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Socio-psychological behavior on COVID-19 patients from neighbors during home isolation in Kathmandu Valley-a cross-sectional study

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Abstract

Background Coronavirus is a large family of viruses that cause illnesses ranging from the common cold to severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). Coronavirus related to the RNA virus is mainly transmitted through droplet nuclei from infected persons cough, sneeze, etc. It aims to assess the socio-psychological behaviors of COVID-19 patients from neighbors during home isolation.

Methods A cross-sectional study in Kathmandu Valley assessed the socio-psychological behavior of neighbors toward COVID-19 patients in home isolation. Validated questionnaires collected data from randomly selected respondents. Descriptive and inferential analyses were conducted, with $P < 0.05$ considered significant.

Result The study included 422 respondents (54% male, 46% female), with most aged 36–45 years (38.6%), and followed by 46–55 years (21.1%). The most belonged to the middle class (39.8%) or poor economic status (38.6%). Regarding COVID-19, 66.4% of respondents' neighbors were known of their infection, with 49.8% avoiding them, 42.4% ignoring them, and 36.6% maintaining social distance. Furthermore, 60.2% of respondents faced protests to leave home isolation and go to a government isolation center, and 69.2% reported had not received support from neighbors. Among the 30.8% who received support, primarily emotional (55.4%), followed by financial and medical support (18.5% each). Neighbor behavior significantly impacted respondents' psychological well-being, with 27% experiencing depression, 21.3% anxiety, and 19.5% stress. A statistically significant association was observed between neighbor behavior and psychological effects, with a p-value of 0.023 ($p < 0.05$).

Conclusion The majority of respondents experienced depression, anxiety, and stress due to their neighbor's ignorance, social distancing, and avoidance behavior. The psychological effects were significantly associated with neighbor's behaviors and home isolation strategy.

Keywords COVID-19, Home isolation, Neighbor's behaviors, Psychological impact

Introduction

Coronavirus is a large family of viruses known to cause illnesses ranging from the common cold to more severe diseases such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS) [1]. COVID-19 is an infectious disease related to Ribonucleic Acid (RNA) viruses that are mainly transmitted through droplets generated when an infected person coughs, sneezes, or exhales [2, 3]. COVID-19 has been reported that the disease appeared

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to have originated in Wuhan, China, and a fatal outbreak worldwide at the end of 2020 [4, 5].

The main clinical manifestations are fever, pharyngalgia, fatigue, diarrhea, and coagulation. In comorbidities, the patient's main symptoms were breathlessness, Acute Respiratory Distress Syndrome (ARDS), septic shock, depression and anxiety, and panic symptoms [6, 7]. WHO declared COVID-19 a pandemic, prompting the Government of Nepal to implement measures like border closures and a nationwide lockdown [8]. Nepal's Ministry of Health and Population (MoHP) also developed guidelines for managing COVID-19 cases, categorizing patients based on symptomatic and asymptomatic conditions into mild, moderate, severe, and critical cases [9, 10].

The COVID-19 pandemic and lockdown have brought about psychological and mental health implications like fear, depression and anxiety around the globe [11]. During the pandemic, COVID-19 patients encountered a myriad of psychological challenges stemming from job uncertainty, financial strain, and mental health issues, primarily due to social distancing, isolation, and quarantine measures. The most prevalent psychological conditions included fear, denial, generalized anxiety, dissociation, panic reactions, social distress, and depression etc [7].

A study conducted in Province 1, Nepal, revealed a high prevalence of mental health issues among home-isolated COVID-19 patients. The findings showed that 41% experiencing anxiety, 52.3% had borderline depression, and 25% suffered from severe depression, primarily due to social isolation and fear of worsening conditions [12]. The pandemic led to increased social isolation and a breakdown of social connections revealed that faced stigma and discrimination, creating challenges in reintegration into society [12–14].

Healthcare providers should focus on mental health support through telehealth, and community programs in post-pandemic as well as policymakers must ensure affordable mental health care, enhance digital access, and prioritize their needs in emergency plans [15].

