A Comparative study of COVID-19 related internalized stigma, Anxiety and Depressive symptoms among COVID-19 Cases and Suspects in Nepal

Bigya Shah [1*], Ananya Mahapatra [2], Rishi Gupta [2], Sunil Kumar Daha [3], Uday Narayan Singh [4], Vilok Mishra [5]
Rajan Pande [6], Madan Ratna Neupane [7], Anita Banjade [8], Chandra Bhal Khatik [9], Tej Bahadur K.C. [10]
Rajesh Kumar Mandal [6], Mohan B.K. [3], Samjhana Pokharel [11]

1. Department of Psychiatry, Patan Academy of Health Sciences, School of Medicine, Patan Hospital, Nepal
2. Consultant Psychiatrist, Cognis Mindcare, New Delhi, Nepal
3. General Physician, Ministry of Health, Oman
4. Department of Emergency Medicine, Narayani Hospital, Birgunj
5. Department of Dermatology, Kanti Children's Hospital, Nepal
6. Department of Internal Medicine, Bheri Hospital, Nepalgunj, Nepal
7. Medical Director, Ratna Prasad Neupane Foundation, Kathmandu, Nepal
8. Department of Pediatrics, Meritus Medical Center, Maryland, USA
9. Medical Officer, Nepalgunj Medical College, Kathmandu, Nepal
10. Department of Internal Medicine, Maharajgunj Medical Campus, Tribhuvan University, Nepal
11. Department of Gender Studies, Tribhuvan University, Nepal

Abstract

Background

The COVID-19 pandemic has been associated with significant social and internalized stigma, particularly in low-resource settings. Yet, few studies have examined its psychological impact. This study aims to (1) find out the levels of COVID-19-related internalized stigma among confirmed COVID-19 cases and suspects in Nepal, (2) compare their scores and scores of anxiety and depressive symptoms between the two groups, and (3) find the associations of scores anxiety, and depressive symptoms with COVID-19-related internalized stigma in both groups.

Methods

It was a cross-sectional study conducted during the first wave (July–November 2020) in five health facilities in two provinces of Nepal, with 306 COVID-19 cases and 89 suspects. A semi-structured questionnaire, adapted Internalized Stigma of Mental Illness scale, and Hospital Anxiety and Depression Scale were administered. Descriptive and correlation analyses were used to compare the two groups.

Results

COVID-19 cases reported significantly more high COVID-19-related internalized stigma (25.2% cases, 3.4% suspects) ($p<0.001$) than the suspects. Cases reported significantly higher anxiety (28.1% vs. 6.7%) ($p < 0.001$) and depressive symptoms (38.9% vs. 12.4%) (*p* < 0.001) than suspects. Among cases, anxiety and depressive symptoms correlated with COVID-19-related internalized stigma score ($p=0.001$; $p<0.001$) and four subdomains- alienation ($p<0.001$; $p<0.001$), stereotype endorsement ($p<0.001$; $p<0.001$), discrimination experience ($p<0.001$; $p<0.001$), social withdrawal ($p<0.001$; $p<0.001$). Whereas among the COVID-19 suspects, only social withdrawal ($p=0.001$) and stigma resistance ($p<0.05$) correlated with anxiety symptoms and there were no correlations with depressive symptoms (Table 6).

Conclusion

The findings highlight the disproportionate psychological burden on COVID-19 cases, driven by internalized stigma related to the illness. Targeted mental health interventions are needed to mitigate the impact of stigma with attention to differences between cases and suspects.

Keywords

COVID-19, stigma, mental health, Nepal, anxiety, depression

***Corresponding Author**
Bigya Shah
Assistant Professor, Department of Psychiatry, Patan Academy of Health Sciences, School of Medicine, Patan Hospital, Nepal
Email: shahbigya@gmail.com

INTRODUCTION

The COVID-19 pandemic, besides being a global health and humanitarian crisis, was also associated with significant social stigma for infected individuals and their close contacts.[1] Historically, infectious diseases have been documented to lead to stigmatization, prejudice, and discrimination, consequent to the phenomenon of a "them" versus "us" dynamic, wherein perceived threats lead to the blaming and isolation of those considered sources of disease.[2] Stigmatization and discrimination exacerbated by the fear of illness are reported to lead to anxiety, depression, and social isolation. [3] Individuals also report self-stigma, internalized shame, and reluctance to seek testing or healthcare, which could further exacerbate the spread of the disease.[4]

Even though LMIC nations faced significant adverse psycho-social and economic consequences from the COVID-19 pandemic, a critical gap exists in literature specifically on internalized stigma and its mental health consequences from such developing nations.[5] The first from Nepal to delineate correlates of internalized stigma related to COVID-19 found that factors such as below-average socioeconomic status, no income in the past month, involuntary admission, and prior isolation experience were significantly associated with internalized stigma.[6] This paper aims to further deepen the understanding. We plan to explore the levels of COVID-19-related internalized stigma among COVID-19 cases and suspects in Nepal and to compare scores of COVID-19-related internalized stigma, anxiety, and depressive symptoms between the groups. The study also aims to find associations of scores of COVID-19-related internalized stigma anxiety, and depressive symptoms in both groups.

