

Worry and Well-being among Pregnant Women during COVID-19 Pandemic: A Cross-sectional Study

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ABSTRACT

Introduction: Pregnancy is the most precious time in every woman's life. Pregnant women were facing an unprecedented situation in the COVID era, where going to hospitals for routine antenatal checkups had become worrisome as most of the hospitals were inundated with COVID-19-infected patients. Also, mothers who are infected with COVID-19 are more prone to give birth to preterm babies and are also at higher risk for other poor pregnancy outcomes. So, assessing the worry and well-being becomes utmost important. Hence, this study is planned to assess the worry and well-being among pregnant women.

Materials and methods: About 359 pregnant women who attended PMSMA camps at four primary health centers (PHC) were interviewed using worry and well-being scales.

Results: The prevalence of worry among the pregnant women was 50.97%. Variables such as Muslim religion (OR = 2.9), pregnancy-related complications (OR = 1.8), abortion history (OR = 2.5), vaccinated with two doses of Covishield (OR = 2.8), and worried about getting infected with COVID-19 (OR = 2.3) were the predictors/risk factors of worry among pregnant women. Muslim religion (OR = 1.8), history of abortion (OR = 2.1), vaccinated with two doses of Covishield (OR = 2.4) and being worried of getting infected with COVID-19 (OR = 2.3) were the predictors of low well-being among pregnant women.

Conclusion: A significant percentage of pregnant women attending PHC for ANC checkups were suffering from worry and lower-level well-being. Queries concerning the pregnancy and COVID-19 should be addressed. Counseling should be given to high-risk pregnant women who have pre-existing comorbidities.

Keywords: COVID-19, Cambridge worry scale, Pregnant women, Worry, Well-being.

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INTRODUCTION

Pregnancy is considered to be the most precious time in every woman's life, also it brings new emotions and feelings. Women go through physical and mental transformation during pregnancy.¹ When it comes to Indian pregnant women, different sets of customs and practices are adhered to. Special attention should be given to her nourishment, rest, regular health checkups, and family support.² Multiple studies done during the COVID-19 pandemic found pregnant women to be a vulnerable group.³ Pregnant women were facing an unprecedented situation in the COVID era, where going to hospitals for routine antenatal checkups had become worrisome as most of the hospitals were inundated with COVID-19-infected patients.

A multicentric study among pregnant women visiting antenatal clinics in India showed that 11.1% presented with generalized anxiety.⁴ Obstetricians have reported that worries among pregnant women are mainly related to hospital visits for antenatal checkups and ultrasound scans, protecting them from COVID infection, infant health after delivery, and breastfeeding.⁵ Worry related to pregnancy and childbirth is mainly due to worrying social media messages, fear about contracting the infection, social isolation, family members not following infection control measures, and missing out on childbirth-related rituals.⁶ Mothers who are infected with COVID-19 are more prone to give birth to preterm babies and are also at higher risk for preeclampsia, stillbirth, and other poor maternal and fetal/pregnancy outcomes.⁷

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Pregnant women are considerably at higher risk of getting severe illness compared with nonpregnant women. Centre for Disease Control has recommended COVID vaccination to pregnant, breastfeeding women who were not vaccinated earlier.⁸ Very few studies have been conducted worldwide to understand the nature of worries in pregnant individuals and have advocated different scales to measure the nature and the extent of pregnant individuals' worries, especially during the COVID pandemic. There are not enough studies done in India, in regard to worry and well-being of pregnant women, especially in this COVID era. So, assessing the worry and well-being becomes utmost importance. Hence,

this study is planned to assess the worry and well-being among pregnant women during COVID-19.

OBJECTIVES

- To assess the worry and well-being among pregnant women during the COVID-19 pandemic.
- To know the predictors of worry and well-being among pregnant women during the COVID-19 pandemic.

MATERIALS AND METHODS

Source of Data

Pregnant women attending antenatal clinics at four primary health centers (PHC) under the field practice area of Community Medicine Department, KAHER, JN Medical College, Belagavi.

Study Design

A cross-sectional study.

Study Period

Six months (September 2021–February 2022).

