A comparative study to assess the anxiety level of hospitalized and non-hospitalized women with high risk pregnancy availing the services of a tertiary level hospital in Pune, India.

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Abstract

Background:

Pregnancy becomes high risk when it is complicated by unexpected illnesses or medical conditions. This may cause anxiety in the pregnant women. Anxiety should not be considered as a normal state of emotional change or ignored, as it may lead to deleterious effects on the foetus, depression during postpartum period, and anxiety disorders among the children born to these mothers.

Objectives:

To identify the high risk pregnant women, assess the anxiety level and compare, analyse the correlates of anxiety among the hospitalized and non-hospitalized high risk pregnant women.

Materials & Methods:

Two groups 50 samples in each – hospitalized and non-hospitalized high risk pregnant women selected using purposive sampling. Tools - Modified Coopeland's high risk evaluation form, Spielberger State & Trait Anxiety Inventory, and questionnaire on Correlates of Anxiety (Crone back alpha value 0.70).

Results:

Age was homogenous in both the groups (25.02 ± 4.02; 25.42 ± 4.29), High risk score of hospitalized pregnant women was significantly higher than non-hospitalized pregnant women (Mean=5.76 ± 2.50; 4.56± 1.80, P<0.01). Mean correlates of anxiety score was significantly higher in hospitalized group (90.64 ± 10.57; 86.36 ± 9.22, P <0.05) along with stress due to household work and child care demand (Mean 7.92 ± 1.58; 7 ± 1.78, P<0.01).

Significant relationship was found between the trait and state anxiety score of the hospitalised group when comparing with non-hospitalised group (P<0.05).

Conclusion:

Pregnancy related anxiety is prevalent among high risk pregnant women. Women may hesitate to seek help hence routine screening for anxiety is recommended so as to provide timely mental health interventions.

Keywords: High risk pregnancy, state & trait anxiety, correlates of anxiety, hospitalized and non-hospitalized pregnant women.

Introduction

Anxiety during pregnancy is found to be a major risk which causes preterm delivery, depression and long term stress. This is evident by the rapid advancement in the pregnancy related psychological science. (Dunkel Schetter, 2011).

According to Ponting, 2021 pregnancy related anxiety has a synonym like pregnancy anxiety and pregnancy specific anxiety this is found to be associated with preterm birth and low birth weight. It is considered as a different form of anxiety, prevalent among pregnant women and this is characteristics of specific fear and worries related to pregnancy. He recommended further research studies with larger samples and control over key confounding variables. (Ponting, 2021)

Nurses can play a substantial role in assessment of anxiety specific to pregnancy and educational interventions involving the immediate care given at home as they are trained on theses aspects.(Lederman, 2011)

Depression and anxiety experienced by the pregnant women of racial and ethnic minorities is common and higher. This also causes adverse maternal and infant outcomes which need to be addressed. Universal

screening for anxiety among childbearing women will help nurses to intervene in order to improve it. (Gennaro et al., 2020).

Mental health during perinatal period of Australian women was poorly recognized. Specific interventions like cognitive behavioural therapy, mindfulness and behavioural activation adapted by nurses has shown global improvement in the mental well-being. (Lavender et al., 2016)

Women expressed that pregnancy is emotionally crucial period and they don't want to be referred to mental health services until they suffer with specific illnesses. Women also expressed that they don't disclose the mental health issues due to lack of time, social stigma and shame (Nagle & Farrelly, 2018)

Three key themes emerged in the mobile enhanced mental health screening among the refugee women, i.e., experiences of mental health screening during perinatal period, facilitators and barriers in reaching out for mental health care, suggestions to improve the program. Mental health screening was considered to be the suitable and possible option during perinatal period. (Willey et al., 2020)