METHODS

This was a cross-sectional study conducted in individuals identified as COVID-19 cases and suspects admitted to two hospitals in Province Two (Narayani Hospital, Birgunj, and Narayani Temporary Special Corona Hospital, Birgunj) and two hospitals and a primary health care center in Province Five (Corona Special Hospital, Beljhundi, Dang, Bheri Hospital, and Primary Health Centre, Bankatawa) in Nepal. Data collection was undertaken over the period of five months (July-Nov 2020) during the first wave of the COVID-19 pandemic. Convenience sampling was done based on the set inclusion criteria: 1) COVID-19 suspects or cases, defined by WHO, admitted to the selected health facilities, 2) aged between 18 and 65 years, 3) not suffering from any severe comorbid physical illness, and 4) willing to provide informed consent. The sample size was calculated using the formula Sample size: $N = [Z^2 \times P (1 - P)] / d^2$, where Z = 1.96 (taking alpha error to be 5%), d = 0.05 (for 95% precision), P (prevalence of depression based on previous research[7])= 34%, and an expected non-response rate of 10%, N = 380. Four hundred twelve participants were approached for the study; six refused to participate. 11 questionnaires were not filled and removed. A total of 395 complete questionnaires were used for the analyses; 306 cases and 89 suspects were enrolled. The details of the methodology used in this study are available in a previously published article. [6] The participants were recruited at the time of their discharge from their respective health facilities or within the first week of their discharge if missed, once they provided written consent. The interviews were in person using WHO precautions and physical distancing or telephonic interviews. Ethical Clearance was obtained from Nepal Health Research Council (NHRC)(436/2020P).

Measurements

A semi-structured proforma was used to assess the questions on sociodemographic information and clinical details about the participants. It also assessed their COVID-19-related knowledge and perception. These questions were translated into Nepali using the WHO translation-back-translation methodology.[8] The COVID-19-related internalized stigma scale was developed by adapting the Internalized Stigma of Mental Illness (ISMI) scale for this study. The ISMI scale is a 29-item self-report using a 4-point Likert scale that includes subscales: Alienation, Discrimination Experience, Social Withdrawal, Stereotype Endorsement, and Stigma Resistance. It has high reliability and validity. The result is categorized as 1.00–2.50 (does not report high internalized stigma) and 2.51–4.00 (reports high internalized stigma). [9] The score can also be used as a continuous variable. Permission was taken to use the author's scale and translate it into Nepali. The scale was translated to Nepali using the WHO translation-back-translation methodology, modified, face-validated by the research team, and pilot tested to assess feasibility and comprehensibility.

The Hospital Anxiety and Depression Scale (HADS) was used to evaluate anxiety (HADS-A) and depressive symptoms (HADS-D). It is a scale with 14 items, which are assessed with a four-point Likert scale. The scale has good reliability

and validity.[10] The Nepali version developed by Rijal and colleagues was used. [11] Permission was taken to use the scale from the author.

Statistical Analyses

Statistical analyses were performed using the Statistical Package for Social Sciences Version 26 (SPSS, Chicago, Illinois, USA). The Shapiro-Wilk W test was used to check the normal distribution of the data. Descriptive statistics were calculated for sociodemographic and clinical characteristics and other relevant assessment instruments. As appropriate, data are presented as means and standard deviations (SD) or frequencies and percentages. Group comparisons of sociodemographic variables, clinical variables were done using chi-square tests. The Mann-Whitney test was used to compare HADS-Anxiety scores, HADS-Depression scores, COVID-19-related internalized stigma scores, and its domains between COVID-19 cases and suspects. Spearman's correlation was used to correlate COVID-19-related internalized stigma and depression and anxiety scores. The level of statistical significance was kept at $p < 0.05$ for all the tests.

RESULTS

Sociodemographic and clinical characteristics

The mean age of the COVID-19 cases was 33.70±11.32 years and that of COVID-19 suspects was 28.55 ± 8.27 years. The two groups significantly differed in age, age categories, religion, ethnicity, employment status, healthcare professional job status, income source in past 1 month, perceived socioeconomic status, tobacco and alcohol use in last 1 month, mode of hospital admission, prior experience of staying in isolation or quarantine before admission, and being symptomatic at admission (Tables 1, 2 and 3).

COVID-19 infection related knowledge and perception

As shown in table 4, the two groups significantly differed in their answers about causes of COVID-19 infection, contact transmission of COVID-19, neighbors as sources of transmission, not knowing sources of transmission, boosting immunity and isolation as ways to recover from infection, perception about its dangerousness and in responses about the reasons for its dangerousness: no medical cure, complications and death and not knowing the reasons. However, the groups did not differ in terms of knowledge about the illness and self-blame. Most of the cases (35.9%) felt stigmatized on the day of the diagnosis significantly more than the suspects (21.3%). Whereas, most of the suspects felt stigmatized in the isolation and quarantine center (38.2%) and it was not significantly different from the COVID-19 cases (31.0%). 80.4% of COVID-19 cases and 62.9% COVID-19 suspects reported to have perceived COVID-19 stigma, and it was significantly more in cases than suspects. Major concerns of the COVID-19 cases were health related complications (56.9%) followed by social stigma (32.7%) and isolation and quarantine (26.1%), health of the family members (10.46%) and they experienced them more than COVID-19 suspects (33.7%, 15.7% and 8.99%, 24.74% respectively) (Table 4).