Sample Size

Sample size was calculated, based on the mean worry score of 64.9 ± 29 , according to a study conducted among pregnant women.⁹

$$n = Z_{\alpha/2}^2 \cdot \sigma^2 / d^2$$

where, Z – level of significance.

σ – standard deviation of the variables.

d – absolute error or precision.

$$n = (1.96)^2 \times (29)^2 / (3)^2.$$

$$n = 358.97 \approx 359.$$

Sample size = 359.

Sampling Method

Pregnant women attending Pradhan Mantri Surakshit Matritva Abhiyaan (PMSMA) clinics conducted on 9th of every month in the four primary health centers (PHCs) during study period were included.

During one PMSMA camp, approximately 50 antenatal mothers visit the camp in each center.

So, on an average,

= 50 pregnant women \times 4 PMSMA clinics every month \times 6 months.

= 1200 pregnant women attend camps in 4 PHC.

Sampling interval = $1200/360 = 3.3$.

First, pregnant women were chosen randomly, and thereafter, every 3rd pregnant woman was chosen out of 1200 pregnant women till we got a sample of 360 using a systematic sampling method.

Study Tool and Study Variables

For assessing worry among pregnant women Cambridge worry scale was used.¹⁰ The scale included 15 items. The worry scores were standardized 0–100. For assessing well-being among pregnant women, WHO-5 Well-being Index was used.¹¹

Information regarding sociodemographic details, obstetric details, COVID-related details, and worry and well-being of pregnant women was assessed using a predesigned and pretested questionnaire. The questionnaire was validated with Cronbach's α score of 0.72.

Inclusion Criteria

Pregnant women attending PMSMA clinics at four PHC during the study period who agree to give written informed consent.

Exclusion Criteria

Pregnant women with psychological ailments.

Ethical clearance was obtained from Institutional Ethics Committee vide letter no. MDC/DOME/305 dated 4/1/2022.

Statistical Analysis

Data were analyzed using statistical software R software version 4.1.2 (R Foundation of Vienna, Austria). Categorical variables were given in the form of frequency table (percentages). Continuous variables were given in mean \pm SD/ median (min, max). Two-sample t -test/Mann–Whitney U test was used to compare the means/distributions of variables over the groups. Chi-square test was used to check the association of attributes. Logistic regression model was used to check the potential risk factors of worry and well-being scores. Models were selected using stepwise regression model. Odds ratio with confidence interval was reported for each predictor of model. P -value less than or equal to 0.05 was considered as statistically significant.

RESULTS

In this study, the mean age of the study participants was 23.83 ± 3.8 years. The median worry score and well-being score were 28 and 60, respectively. Among the 359 pregnant women, 183 (50.97%) had worry using Cambridge worry scale. The mean age of the study participants with worry was 24.22 ± 3.76 , which was higher compared with the study participants without worry 23.43 ± 3.82 (Table 1). About 139 (38.7%) had a low level of well-being using WHO-5 Well-being Scale. The mean age of the study participants with low well-being was 24.4 ± 3.92 , which was higher compared with the study participants with normal well-being which was 23.47 ± 3.69 (Table 2).

The worry was found more in pregnant women aged 20–30 years, having secondary education, being unemployed, belonging to class-II socioeconomic status, 2–6 years duration of marriage, and being primigravida. However, this difference was not found to be statistically significant ($p > 0.05$).

The low level of well-being was found more in pregnant women aged 20–30 years, having secondary education, being unemployed, belonging to class-II socio-economic status, 2–6 years duration of marriage, being primigravida. However, this difference was not found to be statistically significant ($p > 0.05$).

Muslim religion (OR = 2.9), presence of pregnancy-related complications (OR = 1.8), history of abortion (OR = 2.5), vaccinated with two doses of Covishield (OR = 2.8), and being worried of getting infected with COVID-19 (OR = 2.3) were the predictors of worry among pregnant women (Table 3). Muslim religion (OR = 1.8), history of abortion (OR = 2.1), vaccinated with two doses of Covishield (OR = 2.4), and being worried of getting infected with COVID-19 (OR = 2.3) were the predictors of low well-being among pregnant women (Table 4).

