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Psychological distress during COVID-19 among pregnant women attending antenatal outpatient department at tertiary hospital

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Abstract

Introduction: It is known that a pregnant person's body is undergoing immune system changes and is not operating the same way as a non-pregnant person's body, which threatens the emotional states of women trying to cope with the COVID-19 pandemic situation. The present study aimed to identify the psychological distress during COVID-19 among pregnant women.

Method: A cross-sectional analytical study was conducted at the antenatal outpatient department of Patan Hospital, Nepal. The non-probability purposive sampling technique was used to select 457 samples. Ethical approval was obtained. Data were collected through a face-to-face interview using the Coronavirus Anxiety Scale (5 items) and the Edinburgh Postnatal Depression Scale (10 items). Descriptive and inferential statistics were used for analyzing the data.

Result: The average age of the respondents was 27 years. Results revealed that only 5(1.1%) pregnant women had anxiety, while 23(5.0%) had possible depression due to COVID-19. None of the sociodemographic variables were significantly associated with psychological distress (anxiety and depression) among pregnant women.

Conclusion: Psychological distress was found to be minimal among pregnant women attending antenatal OPD in Patan Hospital.

Keywords: COVID-19, pregnant women, psychological distress

Introduction

The outbreak of COVID-19 that has rapidly spread across countries has become a global public health threat.¹ Because pregnancy is an immune-compromised state, pregnant women might be more anxious and stressed during this highly contagious COVID-19 pandemic situation.²

In normal times, it is estimated that about 10% of pregnant women undergo mental disorders globally; it is higher (16%) in developing nations.³ The mental health consequence of the COVID-19 pandemic requires suitable and timely health care support to deter adverse health aftereffects.⁴ Pregnant women are also at risk for psychological problems due to social distancing which has resulted in the inadequacy of social supports; which is one of the noteworthy risk factors for psychological distress.^{5,6}

A study from China among pregnant women revealed that 30% of pregnant women had depressive symptoms.¹ Similarly, an online survey conducted in Nepal showed that 34%, 31%, and 23% of pregnant women had depression, anxiety, and depression-anxiety comorbidities, respectively.⁷ Elevated symptoms of depression and anxiety can negatively impact pregnant women and developing fetuses.⁸ Hence, the study aimed to find out psychological distress during the COVID-19 pandemic among pregnant women.

Method

A cross-sectional analytical study was conducted among 457 pregnant women attending the Antenatal Out Patient Department of Patan Hospital, Nepal. Data were collected for one month (Sep to Oct 2020) by face-to-face interview. Sample size was calculated using Cochran's formula i.e. $NO = z^2pq/e^2 = 591$, for adjusted sample size $591/1+[(591-1)]/2000 = 457$. Therefore, the total sample size was 457 samples. Sample selection was done by the non-probability

purposive sampling technique. Pregnant women who had a history of known psychiatric illness and who were not willing to participate in the study were excluded from the study. The study was approved by the Institutional Review Committee of PAHS (approval number). The data collection instrument had three parts. Part one: socio-demographic information consisted of 6 items (age, occupation, parity, week of gestation, type of family, family's monthly income), Part two: Coronavirus Anxiety Scale which consisted of 5 items and Part three: Edinburgh Postnatal Depression Scale consisted of 10 items.

Coronavirus Anxiety Scale was translated into the Nepali language. It is a 5-point rating scale where respondents rated the frequency of the symptoms, ranging from 0 (not at all) to 4 (nearly every day) over the two weeks. Cut off score of ≥ 9 was used to differentiate the presence of anxiety.⁹

A validated Nepali version of the Edinburgh Postnatal Depression Scale (EPDS) was used to measure depression. It is a 10-item questionnaire that was used to evaluate the feelings of the respondents in the last 7 days due to Covid-19. The negatively phrased statement was re-coded during the analysis of the data. The total score ranged from 0 to 30. A score of 10 or greater was considered possible depression.¹⁰

Informed written consent was taken from each respondent after describing the purpose of the study. Data was collected five days a week in the waiting area of Antenatal OPD. Around 24 respondents were interviewed each day by three investigators for 5 working days a week. It took 20-25 minutes to complete the interview. Respondents' privacy was maintained by interviewing separately. Also, it was assured that only group data will be reported. Statistical Package for Social Sciences (SPSS) version 16 was used for the analysis of the data. Descriptive statistics and chi-square test and likelihood ratio were used as appropriate. A p-value was set at 0.05 to be statistically significant.