COVID-19 related internalized stigma, anxiety and depressive symptoms

Table 5 shows that 25.2% cases and 3.4 % suspects of COVID-19 had high COVID-19-related internalized stigma in Nepal. COVID-19 cases had significantly more COVID-19-related internalized stigma, including its all five domains i.e. alienation, stereotype endorsement, discrimination experience, social withdrawal and stigma resistance than COVID-19 suspects. 28.1% of the COVID-19 cases and 6.7% of COVID-19 suspects had anxiety symptoms. 38.9% of the COVID-19 cases and 12.4% of COVID-19 suspects had depressive symptoms. Also, COVID-19 cases had significantly more anxiety and depressive symptoms than COVID-19 suspects.

The correlation analyses are presented in Table 6. HADS-anxiety and depression scores correlated with each other in both COVID-19 cases ($r=0.69$; $p<0.001$) and suspects ($r=0.79$; $p<0.001$) groups as shown in table 6. COVID-19-related internalized stigma score ($r=0.64$; $p=0.001$) and four subdomains: alienation ($r=0.7$; $p<0.001$), stereotype endorsement ($r=0.56$; $p<0.001$), discrimination experience ($r= 0.52$; $p<0.001$), social withdrawal ($r= 0.32$;$p<0.001$) correlated with anxiety symptoms among COVID-19 cases. COVID-19-related internalized stigma score ($r=0.55$; $p<0.001$) and its four domains: alienation ($r= 0.58$; $p<0.001$), stereotype endorsement ($r=0.5$; $p<0.001$), discrimination experience ($r= 0.44$; $p<0.001$), social withdrawal ($r= 0.22$; $p<0.001$) also correlated with depressive symptoms among COVID-19 cases. Whereas among the COVID-19 suspects, only social withdrawal ($r= 0.34$; $p=0.001$) and stigma resistance ($r=-0.22$; $p<0.05$) correlated with anxiety symptoms and there were no correlations with depressive symptoms (Table 6).

DISCUSSION

The study aimed to explore the levels of COVID-19-related internalized stigma among COVID-19 cases and suspects in Nepal and to compare COVID-19-related internalized stigma, anxiety, and depressive symptoms between the two groups. It also aimed to find associations of anxiety and depressive symptoms with COVID-19-related internalized stigma in both groups.

28.1% of the COVID-19 cases and 6.7% of COVID-19 suspects had anxiety symptoms. 38.9% of the COVID-19 cases and 12.4% of COVID-19 suspects had depressive symptoms. The findings are in line with a systematic review done in 2020 among studies from eight countries, including Nepal.[12] However, our results are in sharp contrast to the literature among other studies conducted in Nepal [13,14,] India [15,16] and Korea[17] . Further, 25.2% of COVID-19 cases and 3.4% of suspects had high COVID-19-related internalized stigma. The result is striking and is consistent with global reports of COVID-19-related discrimination and internalized stigma.[18,19,20,21,22,23] However, direct comparisons between these studies on psychological morbidities and stigma are difficult because of a lack of standardized measurement tools, methodologies of the studies, and participants' profiles.

COVID-19 cases had more anxiety and depressive symptoms than the suspects. The finding of the group difference in depression is similar to the study conducted in China by Zhang et al(2020).[23] But the findings are inconsistent with the study from Eucador.[24] Similarly, Zhang et al (2020) reported no difference in anxiety symptoms.[23] Possible reasons for the differences in results may be due to the different phases of the COVID-19 pandemic during which the research works were conducted, different settings online method in both studies, and scales used (PHQ-9 and GAD-7 in both studies).[23-24] Intolerance of uncertainty has been recognized as an important risk factor for mental health problems during COVID-19. [25] To add more, recent studies have shown that pre-pandemic brain function, structure, and connectome; direct and indirect immune response to the viral infection; and changes in the intestinal microbiome could be responsible for psychological comorbidities of COVID-19. [26]

COVID-19 cases had significantly more COVID-19-related internalized stigma, including all five domains, than the COVID-19 suspects. Such findings are consistent with prior research conducted on COVID-19 stigma.[1,27,28] Further, our study extends the literature by exploring COVID-19- related internalized stigma. Berger et al. (2001) stated that perceived stigma related to an infectious disease is based on two factors: the individuals' knowledge of being infected with an infectious disease and their perception of societal attitudes towards them. [29] In our study as well, most of the COVID-19 cases perceived COVID-19 as dangerous and feared death and complications of COVID-19 significantly more than the suspects. In line with the second factor as mentioned by Berger et al. (2001), most of the cases and suspects felt stigmatized on the day of diagnosis and experienced stigma in the isolation and quarantine centers. One of their biggest concerns was also social stigma. In general, perceived social rejection may lead to decreased self- esteem among affected individuals.[30] These emotional responses can, in turn, intensify internalized stigma, creating a vicious cycle. [31] Hence, it is important to understand how various types of stigmas operate differently based on the diagnosis of infectious disease. Overall, such widespread stigmatization and anxiety and depressive symptoms across both groups suggest the need for interventions to mitigate mental health burden targeting both cases and suspects of COVID-19, especially focusing on their differences. Moreover, the majority of COVID-19 suspects perceived their socioeconomic status as average or above average, had better employment status, and had an income source in the past month than the cases. Further, COVID-19 cases had more prior experiences of staying in isolation and quarantine, symptoms of the infection, forceful admission to these health facilities, and tobacco and alcohol use in the past one month than the suspects. Such differences in their knowledge, perception of the illness, and sociodemographic factors may contribute to psychological morbidities and stigma[16,19,32,20,33] making COVID-19 cases more vulnerable.