Worry and Well-being among Pregnant Women

Table 1: Sociodemographic and obstetric characteristics influencing worry among pregnant women

Characteristics	No worry (score < 28)	Worry (score ≥ 28)	Total	p-value
Age (in years)	23.43 ± 3.82 23 (16, 39)	24.22 ± 3.76 24 (18, 37)	23.83 ± 3.8 23 (16, 39)	0.02342* ^{#t}
Religion				
Hindu	153 (86.93%)	128 (69.95%)	281 (78.27%)	<0.00001*
Muslim	23 (13.07%)	55 (30.05%)	78 (21.73%)	
Duration of marriage in years	3.49 ± 2.82 3 (0.25, 20)	4.33 ± 2.89 4 (0.5, 15)	3.92 ± 2.89 4 (0.25, 20)	0.001269* ^{MW}
Pregnancy complications				
Absent	111 (63.07%)	95 (51.91%)	206 (57.38%)	0.03898* ^{MC}
Anemia	63 (35.8%)	80 (43.72%)	143 (39.83%)	
Gestational diabetes mellitus	0 (0%)	3 (1.64%)	3 (0.84%)	
Pregnancy-induced hypertension	2 (1.14%)	5 (2.73%)	7 (1.95%)	
History of abortion				
0	161 (91.48%)	143 (78.14%)	304 (84.68%)	0.001999* ^{MC}
1	13 (7.39%)	30 (16.39%)	43 (11.98%)	
2	2 (1.14%)	9 (4.92%)	11 (3.06%)	
3	0 (0%)	1 (0.55%)	1 (0.28%)	
Fertility treatment				
No	171 (97.16%)	170 (92.9%)	341 (94.99%)	0.06428
Yes	5 (2.84%)	13 (7.1%)	18 (5.01%)	
History of previous surgeries				
No	149 (84.66%)	140 (76.5%)	289 (80.5%)	0.05118
Yes	27 (15.34%)	43 (23.5%)	70 (19.5%)	
Vaccinated with COVID vaccine				
Not vaccinated	41 (23.3%)	39 (21.31%)	80 (22.28%)	0.006471*
Vaccinated with one dose	118 (67.05%)	104 (56.83%)	222 (61.84%)	
Vaccinated with two doses	17 (9.66%)	40 (21.86%)	57 (15.88%)	
Worry of getting infected with COVID-19				
No	83 (47.16%)	46 (25.14%)	129 (35.93%)	<0.0001*
Yes	92 (52.27%)	136 (74.32%)	228 (63.51%)	

*p < 0.05; [#]One-tailed test; ^t, t-test; ^{MW}, Mann-Whitney test; ^{MC}, Monte-Carlo's simulation used in Chi-square test

Table 2: Sociodemographic and obstetric characteristics influencing well-being among pregnant women

Characteristics	Not well (score < 60)	Well (score ≥ 60)	Total	p-value
Age (in years)	24.4 ± 3.92 24 (18, 39)	23.47 ± 3.69 23 (16, 37)	23.83 ± 3.8 23 (16, 39)	0.01192* ^{#t}
Religion				
Hindu	99 (71.22%)	182 (82.73%)	281 (78.27%)	0.01003*
Muslim	40 (28.78%)	38 (17.27%)	78 (21.73%)	
Pregnancy complications				
No complications	76 (54.68%)	130 (59.09%)	206 (57.38%)	0.03398* ^{MC}
Anemia	55 (39.57%)	88 (40%)	143 (39.83%)	
Gestational diabetes mellitus	3 (2.16%)	0 (0%)	3 (0.84%)	
Pregnancy-induced hypertension	5 (3.6%)	2 (0.91%)	7 (1.95%)	
History of abortion				
0	107 (76.98%)	197 (89.55%)	304 (84.68%)	0.002499* ^{MC}
1	24 (17.27%)	19 (8.64%)	43 (11.98%)	

(Contd...)

Table 2: (Contd...)