Result

Of the total 457 respondents, 403(88.2%) belonged to the age group between 21-34 years. Regarding occupation, more than half 254(55.6%) were homemakers. Similarly, regarding parity 274(60%) respondents were primipara. More than half of the respondents 240(52.5%) were ≥ 29 weeks of gestation. Half of the respondents 230(50.3%) were from nuclear family and 397(86.9%) had more than NRS10,000 family income per month, Table 1.

Most of the respondents 452(98.9%) were not have dysfunctional anxiety, while 5(1.1%) showed dysfunctional anxiety due to Covid-

19, Table 2. Furthermore, most of the respondents 434(95.0%) had no depression while 23(5.0%) had possible depression due to Covid-19, Table 3.

Only 5(1.1%) showed dysfunctional anxiety due to Covid-19, association between socio-demographic variables with anxiety was not checked because of less cell value. Likewise, none of the sociodemographic variables were significantly associated with the depression level of pregnant women. Chi-square test and Likelihood ratio (for cell values less than 5) was done to see the association between demographic variables of pregnant women with depression levels, Table 4.

Table 1. Socio-demographic characteristics of pregnant women attending antenatal outpatient department, N = 457

Characteristics	N	%
Age (Mean\pmSD 26.73\pm4.34)		
17-20 y	37	8.1
21-34 y	403	88.2
35-43 y	17	3.7
Occupation		
Homemaker	254	55.6
Service	115	25.2
Business	48	10.5
Agriculture	17	3.7
Others (Students)	17	3.7
Labor	6	1.3
Parity		
Primi	274	60
One child	159	34.8
Two children	21	4.6
Three children	3	0.7
Week of Gestation		
≤ 12	36	7.9
13-28	181	39.6
≥ 29	240	52.5

Table 2. Level of anxiety during COVID-19 among pregnant women by Corona anxiety scale, N=457

Level of Anxiety	N	%
Without Dysfunctional Anxiety (<9)	452	98.9
Dysfunctional Anxiety (≥ 9)	5	1.1

Table 3. Level of depression during Covid-19 among pregnant women by Edinburgh Postnatal Depression Scale (EPDS), N=457

Level of Depression	N	%
No Depression (<10)	434	95.0
Possible Depression (≥ 10)	23	5.0

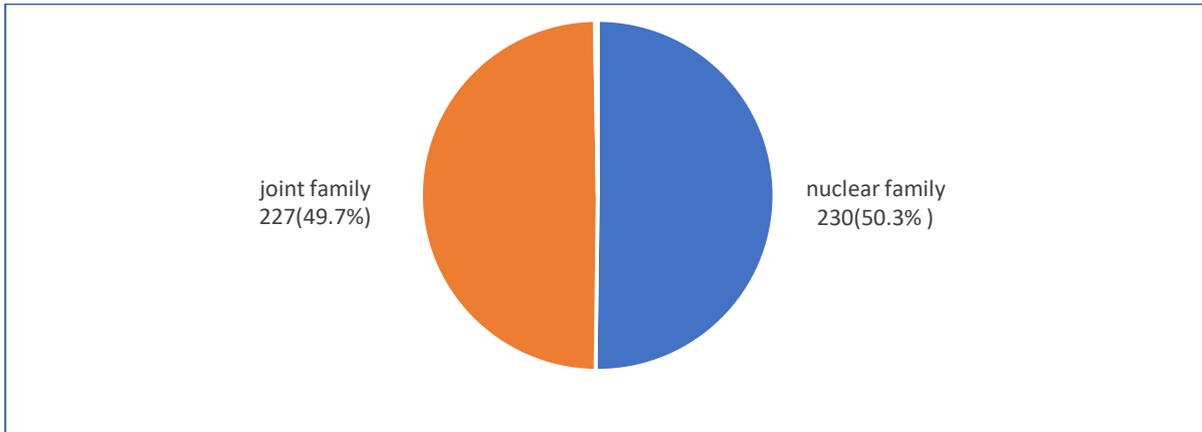


Figure 1. Type of family of pregnant women attending antenatal outpatient department

