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Impact of COVID-19 Pandemic on Pregnant Mothers

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ABSTRACT

Introduction
The COVID pandemic has detrimental impact on physical and psychological wellbeing of expectant mothers. Fear and worry during pregnancy amplifies risks and can have negative physical and psychological consequences for mother and newborn outcomes. So this study intended to assess the impact of COVID-19 pandemic on pregnant mothers during pregnancy.

Methods
Descriptive cross-sectional study design was applied among 123 pregnant mothers who visited antenatal OPD of Tribhuvan University Teaching Hospital. Data were collected through non-probability purposive sampling technique by using interview schedule. Descriptive statistic and inferential statistics were used to analyze the collected data.

Results
Pregnant mothers faced difficulties to maintain physical wellbeing, 84 (68.3%) did not perform any physical exercise, 96 (78%) were physically inactive, 107(87%) stated absence of sound sleep during pregnancy. Majority i.e. 111 (90.2%) of pregnant mothers perceived fear on outcome of newborn. Likewise, 11(8.9%) had severe impact on their psychological wellbeing during COVID-19 pandemic. Place of residence, number of children and trimester of pregnancy were found to be the strong predictors of psychological impact among pregnant women.

Conclusion
The impact was seen on exercise, sleep, physical wellbeing whereas pregnant mothers seemed more attentive on healthy diet. They expressed more fear on obstetric or newborn outcome and uncertainty on mode of delivery with this panic situation.

Keywords
COVID-19, impact, mothers, pandemic, pregnancy

INTRODUCTION

Health systems and processes have been changed within maternity services in order to minimize the risk of COVID-19 transmission to women, their infants or other family members and healthcare staffs.[1] It impacts maternal health both directly and indirectly; direct impact through infection on reproductive and perinatal health; indirectly as a consequence of changes in health care, social or economic policy and circumstances.[2]

The impact of the COVID-19 pandemic on pregnant women potentially contributes to worsening of pregnancy outcomes.[3] Pregnant women had difficult to maintain overall physical, social, psychological and mental wellbeing due to multiple restrictions and economic shortfalls imposed by the pandemic situation.[4-6]

Several studies including a study from Nepal have found mild to severe form of psychological impact among the pregnant mothers.[7-9] The impact of known consequences of psychological distress on pregnancy and infant outcomes cannot be overlooked.[5] In addition to this, pregnant women's rights to have optimum antenatal care are being threatened and compromised due to social distancing, lockdown, and fear of circumstances. The pandemic situation's impact on maternal physical and psychological wellbeing have so far been unexplored largely and need to be stressed out. So, this study aims to find out the impact on physical wellbeing, psychological wellbeing and fear related to COVID-19.

METHODS

A cross sectional study design was used to find out impact of COVID-19 among pregnant mothers during pregnancy. This study was conducted at Gynecology/Antenatal Outpatient Department (OPD) of Tribhuvan University Teaching Hospital (TUTH), Maharajgunj, Kathmandu, Nepal. The period of data collection was from 8th to 30th November 2021. The selection criteria of the antenatal mothers was primi and multigravida pregnant mothers in second or third trimester, attending the OPD for regular ANC follow up. The determined sample size was 123, which was calculated by using population Mean (SD); 43 (26.9) 8. Non probability purposive sampling technique was adapted for this study.

Prior data collection, self-introduction and purpose of the study were explained and informed verbal and written consent were taken. Respondents were explained that their participation will be fully voluntary and they have freedom to withdraw from study any time. Strict precautions was used while collecting data during Covid pandemic by using face mask, face shield appropriate distancing, proper had washing and sanitizing. The mothers were interviewed in separate room in OPD using semi structured interview schedule from 10 am to 1pm each day which took 10 to 15 minutes each.