COVID-19-related internalized stigma score and its four subdomains-alienation, stereotype endorsement, discrimination experience, and social withdrawal-correlated with both anxiety and depressive symptoms in COVID-19 cases. Whereas among the COVID-19 suspects, only social withdrawal and stigma resistance correlated with anxiety symptoms, and there were no correlations with depressive symptoms. Relationships between internalized stigma with anxiety and depressive symptoms have been established in those affected by COVID-19 infection.[33,34,22,35] The literature on COVID-19 suspects on

stigma and symptoms of psychological disturbances is limited. Some are related to stigma,[36,37,38] depression,[39,40] anxiety.[40] The strong relationships between stigma and psychological distress in both cases and suspects highlight the need for integrated approaches to COVID-19 with prioritization of psychosocial health in both isolation and quarantine centers. Further, the differential patterns of correlation between stigma and psychological morbidities in cases versus suspects warrant attention and future research.

Our study has its limitations. The cross-sectional study design, limited to two provinces during the first COVID-19 wave and including only hospitalized confirmed or suspected cases with small size, raises concerns about its broader applicability. As the pandemic has ended and vaccines are now available, the findings may not reflect current realities. The ISMI scale, though adapted using WHO guidelines, wasn't validated for COVID-19 patients. Anxiety and depression were not clinically diagnosed, and data on these symptoms and substance use were self-reported. The study may also be affected by other biases from convenience sampling, unmeasured psychosocial or medical factors that can affect individual's mental health, and telephonic data collection technique.

To conclude, the present study revealed a significant proportion of COVID-19 cases and suspects in Nepal had high COVID-19-related internalized stigma. COVID-19 cases had significantly more symptoms of anxiety and depression and COVID-19-related internalized stigma, including all five domains. The relationship between COVID-19-related internalized stigma, anxiety, and depressive symptoms differed between cases and suspects. Future longitudinal research along with exploration of cultural and contextual factors is needed to better understand COVID-19 internalized stigma in cases and suspects. Targeted mental health interventions are needed to mitigate the impact of stigma with attention to differences between cases and suspects. This may provide useful insights for designing anti-stigma campaigns focusing on the cases and suspects separately and also for future pandemics.

ACKNOWLEDGEMENTS

We are grateful to all the participants of the research and translators who helped with the study.

Table 1: Comparison of the socio-demographic characteristics among COVID-19 cases (N=306) and suspects (N=89)

Variables	COVID-19 Suspects (N=89) Mean (S.D) or n(%)	COVID-19 cases (N=306) Mean (S.D) or n(%)	Chi-Square (p-value) or Mann Whitney test (p value)
Age(years)Mean± SD	28.55 ± 8.27	33.70± 11.32	9997.00(0 .004*)
Age categories:			
18-35years	72(80.9%)	197(64.4%)	11.141(0.004*)
36-55years	17(19.1%)	89(29.1%)	
56 years and above	0	20(6.5%)	
Gender :			
Male	67(75.3%)	211(69.0%)	1.324(0.250)
Female	22(24.7%)	95(31.0%)	
Marital status:			
Unmarried	28(31.5%)	78(25.5%)	3.083 (0.470)
Married	61(68.5%)	221(72.2%)	
Widow	0	1(0.3%)	
Widower	0	6(2.0%)	
Religion:			
Hindu	84(94.4%)	266(86.9%)	7.599(0.012*)
Buddhist	2(2.2%)	2(0.7%)	
Muslim	3(3.4%)	38(12.4%)	
Ethnicity:			
Brahmin	11(12.4%)	43(14.1%)	12.587(0.028*)
Kshettri	26(29.2%)	71(23.2%)	
Dalit	12(13.5%)	53(17.3%)	
Janajati	19(21.3%)	45(14.7%)	
Madhesi	15(16.9%)	88(28.8%)	
Others	6(6.7%)	6(2.0%)	
Education Status:			
Illiterate	4(4.5%)	38(12.4%)	11.764(0.067)
Less than class 5	12(13.5%)	52(17%)	
5-10th class	31(34.8%)	120(39.2%()	
12 incomplete	5(5.6%)	9(2.9%)	
12 complete	20(22.5%)	56(18.3%)	
Bachelors	12(13.5%)	20(6.5%)	
Masters	5(5.6%)	11(3.6%)	
Current Employment Status:			
Unemployed	11(12.4%)	104(34.4%)	27.647(<0.001*)
Partially employed	28(31.4%)	116(37.9%)	
fully employed	50(56.2%)	86(28.1%)	
Healthcare professional	27(30.3%)	52(17.0%)	7.673(0.0060)
Income source in past 1 month (Yes)	57(64.0%)	120(39.2%)	17.187(<0.001)*
Perceived Socioeconomic Status:			
Below average	0	41(13.4%)	66.845(<0.001)*
Average	28(31.5%)	194(63.4%)	
Above average	61(68.5%)	71(23.2%)	
Current living status:			
Alone	17(19.1%)	58(19%)	0.244 (0.885)
With family	70(78.7%)	238(77.8%)	
With friends	2(2.2%)	10(3.3%)	
Current place of residence:			
Own house	67(75.3%)	226(73.9%)	3.194(0.203)
Rent	15(16.9%)	68(22.2%)	
Hostel& quarter	7(7.9%)	12(3.9%)	
History of prior admission in isolation or quarantine centre :			
Yes	54(60.7%)	138(45.1%)	6.087/0.011*
No	35(39.33%)	168(54.90%)	