The COVID-19 pandemic significantly affected both physical health and social behaviors, leading to psychological challenges. Home isolation has been a key strategy to curb transmission and control infections. Understanding neighbors' behavior towards isolated individuals is critical to addressing psychological challenges, promoting empathy, and ensuring community support. This study helps to identify barriers and develop interventions for a supportive environment during public health crises. The objective of the study is to assess socio-psychological behavior, difficulties, and the association between neighbor's behaviors and the psychological effects of COVID-19 during home isolation.

Method

Study design

A cross-sectional study design was used to study the socio-psychological behavior of COVID-19 patients from neighbors during home isolation in Kathmandu Valley. The duration of the study was 6 months.

Study population

The inclusion criteria were respondents with COVID-19 positive and stayed in home isolation. Excluded hospitalized patients and those who stayed in Government isolation centers.

Sample size

The sample size was calculated by the formula.

$$n = z^2 pq \div d^2$$

Where, Z-statistic for a level of confidence (1.96 for 95% confidence level).

P-Expected prevalence or proportion (50%) [16].

{Note: Due to the lack of concrete data specific to the Nepalese context, we used a 50% prevalence rate for sample size calculation.}

d- Margin of error.

Total sample size (n) = 422 was calculated after adding a 10% non-response rate.

The sample size was selected by using a simple random sampling method.

Data collection tool and technique

We obtained the patient register from respected departments like government offices i.e. Department of Health Service, National Public Health Laboratory, and District Health Offices of Kathmandu Valley. The register contained detailed information on demographic parameters, the date of COVID-19 diagnosis, and the date of recovery. Participants were randomly assigned using Excel.

Researchers collected data through face-to-face interviews and phone calls. Approximately one-third of the participants were interviewed face to face through visits to their homes or healthcare settings, while the rest were interviewed via phone, with data collection forms sent by email.

The questionnaire was designed and classified into socio-demographic, socio-psychological, and psychological sections. The initial tool was developed in English and subsequently translated into Nepali for data collection purposes. The data collection tool was included in supplementary materials as *S5*. Depression and anxiety levels

were assessed using the Patient Health Questionnaire-9 (PHQ-9) and Generalized Anxiety Disorder-7 (GAD-7), respectively based on self-report.

Validity and reliability of study tools

The validity of the data collection tool was established through a literature review, relevant guidelines, and input from subject matter experts and supervisors. The tool was pretested on 10% of the sample, and Cronbach's alpha was calculated to assess internal consistency. The resulting Cronbach's alpha value of 0.71 indicated that the tool demonstrated acceptable reliability and consistency.

Ethical consideration

This study was conducted in accordance with the principles of the Declaration of Helsinki. Ethical approval was obtained from the ethical committee of Valley College of Technical Science (Ref No.220–2078/79), and site approval for data collection was obtained from the Kathmandu Valley. Before enrolling in the study, the patients gave written and oral informed consent.

Data management and analysis

After data collection, the data were entered and analyzed using the Statistical Package for Social Sciences (SPSS) version 23. Descriptive statistics, such as frequency and percentage, were used to present participant characteristics. The dependent variable was psychological effects, and the independent variable was demographic variables and neighbors' behaviors/responses. Inferential analysis was conducted using the chi-square test to assess the association between selected independent and dependent variables, with a 95% confidence level.

Result

Demographic characteristics

The study involved 422 respondents with 54% male and 46% female. The majority of respondents were in the age group between 36 to 45 years (163, 38.6%) followed by 46 to 55 years of age (89, 21.1%). The largest occupational group was composed of business employees (119, 28.2%) with 4.3 percent in other occupations such as housewives and tailors. Educationally, 34.8 percent were university degree holders. Most of the respondents belonged to the middle class in economic status (168, 39.8%) followed by poor (163, 38.6%). The demographic characteristics of respondents are mentioned in Table 1.