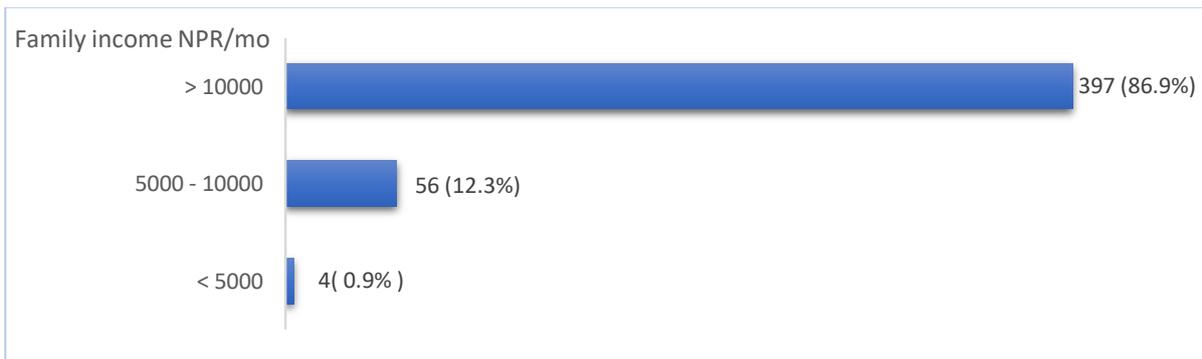


Figure 2. Family monthly income NPR (Nepalese Rupees) of pregnant women attending antenatal outpatient department

Table 4. Association between socio-demographic variables with psychological distress (depression) among pregnant women by EPDS, N=457

Variables	Depression		Chi-square	p-value
	No depression	Possible depression		
Age				
17-20	35(94.6%)	2(5.4%)		
21-34	382(94.8%)	21(5.2%)	1.793*	0.408
35-43	17(100.0%)	0(0%)		
Parity				
Primi	262(95.6%)	12(4.4%)	0.611	0.434
Multi	172(94.0%)	11(6.0%)		
Week of gestation				
≤ 22 weeks	116(92.1%)	10(7.9%)	3.069	.080
> 22 weeks	318(96.1%)	13(3.9%)		
Occupation				
Service and business	156(95.7%)	7(4.3%)	0.289	0.591
Others	278(94.6%)	16(5.4%)		
Family's monthly income				
< 5000	4(100%)	0(0%)		
5000-10000	52(92.9%)	4(7.1%)	0.929*	0.629
> 10000	378(95.2%)	19(4.8%)		

Note: *Likelihood ratio

Discussion

The current study revealed that very few respondents, i.e., 5(1.1%) were having dysfunctional anxiety while 23(5.0%) had possible depression due to Covid-19. Sociodemographic variables such as age, parity, week of gestation, occupation, and family's monthly income were not significantly associated with psychological distress (level of anxiety and depression) among pregnant women. These findings seem to be interesting as it signifies that pregnant women probably had minor psychological distress as this study was done during the first wave people might have perceived it differently, they might have perceived a low risk of contracting the infection. The result might be different if we conduct this study after the second wave.

Contradictory to this finding a study done in Canada among 1987 pregnant women. It was found that there was substantially elevated psychological distress, with 37% reporting clinically relevant symptoms of depression, 57% reporting clinically relevant symptoms of anxiety, and 68% reporting elevated pregnancy-related anxiety. Higher levels of social support and longer sleep duration were associated with lower psychological symptoms.⁸ The variation in the study findings can be due to differences in educational and socio-cultural background. Since the method of data collection is also different as it was self-administered through an online survey, the prevalence of mental disorders might have been over or underestimated to some extent.

In the present study, among the total 457 respondents, most of respondents 452(98.9%) did not have any anxiety, while 5(1.1%) had anxiety due to Covid-19. A study enrolling 751 pregnant women in Shenzhen, China revealed an analogous finding that the prevalence of anxiety symptoms was 101(13.4%), [84(11.2%) for mild, 16(2.1%) for moderate, and 0.8(0.1%) for severe symptom, respectively].¹¹ Another study was done among 1947 pregnant women in two cities in

China: Wuhan and Chongqing showed comparable findings that the overall anxiety rate was 17.2%.¹²

A study was done in India among 333 pregnant women also showed an inconsistent result that 69.4% of respondents had a minimal level of anxiety, with a mean GAD-7 score of 3.09 ± 3.73 .¹³ Inconsistencies between the study findings could be due to the use of different measurement instruments and cut-off scores. Similarly, a study was done in Nepal among 273 pregnant women also showed a varying result that only 2(0.73%) had moderate to severe anxiety, 21(7.69%) had mild to moderate anxiety, and most of the cases 250(91.57%) had a mild status of anxiety.¹⁴ The variation in the study finding could be due to differences in sampling method as in this study the sample were selected conveniently. The prevalence of anxiety among 257 pregnant women in Sri Lanka was 17.5%(45).¹⁵ The variation in the study result may have been due to difference in the timing of the study as these studies were done either during the peak of the first wave or during the lockdown, which might have resulted in some sense of insecurity among the pregnant women in accessing transportation in case of an emergency and they might have felt inadequate social support as friends, relatives, and loved ones couldn't visit them due to social distancing.