*p-value<0.05

Table 2: Comparison of the clinical profiles between COVID-19 cases (N=306) and suspects (N=89)

Clinical variables		COVID-19 suspects (N=89) n(%)	Cases (N=306) n(%)	Chi-Square (p-value)
Symptomatic or asymptomatic at presentation to the hospital	Symptomatic	6(6.7%)	91(29.7%)	18.460(<0.001*)
	Asymptomatic	83(93.3%)	215(70.3%)	
Method of admission	Forceful	5(5.6%)	62(20.3%)	10.497(0.001)*
	Voluntary	84(94.4%)	244(79.7%)	
History of medical illness	Yes	0	3(0.98%)	0.060(1.00)
	No	89(100%)	303(99.02%)	
History of a diagnosed psychiatric illness	Yes	0	3(1.0%)	0.879(1.00)
	No	89(100%)	303(99%)	
Current diagnosed psychiatric illness	Yes	0	3(1.0%)	0.879(1.00)
	No	89(100%)	303(99%)	

*p-value < 0.05

Table 3: Comparison of the substance use in past 1 month among COVID-19 cases (N=306) and suspects (N=89) admitted in COVID-19 treating health facilities in two provinces of Nepal

Types of substance(N=395)

Variables	COVID-19 suspects (N=89) Yes [n(%)]	Cases (N=306) n(%) Yes [n(%)]	Chi-Square (p-value)
Tobacco products	4(4.49%)	90(29.41%)	22.252(<0.001)*
Alcoholic beverages	5(5.62%)	57(18.63%)	22.252(0.003*)
Cannabis	1(1.2%)	7(2.29%)	0.067(0.689)
Sedatives	0	2(0.65%)	0.00(1.00)
Opioids/ Others eg: injection	0	0	-

*p-value<0.05

Table 4 : Comparison of the COVID-19 infection related knowledge and perception and feelings due to stigma among COVID-19 cases (N=306) and suspects (N=89)

Variables		COVID-19 suspects (N=89) n(%)	Cases (N=306) n(%)	Chi-Square (p-value)
Causes of COVID-19 infection	COVID-19 virus	23(25.8%)	168(54.9%)	35.983(<0.001)*
	Others	61(68.5%)	101(33.0%)	
	Unknown	5(5.6%)	37(12.1%)	
Is COVID-19 a communicable disease?	Yes	78(87.6%)	280(91.5%)	2.554 (0.119)
	No	3(3.4%)	2(0.7%)	
	Unknown	8(9.0%)	24(7.8%)	
*What are the mode of its transmission?	Air	53(59.55%)	206(66.32%)	1.844(0.175)
	Contact	62(69.66%)	98(32.03%)	40.527(<0.001*)
	Vector borne	2(2.25%)	11(3.59%)	0.393(0.741)
	Due to fate	0	4(1.31%)	1.175(0.579)
	Unknown	8(8.99%)	24(7.84%)	0.122(0.727)
Source of transmission of COVID-19	Family member	8(8.99%)	26(8.5%)	0.00(0.833)
	Friend	15(16.85%)	84(27.45%)	3.577(0.051)
	Neighbor	6(6.7%)	62(20.26%)	7.920(0.002*)
	don't know	63(71.59%)	144(47.06%)	15.526(<0.001*)
	Patients	3(3.37%)	7(2.03%)	0.034(0.70)
Causes of COVID-19 infection	Self-limiting	17(19.10%)	34(11.11%)	3.914(0.048)
	Medical management	21(23.60%)	89(29.08%)	1.034(0.309)
	Boosting immunity	44(49.44%)	49(16.01)	42.792(<0.001*)
	Better hygiene	77(86.52%)	274(89.54%)	0.638(0.425)
	Isolation	4(4.49%)	39.75%)	4.38(0.028*)
	Religious belief	0	4(1.31%)	1.175(0.579)
	Positive mental health	0	3(0.98%)	0.879(1.00)
	Unknown	8(8.99%)	28(9.15%)	0.002(0.963)
	Home remedies	10(11.24%)	88928.76%)	11.348(<0.001*)
Is COVID-19 dangerous?	Yes	44(49.44%)	236(77.12%)	25.608 (<0.001*)
	No	45(50.56%)	70(22.88%)	
COVID-19 infection related knowledge	Adequate	76(85.39%)	235(76.80%)	3.043(0.0810)
	Inadequate	13(14.61%)	71(23.20%)	
*Why is COVID-19 dangerous?	No Medical cure	3(3.37%)	40(13.07%)	5.726(0.007*)
	Complications and death	24(26.97%)	158(51.63%)	15.907(<0.001*)
	Communicable to others	8(8.99%)	14(4.58%)	1.783(0.119)
	No Vaccination	0	1(0.33%)	0.00(1.00)
	Heard from others	1(1.12%)	12(3.92%)	0.931(0.313)
	No idea	53(59.55%)	82(26.80%)	13.438(<0.001*)
Is anyone at fault for being infected with COVID-19?	Yes	21(23.60%)	78(25.49%)	0.050(0.782)
	No	68(76.40%)	228(74051%)	0.050(0.782)
*Major concern	Illness and health complications	30(33.71%)	174(56.86%)	13.890(<0.001*)
	Isolation and quarantine	8(8.99%)	80(26.14%)	10.749(<0.001*
	Transmission to others	2(2.25%)	10(3.27%)	0.020(1.00)
	Financial	4(4.49%)	16(5.23%)	0.00(1.00)
	Infodemics	5(6.62%)	1(0.33%)	9.609(0.003*)
	Education, work & future	2(2.25%)	4(1.31)	0.021(0.621)
	Health of the family	22(24.74%)	32(10.46%)	10.704(0.001*)
	Social Stigma	14(15.73%)	100(32.68%)	8.839(0.002*)
*Most stigmatizing situation faced by the patient since the pandemic	On the day of the diagnosis	19(21.35%)	110(35.95%)	6.035(0.10)
	During isolation and quarantine	34(38.20%)	95(31.05%)	1.297(0.248)
	While utilizing health services	1(1.12%)	16(5.23%)	2.821(0.136)
	In neighborhood	0	3(0.98%)	0.879(1.00)
	Abroad	1(1.12%)	3(0.98%)	0.014(1.00)
	When symptomatic	0	1(0.33%)	0.00(1.00)
	Not perceived COVID-19 stigma	33(37.08%)	60(19.61%)	11.691(0.001*)
	Don't know	2(2.25%)	18(5.88%)	1.215(0.270)