The research instrument consists of four parts: first with questions related to socio-demographic, obstetric and Covid-19 information; second with questions related to physical wellbeing; third with questions on fear related to Covid 19 and fourth was standard tool on Impact of Event-Scale –Revised (IES-R) to assess psychological well-being. There were 11 statement to assess Impact of physical wellbeing and 9 reason of fear related to COVID 19 which was analyzed individually by Yes or No. The IES-R is a 22-item questionnaire. Each item can be scored from 0 to 4. Total score therefore can ranges from 0 to 88, with higher scores representing higher psychological impact. The total IES-R score was divided into 0–23 (normal), 24–32 (mild psychological impact), 33–36 (moderate psychological impact), and ≥37 (severe psychological impact). Ethical approval was obtained from the Institutional Review Committee of Institute of Medicine. Data were analyzed by using SPSS version 16, descriptive statistic (frequency, percent, mean, standard deviation) and inferential statistic Bivariate (Simple logistic regression) and multivariate (Multiple logistic regressions) were use for measuring the association.

RESULTS

Regarding socio-demographic information; the mean age of the pregnant mothers was 28.54 ± 4.13, with minimum age 20 and maximum 40 years. Two-third (66.7%) of them lived in urban and 33.3% in rural area. Almost equal numbers of respondents were from Brahmin/Chhetri (45.55) and Janajati (43.9%), 7.3% Madhesi and only 3.3% representing to Dalit ethnic group. Religion wise; 84.6% believed in Hinduism followed by 7.3 Buddhism and more than half (55.3%) of them live in joint and only 44.7% in nuclear family. Education wise; 37.4% completed University, followed by 29.3% higher secondary, 22% secondary, 8.9% unable to read and write and only 2.4% completed primary level education. Occupation wise; 54(43.9%) of pregnant mothers were homemaker, followed by involved in service (36.6%), Business (13%), agriculture (4.9%) and only 1.6% were involved in labour.

Table 1 describes pregnancy related information; nearly half (47.2%) of the pregnant mothers were second gravida and 82.1% in third trimester of pregnancy. More than half (51.2%) of them had one live children, likewise 11.4% had pre-existing illness, among them, hypertension (64.29%) and thyroid disease (57.14%) were the most common illnesses. Sixteen (13%) pregnant mothers experienced some complications during pregnancy; among them gestational diabetes mellitus (43.75%) and

Table 1. Pregnancy related information of the pregnant mothers (n=123)

Characteristics	Number (%)
Gravida	
Primi gravida	50 (40.7)
Second gravida	58 (47.2)
Third gravida and more	15 (12.2)
Trimester of pregnancy	
Second	22 (17.9)
Third	101 (82.1)
Number of lived children	
No child	53 (43.1)
One	63 (51.2)
Two	7 (5.7)
Types of illness#	14
Hypertension	9 (64.3)
Thyroid disorder	8 (57.1)
Other *	2 (1.6)
Complications	16
Gestational diabetes mellitus	7 (43.75)
Pregnancy induced hypertension	6 (37.5)
Other **	3 (18.75)

 # Multiple responses;
**Other: Headache, Piles;*
***Other: Oligohydramnios, IUGR, Breech Presentation*

Table 2. COVID-19 infection related information of the pregnant mothers (n=123)

Characteristics	Number (%)
Self positive for COVID-19	18 (14.6)
COVID-19 infection in family	27 (22.0)

pregnancy induced hypertension (37.5%) were found as common complications.

Regarding COVID-19 infection related information, 18 (14.6%) of the pregnant mothers had COVID-19 infection test positive, the mean duration since COVID-19 infection was 1.33± 3.45, with maximum of 14 months. Similarly, nearly one-fourth (22.0%) of them had at least one family member with COVID-19 positive at their home. The mean duration since COVID-19 infection in family members was 2.28± 4.56 with maximum of 18 months.

Table 3 depicts impact of COVID-19 pandemic on physical wellbeing of the pregnant women; surprisingly, 87.0% had more sound sleep than they used to have before. Majority (81.3%) of them responded that they don't have difficulty to consume iron and calcium during COVID-19 pandemic. More than three-fourth (76.4%) agreed that their diet has improved as they pay more attention to eating healthy foods and also agreed

Table 3: Impact of COVID 19 on physical wellbeing of the pregnant mothers (n=123)