Regarding the level of depression, the present study result showed that 23(5.0%) had possible depression due to Covid-19. Complementary to this result, the prevalence of depression among 257 pregnant women in Sri Lanka was 50(19.5%).¹⁵ Since, both the studies were done among pregnant women attending Antenatal OPD could be a reason for a comparable result. A study in China among 4124 showed that pregnant women had higher depressive symptoms 1221(29.6%).¹ Another study done among a total of 15,428 pregnant women in China showed that the prevalence of probable depression was significantly higher 6,727(43.6%).¹⁶ China's 1-child policy could have made the women more anxious and this

could have been one of the risk factors leading to depression.

A study from Turkey among 260 pregnant women also showed contrary results that 92(35.4%) had depressive symptoms.¹⁷ Another study that involved 456 pregnant women in Nigeria showed that 206(45.2%) participants had depressive symptoms.¹⁸ The reasons for varied prevalence possibly could be due to diverse cultural and social backgrounds.

A study done among 205 pregnant women in Iran showed a contrary result that depression symptoms were observed in 67(32.7%) of the participants, with varying degrees from mild to very severe.¹⁹ Difference in the study finding could be due to difference in the method of data collection as in this present study, the data was collected by face to face interview whereas, in the study conducted in Iran, it was collected by phone calls.

In the present study, the sociodemographic variables such as age, parity, week of gestation, occupation, and family's monthly income were not significantly associated with psychological distress (level of anxiety and depression) among pregnant women. In a study done in Sri Lanka, monthly family income ($P=0.01$) was found to be significant with anxiety and depression among pregnant women.¹⁵ Similarly, a study done in China among 4,124 pregnant women who were primiparous, younger than 35 years, employed full time, in the middle-income category were at increased risk for developing depressive and anxiety symptoms during the outbreak.¹ The reasons for varied findings possibly could be due to diverse cultural, social, economic backgrounds in different countries.

Another study in China among 446 pregnant women showed that age, educational background, annual household income, trimester, parity, number of children had a significant correlation with anxiety scores ($P < 0.05$).²⁰ A study done in India among 333 pregnant women showed that the level of

anxiety was significantly associated with education, occupation, monthly income ($p < 0.01$).¹³ Yet another study in China among 3,434 pregnant women disclosed that increased risk of symptoms of anxiety and depression was associated with unemployment, the first trimester of pregnancy, decline in household income.²¹ Different measurement instruments, differences in cut-off scores, samples from distinct trimesters of pregnancy could have contributed to these inconsistencies.

Women were recruited non-randomly in this study, which may limit the generalizability of the study. Also, we may not reach a representative sample, as this study is limited to a single center.

Conclusion

The findings of this study exhibited that very few pregnant women showed psychological distress (dysfunctional anxiety 1.1% and depression 5%) during the first wave of Covid-19 in Nepal. None of the variables were significantly associated with psychological distress suggesting the further research is needed to confirm the findings.

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Conflict of Interest

None

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None

Author Contribution

Concept, design, planning-all authors: ALL; Literature review: ALL; Data collection/analysis: All; Draft manuscript: RAN, NG; Revision of draft: RAN, RKM, NS; Final manuscript: All; Accountability of the work: All.