Table 1 Demographic characteristics of respondents

Characteristics	Categories	Frequency ($n=422$, %)
Age (in years)	16–25	31 (7.3)
	26–35	58 (13.7)
	36–45	163 (38.6)
	46–55	89 (21.1)
	56–65	81(19.2)
Gender	Male	228 (54.0)
	Female	194 (46.0)
Occupation	Health workers	66(15.6)
	GoN employee	108(25.6)
	Business employee	119(28.2)
	Farmer	51 (12.1)
	Students	60(14.2)
	Other	18(4.3)
Marital status	Married	224 (53.1)
	Unmarried	183 (43.4)
	Other	15 (3.5)
Economic basis	Rich	91 (21.6)
	Middle class	168(39.8)
	Poor	163(38.6)
Education	Postgraduate or above	48 (11.4)
	University degree	147 (34.8)
	High school	79(18.7)
	Literate	113 (26.8)
	Illiterate	35 (8.3)

GoN Government of Nepal

Socio-demographic characters

Most respondents' neighbors were aware of the respondent's COVID-19 status, with 280 (66.4%) knowing about the infection, while 141 (33.6%) were unaware. A significant number of neighbors, 210 (49.8%), avoided the respondents. The majority of respondent's neighbor's opinions were ignorance, with 179 (42.4%), and 150 (36.6%) maintaining social distance. Additionally, most respondents, 254 (60.2%), faced protest to leave home isolation and go to a government isolation center. The majority of respondents, 292 (69.2%), had not received any support from their neighbors. Among those who received support (30.8%), primarily emotional support (55.4%) followed by financial support (18.5%), and medical support (18.5%). The socio-psychological characteristics are mentioned in Table 2.

Psychological characteristics

Among all respondents, the majority felt depression, anxiety, and stress due to neighbor behavior were 114(27%), 90(21.3%), and 82(19.5%) respectively. The psychological characteristics of respondents are mentioned in Table 3.

Association between variables

There was a significant association between neighbor behavior and psychological effects on respondents, with a p-value of 0.023, which is less than 0.05. This indicates

Table 2 Socio-psychological characteristics of respondents

Variables	Frequency	Percent (%)
Neighbors known		
Yes	280	66.4
No	142	33.6
Neighbors Behaviors		
Avoidance	210	49.8
Afraidable	113	26.5
Normal	83	19.7
Ignorance	16	3.8
Neighbors Response		
Ignorance	179	42.4
Helpful and faithful	93	22
Social distancing	150	35.6
Protest		
No	168	39.8
Yes	254	60.2
Support from neighbor		
Yes	130	30.8
No	292	69.2
Support Types (130)		
Emotional	72	55.4
Physical	6	4.6
Financial	24	18.5
Medical	24	18.5
All	4	3

Table 3 Behaviors characteristics of respondents

Particular	Frequency ($n=422$)	Percent (%)
Afraid	52	12.3
Anxiety	90	21.3
Stress	82	19.5
Depression	114	27
Loneliness	50	11.9
Insomnia	34	8

that neighbors' behavior had a statistically significant impact on psychological effects. Additionally, neighbor support was significantly associated ($p<0.05$) with respondents' feelings of anxiety, depression, and stress. There was a positive association ($p<0.05$) between the neighbor's behaviors to protest against leaving to community and the psychological effects. The association between the independent variable and psychological effects is provided in supporting materials S1 to S4.

Discussion

Home isolation during the pandemic may affect daily lifestyle and be directly involved in psychological problems and difficulties in normal life. Several factors like social distancing, self-isolation, restriction of movement, and quarantine make enormous disruptions in the lives of people [17]. A total of 69.2% of respondents were not received support from neighbors during home isolation, while 60.2% of neighbors opposed their decision to remain in home isolation and pressured them to go to a government isolation center. As a result of these behaviors, respondents experienced depression, anxiety, stress, and insomnia.