*Multiple response questions

*p-value<0.05

Table 5: Total scores, severity and subcategories of rating scales use for measuring internalized stigma, anxiety and depression among COVID-19 cases (N=306) and suspects (N=89)

Variables	COVID-19 suspects (N=89) Mean±SD or n(%)	Cases (N=306) Mean±SD or n(%)	Chi-Square(P-value) or Mann Whitney test (p value)
HADS-A Score Categories:			
Normal	70(78.65%)	140(45.75%)	38.898(<0.001)*
Borderline	10(11.24%)	83(27.12%)	
Anxiety cases	6(6.74%)	86(28.10%)	
HADS-A Score Mean±SD	4.37±3.71	8.07±4.03	20716.000(<0.001)*
HADS-D Score Categories:			
Normal	70(78.65%)	140(45.75%)	30.791(<0.001)*
Borderline	8(8.99%)	47(15.36%)	
Depression cases	11(12.36%)	119(38.89%)	
HADS-D Score Mean±SD	2.06±0.28	2.24±0.37	20027.500(<0.001)*
COVID-19 related Internalized Stigma Severity:			
1. No high stigma	86(96.63%)	229(74.84%)	18.947(<0.001)*
2. High Stigma	3(3.37%)	77(25.16%)	18.947(<0.001)*
Internalized score Mean±SD	2.06(0.28)	2.24(0.38)	17930.500(<0.001)*
COVID-19 related Internalized Stigma subtypes:			
1. Alienation	1.83±0.43	2.14±0.63	8020.500(0.001*)
2. Stereotype Endorsement	1.93±0.38	2.07±0.57	15144.500(0.106*)
3. Discrimination Experience	2.04±0.42	2.24±0.49	16699.500(0.001*)
4. Social Withdrawal	1.99±0.41	2.44±0.57	20468.0(0.001*)
5. Stigma Resistance	2.60±0.38	2.37±0.45	W9217.00(0.001*)

*p-value<0.05

Table 6: Spearman's correlation analysis between COVID-19-related internalized stigma, anxiety and depressive symptoms in COVID-19 cases (n=306) and suspects (n=89) groups

Variables	COVID-19 cases		COVID-19 suspects	
	HADS-A score	HADS-D score	HADS-A score	HADS-D score
Stigma score	0.64 (0.001)*	0.55(<0.001)*	0.01(0.896)	-0.05(0.631)
Alienation domain	0.7 (<0.001)*	0.58(<0.001)*	0.08 (0.451)	0.11(0.327])
Stereotype endorsement domain	0.56 (<0.001*)	0.5(<0.001)*	-0.17 (0.108)	-0.12 (0.272)
Discrimination experience domain	0.52 (<0.001*)	0.44(<0.001) *	-0.03 (0.747)	-0.11(0.327)
Social withdrawal domain	0.32(<0.001*)	0.22(<0.001) *	0.34(0.001*)	0.14(0.184)
Stigma resistance domain	-0.11(0.066)	0.03(0.593)	-0.22 (0.041) *	-0.12 (0.283)