Reference

1. Wu Y, Zhang C, Liu H, Duan C, Li C, Fan J, et al. Perinatal depressive and anxiety symptoms of pregnant women along with COVID-19 outbreak in China. *Am J Obstet Gynecol.* 2020;223(2):240.e1-240.e9. | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Full Text](#) | [Weblink](#) |
2. Luo Y, Yin K. Management of pregnant women infected with COVID-19. *Lancet Infect Dis.* 2020;20(5):513-4. | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Weblink](#) |
3. Zeng LN, Chen LG, Yang CM, Zeng LP, Zhang LY, Peng TM. Mental health care for pregnant women in the COVID-19 outbreak is urgently needed. *Women Birth.* 2021;34(3):210-1. | [DOI](#) | [PubMed](#) | [Google Scholar](#) |
4. Topalidou A, Thomson G, Downe S. COVID-19 and maternal mental health: are we getting the balance right? *MedRxiv.* 2020 Jan 1. | [DOI](#) | [Google Scholar](#) | [Full Text](#) | [Weblink](#) |
5. Buekens P, Alger J, Bréart G, Cafferata ML, Harville E, Tomasso G. A call for action for COVID-19 surveillance and research during pregnancy. *Lancet Glob Health.* 2020;8(7):e877-8. | [DOI](#) | [Google Scholar](#) | [PubMed](#) |
6. Negron R, Martin A, Almog M, Balbierz A, Howell EA. Social support during the postpartum period: mothers' views on needs, expectations, and mobilization of support. *Matern Child Health J.* 2013;17(4):616-23. | [DOI](#) | [Google Scholar](#) | [PubMed](#) | [Weblink](#) |
7. Sigdel A, Bista A, Bhattarai N, Poon BC, Giri G, Marqusee H. Depression, Anxiety and Depression-anxiety comorbidity amid COVID-19 Pandemic: An online survey conducted during lockdown in Nepal. *medRxiv.* 2020 Jan 1. | [DOI](#) | [Google Scholar](#) | [Weblink](#) |
8. Lebel C, MacKinnon A, Bagshawe M, Tomfohr-Madsen L, Giesbrecht G. Elevated depression and anxiety symptoms among pregnant individuals during the COVID-19 pandemic. *Journal of affective disorders.* 2020 Dec 1;277:5-13. | [DOI](#) | [PubMed](#) | [Google Scholar](#) | [Full Text](#) | [Weblink](#) |
9. Lee SA. Coronavirus anxiety scale: a brief mental health screener for COVID-19 related anxiety. *Death Stud.* 2020;44(7):393-401. | [DOI](#) | [Google Scholar](#) | [PubMed](#) | [Weblink](#) |
10. Bhusal BR, Bhandari N, Chapagai M, Gavidia T. Validating the Edinburgh Postnatal Depression Scale as a screening tool for postpartum depression in Kathmandu, Nepal. *Int J Ment Health Syst.* 2016;10:71. | [DOI](#) | [Google Scholar](#) | [PubMed](#) | [Weblink](#) |
11. Lin W, Wu B, Chen B, Lai G, Huang S, Li S, et al. Sleep conditions associate with anxiety and depression symptoms among pregnant women during the epidemic of COVID-19 in Shenzhen. *J Affect Disord.* 2021;281:567-73. | [DOI](#) | [Google Scholar](#) | [PubMed](#) | [Weblink](#) |
12. Liu X, Chen M, Wang Y, Sun L, Zhang J, Shi Y, Wang J, et al. Prenatal anxiety and obstetric decisions among pregnant women in Wuhan and Chongqing during the COVID-19 outbreak: a cross-sectional study. *BJOG.* 2020;127(10):1229-40. | [DOI](#) | [Google Scholar](#) | [PubMed](#) | [Weblink](#) |
13. Jelly P, Chadha L, Kaur N, Sharma S, Sharma R, Stephen S, et al. Impact of COVID-19 pandemic on the psychological status of pregnant women. *Cureus.* 2021;13(1):e12875. | [DOI](#) | [Google Scholar](#) | [PubMed](#) | [Weblink](#) |
14. Shrestha D, Saha R, Manandhar N, Adhikari A. Anxiety among Pregnant Women about Corona Virus Infections during COVID-19 Pandemic at a Tertiary Care Center in Nepal: A Descriptive Cross-sectional Study. *Journal of the Nepal Medical Association.* 2021 Feb 1;59(234). | [DOI](#) | [Google Scholar](#) | [Weblink](#) |
15. Patabendige M, Gamage MM, Weerasinghe M, Jayawardane A. Psychological impact of the COVID-19 pandemic among pregnant women in Sri Lanka. *Int J Gyneco Obstet.* 2020;151(1):150-3. | [DOI](#) | [Google Scholar](#) | [PubMed](#) | [Weblink](#) |
16. Wang Q, Mo PK, Song B, Di JL, Zhou FR, Zhao J, et al. Mental health and preventive behaviour of pregnant women in China during the early phase of the COVID-19 period. *Infect Dis Poverty.* 2021;10(1):37. | [DOI](#) | [Google Scholar](#) | [PubMed](#) | [Weblink](#) |
17. Durankuş F, Aksu E. Effects of the COVID-19 pandemic on anxiety and depressive symptoms in pregnant women: a preliminary study. *J Matern Fetal Neonatal Med.* 2020;18:1-7. | [DOI](#) | [Google Scholar](#) | [PubMed](#) | [Weblink](#) |
18. Nwafor JI, Okedo-Alex IN, Ikeotuonye AC. Prevalence and predictors of depression, anxiety, and stress symptoms among pregnant women during COVID-19-related lockdown in Abakaliki, Nigeria. *Malawi Medical Journal.* 2021 Mar 31;33(1):54-8. | [DOI](#) | [Google Scholar](#) | [Weblink](#) |
19. Effati-Daryani F, Zarei S, Mohammadi A, Hemmati E, Yngyknd SG, Mirghafourvand M. Depression, stress, anxiety and their