The highest percentage of respondents (42.4%) reported feeling annoyed and ignored during home isolation. This finding is consistent with a previous study, which indicated that stress, anxiety, and depression, primarily affected COVID-19 patients due to the rapid transmission of the virus, enforced social restrictions, and economic hardships [18]. In this study, the highest psychological effects were observed in depression (27%), anxiety (21.3%), stress (19.5%), and loneliness (11.8%), which aligns with previous research showing high prevalence rates of anxiety (30–70%), and depression (20–40%) during the COVID-19 outbreak [19, 20].

This study showed that psychological effects like depression, anxiety, and stress were directly related to neighbor behavior toward home-isolated patients. Our study showed the neighbor's behaviors were significantly associated with the psychological effects on the home isolation patient. Many other research also showed that socio-psychological and mental trauma are associated with COVID-19 in lockdown condition [5, 11, 21–26].

This study found a significant association between neighbor behavior and the psychological effects on respondents, with a p-value of 0.023, which is less than 0.05. Additionally, neighbor support was significantly associated ($p<0.05$) with respondents' feelings of anxiety, depression, and stress. A previous study reported that the highest level of anxiety i.e. 18.1% [27], confusion, depression, and changes in people's living conditions including commuting restrictions, fear of disease transmission, social distancing, and ignorance impacted respondents [28]. The findings of this study are consistent with previous research, indicating that respondents were psychologically affected by the COVID-19 pandemic, the home isolation strategy, and neighbor behaviors.

Limitations of study

This study has several limitations, including its small scale, short duration, and potential sampling bias from phone call interviews. Additionally, relying solely on

PHQ-9 and GAD-7 to assess depression and anxiety may not fully capture the range of psychological effects experienced by respondents. Omitting the DSM-5 means certain psychological disorders or symptoms may not have been fully assessed or captured.

Conclusion

The majority of respondents experienced depression, anxiety, and stress due to their neighbor's ignorance, social distancing, and avoidance behavior. The findings of the study indicate that neighbor behavior toward home-isolated respondents was significantly affected by psychological effects. Despite these challenges, family support emerged as a crucial factor in helping respondents live happily and safely during home isolation.

Recommendation

This study recommends conducting further research on providing accessible counseling and mental health services for home-isolated individuals to address psychological challenges during the pandemic situation. Additionally, it suggests launching awareness campaigns to educate neighbors about the psychological impact of their behaviors and the importance of supporting home-isolated individuals during pandemic conditions. Future studies could utilize comprehensive psychological assessment tools and implement measures to minimize sampling bias and confounding, thereby enhancing the reliability and applicability of the findings.

Abbreviations

WHO	World Health Organization
SARS	Cov-2- Severe Acute Respiratory Syndrome Corona Virus -2
MERS	Middle East Respiratory Syndrome
2019ncov	Novel Corona Virus 2019
DOHS	Department of Health Services
EDCD	Epidemiology and Disease Control Division
NPHL	Nepal Public Health Laboratory
SPSS	Statistical Package for the Social Science
PHQ-9	Patient Health Questionnaire-9 Item Scale
GAD-7	Generalized Anxiety Disorder-7 item Scale
DSM-5	Diagnostic and Statistical Manual of Mental Disorders, 5th Edition
ARDS	Acute Respiratory Distress Syndrome
RNA	Ribonucleic Acid

Supplementary Information

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Supplementary Material 1.

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Authors' contributions

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Data availability

Data is provided within the manuscript or supplementary information files". The corresponding author will provide the data supporting the research study after a request for a specific reason.

Declarations

Ethics approval and consent to participate

Ethical approval was taken from the ethical committee of Valley College of Technical Science (Ref No.220-2078/79) and Site approval and data were obtained from government offices the Department of Health Service, the National Public Health Laboratory, and the District Health Offices of Kathmandu Valley. Oral or written informed consent was taken from participants.

Consent for publication

"Not applicable"

Competing interests

The authors declare no competing interests.

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