-perceived stress. The study showed the significant association between self-perceived stress and age (OR=2.383, 95% CI = 1.226-4.486, $p < 0.007$). Participants aged less than 30 were 2.383 times more likely to have self-perceived stress than those aged 30 and above. Moreover, a significant association was found between employment status and self-perceived stress. Unemployed participants (OR=0.647, 95% CI =

0.260-1.614, $p < 0.032$) were 0.647 times less likely to have self-perceived stress, and employed participants (OR=0.443, 95% CI = 0.240-0.817, $p < 0.032$) were 0.443 times less likely to perceive stress, than students. However, other general characteristics – including gender (p -value=0.184), education (p -value=0.148), marital status (p -value=0.057), family type (p -value=0.557) and place of residence (p -value=0.099) – were not statistically associated with self-perceived stress.

Table 2: Association between stress and socio-demographic variables

| Variable | Self-perception of stress | | OR (95% CI) | P-value |
|---------------------------|---------------------------|------------------|---------------------|---------------|
| | Low | Moderate or high | | |
| Age | | | | |
| Less than 30 | 49 (15.6%) | 266 (84.4%) | 2.383 (1.226-4.486) | 0.007* |
| More than or equal to 30 | 18 (30.5%) | 41 (69.5%) | 1 | |
| Gender | | | | |
| Male | 37 (20.7%) | 142 (79.3%) | 0.698 (0.410-1.187) | 0.184 |
| Female | 30 (15.4%) | 165 (84.6%) | 1 | |
| Education | | | | |
| Low | 6 (10.9%) | 49 (89.1%) | 1.931 (0.791-4.714) | 0.148 |
| High | 61 (19.1%) | 258 (80.9%) | 1 | |
| Employment status | | | | |
| Unemployed | 8 (17.0%) | 39 (83.0%) | 0.647 (0.260-1.614) | 0.032* |
| Employed | 42 (23.1%) | 140 (76.9%) | 0.443 (0.240-0.817) | |
| Student | 17 (11.7%) | 128 (88.3%) | 1 | |
| Marital status | | | | |
| Single | 44 (15.7%) | 236 (84.3%) | 1.738 (0.983-3.072) | 0.057 |
| Married | 23 (24.5%) | 71 (75.5%) | 1 | |
| Family type | | | | |
| Nuclear | 29 (16.7%) | 145 (83.3%) | 1.173 (0.688-1.998) | 0.557 |
| Non-Nuclear | 38 (19%) | 162 (81.0%) | 1 | |
| Place of residence | | | | |
| Rural | 11 (27.5%) | 29 (72.5%) | 0.531 (0.251-1.125) | 0.099 |
| Urban | 56 (16.8%) | 278 (82.2%) | 1 | |

P<0.05 significant at 95% confidence level

Discussion

This study shows the self-perceived stress among the survey respondents from 01–04 April 2020 as follows: 76.7% reported to have moderate self-perception of

stress after the outbreak; 5.3% reported high stress; and 17.9% reported low stress.

In this study, participants under 30 years of age had a

higher probability of having moderate or high levels of stress. The study also showed that students were more likely to show self-perceived stress levels that were moderate to high compared with employed and unemployed people. The study also showed gender, education, marital status, family size and place of residence did not impact on self-perceived stress levels.

As the stress level of people is likely to increase as the number of lockdown days increases, it is very important to start a psychological support strategy (14,22). As the study suggests, all groups are equally vulnerable to be affected psychologically. Accordingly, the responsible authorities need to develop psychological support guidelines. Based on previous studies and our study, the health system of Nepal should be prepared and take psychological factors into consideration after the epidemic, and mental health should be a key focus priority. Moreover, the key risk groups for psychological stress should be identified based on the socio-demographic information and vulnerable groups should be given a higher priority (14,23).

Our study suggests that students were found to have higher levels of stress compared with employed or unemployed respondents. Schools, colleges and universities were closed due to the government lockdown in Nepal. This result is similar to the study conducted in Nepal during the earthquake in Nepal (17). The majority of students' final exams have been postponed until further notice. The uncertain academic progression could have had a negative impact. So, online education portals could be developed to keep students engaged in teaching learning activities (24). Various methods of traditional practices, such as yoga, could also be promoted so that people can reduce their stress levels and be mentally alert (25).

First, health authorities need to identify the immediate psychological needs of the general population presenting with physical symptoms during the epidemic. Our results reveal that the majority of the study population had moderate levels of self-perceived stress. Hence, health care providers should provide psychological support to those who come to health care facilities during this time for their support.

Second, the government authorities who are responsible for providing information related to COVID should disseminate it accurately so that the general populations are not panicked unnecessarily. As television, internet and radio are the best sources of information, the designated authorities should try to limit the impact of health misinformation and thereby reduce stress levels (26).

Third, most of the population in this study was unable to leave their house due to lockdown. Simple behavior therapy, such as exercise and promoting traditional yoga practices, might release stress, while indoor entertainment, such as indoor games, could help to counteract depression and anxiety. Psychological

intervention activities, such as phone calls, internet videos and social media messaging, could also contribute to improving mental health and developing psychological resilience during the COVID-19 epidemic (25).

Limitations of the study

There were several limitations of the study. As this was an online survey, it did not include the digitally illiterate population of Nepal. This study might also have had oversampling of a particular group of people, which might have led to selection bias. The actual generalization of the general population might not be reflected in the study. However, despite all the limitations, this study provides information on psychological responses during the early stages of COVID-19 cases seen in Nepal across its seven provinces. Notably, this study will work as the baseline for the interventions that could be provided during the remaining stages of the disease spread, which is still ongoing.

Conclusions

Nearly three quarters of the respondents rated their self-perceived stress as moderate to high, and about one quarter reported having low self-perceived stress. Age and employment status were associated with a greater psychological impact of the outbreak. As seen from the study, there is a need to formulate psychological interventions. Psychological intervention activities should be carried out through phone calls, internet videos, developing in-home healthy behaviors and social media messaging to improve mental health and psychological resilience during the COVID-19 epidemic.

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