predictors in Iranian pregnant women during the outbreak of COVID-19. BMC Psychol. 2020 Dec;8(1):1-0. | DOI | [Google Scholar](#) | [PubMed](#) | [Weblink](#) |

20. Ge Y, Shi C, Wu B, Liu Y, Chen L, Deng Y. Anxiety and adaptation of behavior in pregnant zhuang women during the COVID-19 pandemic: A mixed-mode survey. Risk Manag Healthc Policy. 2021;14:1563-73. | DOI | [Google Scholar](#) | [PubMed](#) | [Weblink](#) |

21. Wu F, Lin W, Liu P, Zhang M, Huang S, Chen C, et al. Prevalence and contributory factors of anxiety and depression among pregnant women in the post-pandemic era of COVID-19 in Shenzhen, China. Journal of Affective Disorders. 2021 May 18. | DOI | [Google Scholar](#) | [Weblink](#) |

Supplement

Part I: Demographic Information

1. Age (In years)
2. Occupation
 - a. Homemaker
 - b. Service
 - c. Agriculture
 - d. Labour
 - e. Business
 - f. Others (specify)
3. Parity:
4. Weeks of gestation (from patients record):
5. Family Structure:
 - a. Nuclear
 - b. Joint
 - c. Extended
6. Family monthly income
 - a. Less than 5000 per month
 - b. Between 5000-10000 per month
 - c. Above 10000 per month

Part II: Coronavirus Anxiety Scale

Please choose the closest answer about how you have felt IN THE PAST 14 DAYS due to COVID-19.

How often have you experienced the following activities over the last two weeks?	Not at all	Rare, less than a day or two	Several days	More than 7 day	Nearly every day, over the last 2 weeks
1. I felt dizzy, lightheaded, or faint, when I read or listened to news about the coronavirus					
2. I had trouble falling or staying asleep because I was thinking about the coronavirus.					
3. I felt paralyzed or frozen when I thought about or was exposed to information about the coronavirus.					
4. I lost interest in eating when I thought about or was exposed to information about the coronavirus.					
5. I felt nauseous or had stomach problems when I thought about or was exposed to information about the coronavirus.					

Part III: Edinburgh Postnatal-Depression Scale

Please choose the answer that comes closest to how you have felt IN THE PAST 7 DAYS due to COVID-19, not just how you feel today.

In the past 7 days due to COVID-19:

1. I have been able to laugh and see the funny side of things
 - a. As much as I always could
 - b. Not quite so much now
 - c. Definitely not so much now
 - d. Not at all
2. I have looked forward with enjoyment to things
 - a. As much as I ever did
 - b. Rather less than I used to
 - c. Definitely less than I used to
 - d. Hardly at all
3. I have blamed myself unnecessarily when things went wrong
 - a. Yes, most of the time
 - b. Yes, some of the time
 - c. Not very often
 - d. No, never
4. I have been anxious or worried for no good reason
 - a. No, not at all
 - b. Hardly ever
 - c. Yes, sometimes
 - d. Yes, very often
5. I have felt scared or panicky for no very good reason
 - a. Yes, quite a lot
 - b. Yes, sometimes
 - c. No, not much
 - d. No, not at all
6. Things have been getting on top of me
 - a. Yes, most of the time I haven't been able to cope at all
 - b. Yes, sometimes I haven't been coping as well as usual
 - c. No, most of the time I have coped quite well
 - d. No, I have been coping as well as ever
7. I have been so unhappy that I have had difficulty sleeping
 - a. Yes, most of the time
 - b. Yes, sometimes
 - c. Not very often
 - d. No, not at all
8. I have felt sad or miserable
 - a. Yes, most of the time
 - b. Yes, quite often
 - c. Not very often
 - d. No, not at all
9. I have been so unhappy that I have been crying
 - a. Yes, most of the time
 - b. Yes, quite often
 - c. Only occasionally
 - d. No, never
10. The thought of harming myself has occurred to me
 - a. Yes, quite often
 - b. Sometimes
 - c. Hardly ever
 - d. Never