Characteristics	Not well (score < 60)	Well (score ≥ 60)	Total	p-value
2	8 (5.76%)	3 (1.36%)	11 (3.06%)	
3	0 (0%)	1 (0.45%)	1 (0.28%)	
Past history				
Diabetes mellitus	2 (1.44%)	0 (0%)	2 (0.56%)	0.006997* ^{MC}
Hypertension	4 (2.88%)	4 (1.82%)	8 (2.23%)	
Hyperthyroidism	0 (0%)	1 (0.45%)	1 (0.28%)	
Hypothyroidism	12 (8.63%)	5 (2.27%)	17 (4.74%)	
No past history	121 (87.05%)	210 (95.45%)	331 (92.2%)	
Vaccinated with COVID vaccine				
Not vaccinated	29 (20.86%)	51 (23.18%)	80 (22.28%)	0.0005973*
Vaccinated with one dose	75 (53.96%)	147 (66.82%)	222 (61.84%)	
Vaccinated with two doses	35 (25.18%)	22 (10%)	57 (15.88%)	
Worry of getting infected with COVID-19				
No	31 (22.3%)	98 (44.55%)	129 (35.93%)	<0.00001*
Yes	108 (77.7%)	120 (54.55%)	228 (63.51%)	

*p < 0.05; #One-tailed test; t, t-test; MC, Monte-Carlo's simulation used in Chi-square test

Table 3: Multiple logistic regression analysis for predictors of worry among pregnant women

Predictors	AOR	p-value
Religion		
Hindu	1	
Muslim	2.9721 (1.6506, 5.5008)	0.000371*
Duration of marriage	1.0599 (0.9747, 1.156)	0.180027
Pregnancy complications		
Absent	1	
Present	1.8874 (1.1816, 3.0412)	0.008335*
History of abortion		
No	1	
Yes	2.5143 (1.2908, 5.0901)	0.008062*
History of fertility treatment		
No	1	
Yes	2.8772 (0.9245, 10.1413)	0.078644
Vaccinated with COVID vaccine		
0	1	
1	1.2365 (0.6933, 2.2286)	0.474745
2	2.7949 (1.2519, 6.428)	0.013486*
Worry of getting infected with COVID-19?		
No	1	
Yes	2.2609 (1.4031, 3.6756)	0.00088*

*p < 0.05; AOR, adjusted odds ratio

Correlation plot to see the relationship between Cambridge Worry Scale and WHO Well-being Score indicates that there is moderate negative correlation between both of them (Table 5).

DISCUSSION

COVID-19 pandemic created havoc all around the world, affecting different age-groups of people. It mainly disrupted the healthcare

Table 4: Multiple logistic regression analysis for predictors of well-being among pregnant women

Predictors	AOR	p-value
Religion		
Hindu	1	
Muslim	1.7621 (1.0129, 3.0751)	0.044979*
History of abortion		
No	1	
Yes	2.1555 (1.1575, 4.052)	0.015829*
History of fertility treatment		
No	1	
Yes	2.4763 (0.8802, 7.1643)	0.085879
Vaccinated with COVID vaccine		
0	1	
1	1.073 (0.6051, 1.9331)	0.811491
2	2.4806 (1.1762, 5.3325)	0.018127*
Worry of getting infected with COVID-19?		
No	1	
Yes	2.3824 (1.4538, 3.9719)	0.000688*

*p < 0.05; AOR, adjusted odds ratio

Table 5: Correlation between worry score and well-being score

	Worry score	Well-being score	Correlation coefficient (p-value)
Mean ± SD	27.72 ± 7.74	60.65 ± 11.86	-0.4678
Median (range)	28 (1.33, 56)	60 (20, 96)	<0.0001*

*p < 0.05

system, especially maternity and child care. As we know pregnancy is the most cherished as well as vulnerable phase, they are already very much anxious about their health and fetus health compounded by the COVID-19. Especially pregnant women who are in need



of regular antenatal checkups and counseling cannot not seek medical care due to the fear of contracting COVID infection and its consequences.