Statements	Response - n (%)	
	Yes	No
There is change in my diet and nutrition during COVID 19 pandemic	75 (61.0)	48 (39.0)
My diet has improved as I pay more attention to eating healthily	94 (76.4)	29 (23.6)
My diet has worsened as there are less healthy food choices	8 (6.5)	115 (93.5)
I do not do any physical exercise during pregnancy	84 (68.3)	39 (31.7)
I am still as physically active as before COVID 19 pandemic	44 (35.8)	78 (63.4)
I am more physically active than before COVID 19 pandemic	27 (22.0)	96 (78.0)
I take extra precaution to protect my health due to this pandemic	94 (76.4)	29 (23.6)
I have regular sleep as it used to be before COVID 19 pandemic	49 (39.8)	74 (60.2)

Table 4: Impact of COVID 19 on physical wellbeing of the pregnant mothers (n=123)

Statements	Response - n (%)	
	Yes	No
Outcome of newborn baby	111 (90.2)	12 (9.8)
Getting infected with the virus of COVID	109 (88.6)	14 (11.4)
Uncertainty for mode of delivery	110 (89.4)	13 (10.6)
Probability of getting isolated from the baby due to COVID 19 positive	67 (54.5)	56 (45.5)
Not being able to be with chosen ones at the time of delivery	38 (30.9)	85 (69.1)
Change of hospital	34 (27.6)	89 (72.4)
Unavailability of vehicles to reach hospital during emergency	29 (23.6)	94 (76.4)
Shortage of Caregiver	46 (37.4)	77 (62.6)
Missed antenatal appointment and visits	65 (52.8)	58 (47.2)

Table 5. Impact of COVID-19 pandemic on psychological wellbeing of pregnant mothers (n=123)

Characteristics	Number (%)
Normal	74 (60.2%)
Mild Impact	30 (24.4%)
Moderate Impact	8 (6.5%)
Severe Impact	11 (8.9%)

on taking extra precaution to protect their health during the pandemic.

Table 4 describes COVID-19 related fear among the pregnant women; More than one-third (39.8%) of the pregnant women had some level of psychological impact.

Table 5 explains the impact of COVID-19 on psychological wellbeing of the pregnant women as per the impact of event scale. The mean (±SD) score of psychological wellbeing was 21.27(±10.58) with minimum score of 0 and maximum of 60. More than one-third (39.8%) of the pregnant women had some level of psychological impact. Out of them nearly one fourth (24.4%) mild; 6.5% moderate and 8.9% of them had severe impact on their psychological wellbeing.

Table 6 depicts multivariate analysis of the factors associated with psychological impact. Variables which had p value <0.2 in the bivariate analysis were subsequently put on stepwise multiple logistic regression model to determine the significant independent predictive factors of psychological impact. Place of residence, number of children and trimester of pregnancy were found to be the strong predictors of psychological impact among pregnant women. The probability of psychological impact among those residing in rural area was 2.8 times

Table 6. Pregnancy related information of the pregnant mothers (n=123)

Characteristics	β-coefficient	p-value	Odds ratio with 95% CI
Age			
≤ 30 years			Ref
> 30 years	1.006	0.08	2.73 (0.91-8.26)
Place of residence			
Urban			Ref
Rural	1.038	0.03**	2.82 (1.10-7.22)
Religion			
Hinduism		0.26	Ref
Buddhism	-0.552	0.47	0.58 (0.13-2.59)
Others	0.847	0.46	2.33 (0.25-21.58)
Educational status			
Illiterate			Ref
Literate	0.934	0.22	2.55 (0.57-11.28)
Number of lived children			
No child		0.08	Ref
One child	2.662	0.08	14.33 (0.76-270.21)
Two children	3.025	0.03**	20.60 (1.41-301.00)
Gravida			
One		0.31	Ref
Two	-0.391	0.70	0.68 (0.09-5.03)
More than two	-1.087	0.21	0.34 (0.06-1.82)
Trimester of pregnancy			
Second			Ref
Third	1.177	0.049**	3.24 (1.01-10.45)
Number of antenatal visits			
<4 visit			Ref
≥ 4visit	-0.209	0.84	0.81 (0.10-6.43)
Pre-existing Illness			
Yes			Ref
No	-1.270	0.11	0.28 (0.06-1.32)

**p value significant at 95%*

than those residing in urban area; the women with more than one child was 20.6 times than those with one or no child and pregnant women who were in their third trimester were 3.2 times high than those who were in their second trimester.