*p-value < 0.05

References

1. SeyedAlinaghi S, Afsahi AM, Shahidi R, Afzalian A, Mirzapour P, Eslami M, et al. Social stigma during COVID-19: A systematic review. SAGE Open Med. 2023 Nov 10;11:20503121231208273. doi: 10.1177/20503121231208273
2. Saeed F, Mihan R, Mousavi SZ, Reniers RL, Bateni FS, Alikhani R, et al. A Narrative Review of Stigma Related to Infectious Disease Outbreaks: What Can Be Learned in the Face of the Covid-19 Pandemic? Front Psychiatry. 2020 Dec 2;11:565919. doi: 10.3389/fpsyt.2020.565919
3. Demirtaş-Madran HA. Exploring the Motivation Behind Discrimination and Stigmatization Related to COVID-19: A Social Psychological Discussion Based on the Main Theoretical Explanations. Front Psychol. 2020;11:569528. doi: 10.3389/fpsyg.2020.569528
4. Perry P, Donini-Lenhoff F. Stigmatization Complicates Infectious Disease Management. AMA Journal of Ethics. 2010 Mar 1;12(3):225–30. doi: 10.1001/virtualmentor.2008.10.3.m-hst1-0803
5. Malagi VA, Shetty AS, Jain V, Rao A. Impact of Covid-19 on mental health: A literature survey of the existing research. International journal of health sciences. 2022 June 9;6(S3):10698–706. Doi: 10.53730/ijhs.v6nS3.8717
6. Shah B, Mahapatra A, Singh UN, Mishra V, Daha SK, Pande R, et al. Internalized stigma related to COVID-19 and its psychosocial and mental health correlates: a multicentric health facility based observational study from Nepal. Front Psychiatry [Internet]. 2024 Feb 14 [cited 2025 July 18];14. Available from: https://www.frontiersin.org/journals/psychiatry/articles/10.3389/fpsyt.2023.1276369/full doi: 10.3389/fpsyt.2023.1276369
7. Sigdel A, Bista A, Bhattarai N, Pun BC, Giri G, Marqusee H, et al. Depression, Anxiety and Depression-anxiety comorbidity amid COVID-19 Pandemic: An online survey conducted during lockdown in Nepa [Internet]. 2020 [cited 2025 July 18]. Available from: https://europepmc.org/article/PPR/PPR159082 doi:10.1101/2020.04.30.20086926
8. Microsoft Word - WHODAS 2.0 Translation package [Internet]. [cited 2025 July 18]. Available from: https://terrance.who.int/mediacentre/data/WHODAS/Guidelines/WHODAS%202.0%20Translation%20guidelines.pdf
9. Ritsher JB, Phelan JC. Internalized stigma predicts erosion of morale among psychiatric outpatients. Psychiatry Res. 2004 Dec 30;129(3):257–65. doi: 10.1016/j.psychres.2004.08.003
10. Zigmond AS, Snaith RP. The hospital anxiety and depression scale. Acta Psychiatr Scand. 1983 June;67(6):361–70. doi: 10.1111/j.1600-0447.1983.tb09716.x
11. Risal A, Manandhar K, Linde M, Koju R, Steiner TJ, Holen A. Reliability and Validity of a Nepali-language Version of the Hospital Anxiety and Depression Scale (HADS). Kathmandu Univ Med J (KUMJ). 2015;13(50):115–24. doi: 10.3126/kumj.v13i2.16783
12. Xiong J, Lipsitz O, Nasri F, Lui LMW, Gill H, Phan L, et al. Impact of COVID-19 pandemic on mental health in the general population: A systematic review. Journal of Affective Disorders. 2020 Dec 1;277:55–64. doi: 10.1016/j.jad.2020.08.001
13. Gupta AK, Sahoo S, Mehra A, Grover S. Psychological impact of "Lockdown" due to COVID-19 pandemic in Nepal: An online survey. Asian J Psychiatr. 2020 Dec;54:102243. doi: 10.1016/j.ajp.2020.102243
14. C UBB, Pokharel S, Munikar S, Wagle CN, Adhikary P, Shahi BB, et al. Anxiety and depression among people living in quarantine centers during COVID-19 pandemic: A mixed method study from western Nepal. PLOS ONE. 2021 July 9;16(7):e0254126. doi: 10.1371/journal.pone.0254126
15. Grover S, Sahoo S, Mishra E, Gill KS, Mehra A, Nehra R, et al. Fatigue, perceived stigma, self-reported cognitive deficits and psychological morbidity in patients recovered from COVID-19 infection. Asian Journal of Psychiatry. 2021 Oct 1;64:102815. doi:

10.1016/j.ajp.2021.102815
16. Sahoo S, Mehra A, Dua D, Suri V, Malhotra P, Yaddanapudi LN, et al. Psychological experience of patients admitted with SARS-CoV-2 infection. Asian Journal of Psychiatry. 2020 Dec 1;54:102355. doi: 10.1016/j.ajp.2020.102355
17. Kang E, Lee SY, Kim MS, Jung H, Kim KH, Kim KN, et al. The Psychological Burden of COVID-19 Stigma: Evaluation of the Mental Health of Isolated Mild Condition COVID-19 Patients. Journal of Korean Medical Science [Internet]. 2021 Jan 11 [cited 2025 July 18];36(3). Available from: https://doi.org/10.3346/-jkms.2021.36.e33 doi: 10.3346/jkms.2021.36.e33
18. Mostafa A, Sabry W, Mostafa NS. COVID-19-related stigmatization among a sample of Egyptian healthcare workers. PLoS One. 2020;15(12):e0244172. doi: 10.1371/journal.pone.0244172
19. Lohiniva AL, Dub T, Hagberg L, Nohynek H. Learning about COVID-19-related stigma, quarantine and isolation experiences in Finland. PLOS ONE. 2021 Apr 14;16(4):e0247962. doi: 10.1371/journal.pone.0247962
20. Tawfik AM, Hayek N, Mahdy SSE, Elsherbiny NM, Salem MR, Taie AFH. Social and self-stigma during COVID-19 pandemic: Egyptians' perspectives. PLOS ONE. 2023 Apr 20;18(4):e0284582. doi: 10.1371/journal.pone.0284582
21. Yuan Y, Zhao YJ, Zhang QE, Zhang L, Cheung T, Jackson T, et al. COVID-19-related stigma and its sociodemographic correlates: a comparative study. Global Health. 2021 May 7;17(1):54. Doi: 10.1186/s12992-021-00705-4
22. Li J, Liang W, Yuan B, Zeng G. Internalized Stigmatization, Social Support, and Individual Mental Health Problems in the Public Health Crisis. Int J Environ Res Public Health. 2020 June 23;17(12):4507.
23. Zhang J, Lu H, Zeng H, Zhang S, Du Q, Jiang T, et al. The differential psychological distress of populations affected by the COVID-19 pandemic. Brain, Behavior, and Immunity. 2020 July 1;87:49–50. doi: 10.1016/j.bbi.2020.04.031
24. Paz C, Mascialino G, Adana-Díaz L, Rodríguez-Lorenzana A, Simbaña-Rivera K, Gómez-Barreno L, et al. Anxiety and depression in patients with confirmed and suspected COVID-19 in Ecuador. Psychiatry Clin Neurosci. 2020 Oct;74(10):554–5. doi: 10.1111/pcn.13106
25. Andrews JL, Li M, Minihan S, Songco A, Fox E, Ladouceur CD, et al. The effect of intolerance of uncertainty on anxiety and depression, and their symptom networks, during the COVID-19 pandemic. BMC Psychiatry. 2023 Apr 17;23(1):261. doi: 10.1186/s12888-023-04736-2
26. Zhu C, Zhang T, Li Q, Chen X, Wang K. Depression and Anxiety During the COVID-19 Pandemic: Epidemiology, Mechanism, and Treatment. Neurosci Bull. 2023 Apr;39(4):675–84. doi: 10.1007/s12264-022-00970-2
27. Ryu S, Guro P, Hirschtick JL, Orellana RC, Fleischer NL. Racial and Ethnic Differences in the Associations Between COVID-19 Stigma and Mental Health in a Population-Based Study of Adults with SARS-CoV-2 Infection. Health Equity. 2024 Dec 16;8(1):790–9. Doi: 10.1089/heq.2023.0241
28. Gutierrez AM, Schneider SC, Islam R, Robinson JO, Hsu RL, Canfield I, et al. Experiences of stigma in the United States during the COVID-19 pandemic. Stigma and Health. 2024;9(2):103–11. doi: 10.1037/sah0000354
29. Berger BE, Ferrans CE, Lashley FR. Measuring stigma in people with HIV: psychometric assessment of the HIV stigma scale. Res Nurs Health. 2001 Dec;24(6):518–29. doi: 10.1002/nur.10011
30. Shpigelman CN, HaGani N. The impact of disability type and visibility on self-concept and body image: Implications for mental health nursing. J Psychiatr Ment Health Nurs. 2019 Apr;26(3–4):77–86. doi: 10.1111/jpm.12508
31. Drapalski AL, Lucksted A, Perrin PB, Aakre JM, Brown CH, DeForge BR, et al. A model of internalized stigma and its effects on people with mental illness. Psychiatr Serv. 2013 Mar 1;64(3):264–9. doi: 10.1176/appi.ps.201200401
32. Gopichandran V, Subramaniam S. A qualitative inquiry into stigma among patients with Covid-19 in Chennai, India. Indian J Med Ethics. 2021;VI(3):1–21. doi: 10.20529/IJME.2021.013
33. Huang F, Sun W, Zhang L, Lu H, Chen WT. Depressive symptoms mediate COVID-associated stigma and quality of life: Stigma instrument validation and path analysis. J Affect Disord. 2022 Jan 15;297:269–75. doi: 10.1016/j.jad.2021.10.017
34. Lasalvia A, Bodini L, Pace D, Colombi M, Caruson MM, Van Bortel T, et al. Experienced discrimination and internalized stigma among people infected with SARS-CoV-2 and surviving COVID-19: Association with anxiety, depression, and insomnia symptoms. J Community Psychol. 2024 Sept;52(7):910–28. doi: 10.1002/jcop.23096
35. Chew CC, Lim XJ, Chang CT, Rajan P, Nasir N, Low WY. Experiences of social stigma among patients tested positive for COVID-19 and their family members: a qualitative study. BMC Public Health. 2021 Sept 6;21(1):1623. doi: 10.1186/s12889-021-11679-8
36. Duan W, Bu H, Chen Z. COVID-19-related stigma profiles and risk factors among people who are at high risk of contagion. Soc Sci Med. 2020 Dec;266:113425. doi: 10.1016/-j.socscimed.2020.113425
37. Do Duy C, Nong VM, Ngo Van A, Doan Thu T, Do Thu N, Nguyen Quang T. COVID-19-related stigma and its association with mental health of health-care workers after quarantine in Vietnam. Psychiatry Clin Neurosci. 2020 Oct;74(10):566–8. doi: 10.1111/pcn.13120
38. Nguyen HC, Nguyen MH, Do BN, Tran CQ, Nguyen TTP, Pham KM, et al. People with Suspected COVID-19 Symptoms Were More Likely Depressed and Had Lower Health-Related Quality of Life: The Potential Benefit of Health Literacy. J Clin Med. 2020 Mar 31;9(4):965. doi: 10.3390/jcm9040965
39. Ferreira LN, Pereira LN, da Fé Brás M, Ilchuk K. Quality of life under the COVID-19 quarantine. Qual Life Res. 2021 May;30(5):1389–405. doi: 10.1007/s11136-020-02724-x
40. Chen L, Chu Q, Xu C, Zhou F, Hu X, Wang Z, Jin Y, Lv Y. Psychological responses and factors associated with depression and anxiety in entry personnel under quarantine during pandemic in China. Frontiers in Public Health. 2024 Oct 3;12:1368463. doi: 10.3389/fpubh.2024.1368463