Our study shows that the percentage of worry among pregnant women was 50.97%, and 38.7% had a low level of well-being, which was similar to the study done on pregnant women in Iran.⁹

The results of our study showed that worry was higher among pregnant women who were from Muslim religion, had pregnancy-related complications, history of abortion, vaccinated with two doses of Covishield, and were worried about getting infected with COVID-19. Similar findings were seen in the study conducted in India,⁴ Iran,⁹ and Denmark.¹²

First, Muslim religion is one of the attributes of worry among the pregnant women. This may be due to the fact that Muslim people were hesitant to take vaccination in India, as they are worried it may have negative consequences on the unborn child.

Second, pregnancy-related complications and history of abortion were identified as the attributes of worry. This may be due to pregnant women with complications being worried about their health and fetus health compounded with the COVID situation. Similar findings were seen in the study done in Iran, where one of the worry predictors was history of abortion. Also, women with a history of abortion are worried about losing the pregnancy and are more prone to disorders related to mental health.¹³ A multicentric study done in India showed that Muslim religion and pregnancy-related complications were related to anxiety among pregnant women.⁴

Third, in our study, worry was more among those who were vaccinated with two doses of vaccine. Pregnant women who were worried of getting infected with COVID-19 took the vaccination compared with nonpregnant women who were not vaccinated. Similar findings were seen in the study done in Mumbai.¹⁴

Pregnant women with low levels of well-being (score ≤ 50) were also from Muslim religion, history of abortion, vaccinated with two doses of Covishield, and were worried about getting infected with COVID-19. This implies that factors that were responsible for worry among the pregnant women, in turn, resulted in low well-being, which can affect the birth outcomes among those women. Studies done in the past showed that a lower level of well-being will result in poor maternal and fetal outcomes among pregnant women.¹⁵⁻¹⁷

Our study showed that there was a negative correlation between worry and well-being among pregnant women, which clearly indicates that worry affects the well-being among pregnant women and, if not taken care of can affect the maternal health and birth outcomes (Fig. 1).

CONCLUSION

- The prevalence of worry and low levels of well-being among the pregnant women in our study were 50.97% and 38.7%, respectively.
- The factors influencing the worry and low level of well-being among the pregnant women were Muslim religion, having pregnancy-related complications, history of abortion, being vaccinated with two doses of Covishield, and the worry about getting infected with COVID-19.
- Muslim religion (OR: 2.9), having pregnancy-related complications (OR = 1.8), history of abortion (OR = 2.5), vaccinated with two doses of Covishield (OR = 2.8), and being worried of getting infected with COVID-19 (OR = 2.3) were the predictors of worry among pregnant women.

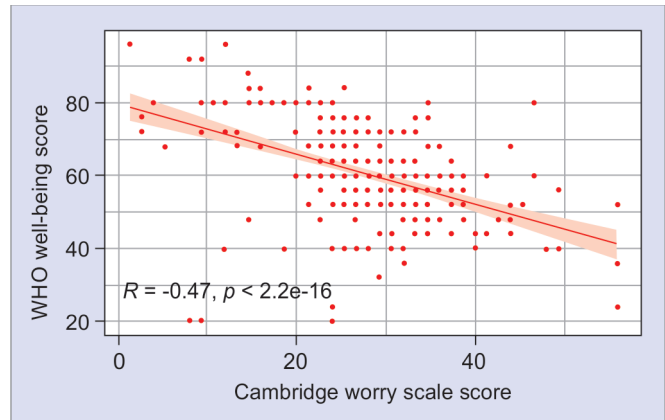


Fig. 1: Correlation plot between Cambridge worry scale score and WHO well-being score

- Muslim religion (OR = 1.8), history of abortion (OR = 2.1), vaccinated with two doses of Covishield (OR = 2.4), and being worried of getting infected with COVID-19 (OR = 2.3) were the predictors of low well-being among pregnant women.

Limitations

Qualitative research could have been done to assess in detail about the causes of worry that affect the well-being among pregnant women.

RECOMMENDATIONS

As pregnancy is a stressful condition, counseling of pregnant women can be done during routine antenatal care by trained health workers to alleviate their worry and improve their well-being.

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