DISCUSSION

Regarding pregnancy related information present study illustrates that nearly half of (47.2%) the respondents were second gravida; 101(82.1%) were in third trimester of pregnancy and more than half (51.2%) of them had one live children. Likewise 14 (11.4%) had pre-existing illness, among them; hypertension (64.29%) and thyroid disease (57.14%) were the common illnesses; during pregnancy 16 (13%) of the respondents had some complications, among them gestational diabetes mellitus (43.75%) and pregnancy induced hypertension (37.5%) was found as common complications.

Concerning with the impact of COVID-19 pandemic on physical wellbeing of pregnant mothers, The present study shows that majority (81.3%) of them responded as they don't have any difficulty to consume iron and calcium during COVID-19 pandemic. This study findings are consistent with study by Muhaidat et al which mentioned that only 17.27% were not able to get their medications and supplements at all during pandemic time.[7] More than three-fourth (76.4%) agreed that their diet has improved as they pay more attention to eating healthy foods and also agreed on taking extra precaution to protect their health during the pandemic. This finding resembles the study done in Italy where participants had improved the quality of their diet, increasing their consumption of fruit, vegetables, legumes, nuts , and fish in pandemic time.[7,8] Only 39 (31.7%) pregnant mother performed physical exercise during Pandemic. This result was supported with the findings of Muhaidat et al which have stated that over half of participants (56.04%) stated that they did not perform physical exercise during pregnancy regardless of the lockdown.[7] In another study done in United kingdom, sedentary time increased for 79% of the women, while, the physical activity dropped to 23% among the pregnant mothers during the COVID-19 pandemic than the pre pandemic situation.[9] The findings concluded in Finland and Italy were consistent with the current finding as, 61.8 % of pregnant women reduced their physical exercises during COVID-19 pandemic.[10,11]

About the impact of COVID-19 on psychological wellbeing of the pregnant mother as per the impact of event scale, the mean (±SD) score of the scale was 21.27±10.58. More than one-third (39.8%) of the pregnant women had some level of psychological impact. Out of them, nearly one fourth (24.4%) had mild; 6.5% had moderate and 8.9% of them had severe impact on their psychological wellbeing. Similarly COVID 19 has impacted on psychological wellbeing of antenatal mothers in another study done by Saccone, Florio, Venturella et al, which concluded that the COVID-19 outbreak had a moderate psycho-logical impact on pregnant women with a mean IES-R score of 36.9±10.1. More than half of the respondents (53%) rated the psychological impact as severe[8], similarly a survey conducted in China showed that 53.8% of the respondents rated the psychological impact as moderate or severe, and 28.8% reported moderate to severe anxiety symptoms and stress levels. In another study in Italy, consistent findings were revealed where, a high score for anxiety and depression were found in 62.8% of pregnant women.[12-15]

The place of residence, number of children and trimester of pregnancy were found to be the strong predictors of psychological impact among pregnant women. The probability of psychological impact among those residing in rural area was 2.8 times high than those residing in urban area; similarly the women with more than one child was 20.6 times than those with one or no child; likewise pregnant mother with third trimester were 3.2 times prone than those who were in their second trimester. Similarly, other studies shows that first trimester pregnant mothers had more severe impact than other and there was no association of pandemic related restriction on sleep and physical activity.[8,10]

CONCLUSION

In conclusion the impact on physical wellbeing was seen on exercise and sleep whereas pregnant mothers seemed more attentive on healthy diet but they expressed more state of fear on obstetric outcome and uncertainty about the mode of delivery due to this pandemic. Near about half of the pregnant mother revealed some level of psychological impact, out of them few had moderate level of impact. Awareness and health education programs to pregnant women and their family members specifically targeted or focused to birth preparedness as well as precautionary measures to prevent from COVID 19 viral infection during this pandemic situation will help to promote the physical or mental health and minimize the burden of COVID-19 to maternal and neonatal health.

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CONFLICT OF INTEREST

The author(s) declare that they do not have any conflicts of interest with respect to the research, authorship, and/or publication of this article.

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