Thirty five studies published during 1991-2009, 31323 pregnant women were included. There was significant association found between psychosocial stress and adverse perinatal outcomes though the numbers were small (r (35) = - 0.04). Specifically significant association was found with weight of the neonate (r (14) = - 0.07) and risk for low birth weight (r (5) = 0.07). This study recommended further studies to understand the relationship of psychosocial stress and risk for negative outcomes. (Littleton et al., 2010)

Around 2235 Latin American pregnant women having moderate risk of giving birth to a low birth weight (LBW) baby were included in the study. Study concentrated on specific outcomes like LBW and preterm delivery. Odds ratio was drawn on the findings between the intervention group and control group. Low birth weight - OR 0.93; 95 percent CI 0.68 to 1.28, preterm delivery - OR 0.88; 95 percent CI 0.67 to 1.16. Study concluded that the psychosocial support did not provide any protective effect.(Villar et al., 1992)

Materials & Methods

This study aim was to compare the anxiety level of hospitalized and non-hospitalized high risk pregnant women.

Research approach & design - Non experimental, explorative in nature and comparative survey design.

Sample - The study sample were hospitalized and non-hospitalized high risk pregnant women who's score was 3 or more in the Modified Coopland's High Risk Evaluation.

  sampling technique: Purposive Sampling technique was adopted.

sampling size- calculated based on RG, R., Hassan, H., M, R., & SZ, S. (2007) study keeping the confidence level - 95%, absolute precision (d) = 10%, taken the least prevalence the sample size (n) = 51. In my present study sample size was kept as - 50 each in hospitalized & non-hospitalized group.

  inclusion criteria

a. Women with high risk pregnancy attending the antenatal OPD of a tertiary level hospital at Pune,

b. Women who were admitted with high risk pregnancy in maternity wards of a tertiary level hospital at Pune

c. Women who were willing to participate in this study.

  exclusion criteria

a. Pregnant women admitted in the hospital for foeto-maternal evaluation and safe confinement

b. Pregnant women with irregular attendance in the OPD.

c. Pregnant women with history of threatened abortion or awaiting MTP.

Tool preparation

In the current study standardized tool of Spielberger STAI adopted to assess state and trait anxiety. A structured questionnaire was prepared and the validity was ensured by taking experts' opinion from the field of Psychiatry, Clinical Psychology, Biostatistics, Obstetrics & Gynaecology and Obstetrics & Gynaecological nursing. Questionnaire was translated in Hindi and Marathi and back translation done to English. Crone Back Alpha values of the correlates questionnaire for items on health care aspects (8 items) was found to be 0.69, for items related to social support (2 items) it was 0.86, and for pregnancy related items (10 items) it was 0.56. Iinternal consistency of the structured questionnaire was 0.70.

Description of tool

  The tool had five Sections. All the five Sections were common for both the group of high risk pregnant women, hospitalized and non-hospitalized.

The details of the sections are given below

section I Modified Coopland's High Risk Evaluation Form – this has 3 sub sections in it, they are reproductive history, associated medical and surgical conditions and obstetrical problems associated with present pregnancy. The conditions were scored from zero to three as per its impact on the pregnancy and the mothers general condition.

section II Demographic profile had 16 items which includes the age, education, occupation, income, type of family and the information related to gravida, parity, period of gestation, number of abortion, and the nature of the support system.

section III   Spielberger Trait Anxiety Inventory - 20 statements   STAI

 section IV   Spielberger State Anxiety Inventory   -20 statements   Standardized tool

Pilot Study - A pilot study was conducted in the maternity wards and in the Antenatal OPDs of the tertiary level hospital.

Procedure for data collection

I had visited Maternity wards every day to obtain hospitalized samples. On Wednesdays and Fridays, visited the Antenatal OPD for the non-hospitalized samples during the four weeks of data collection period which was from mid-April to mid-May.

High risk score was established using Modified Coopland's High risk Evaluation Form. The subjects who scored three or more in the evaluation for high risk were given the questionnaire. Only willing samples were included in the study and their consent was obtained. They were asked to fill in their demographic profile first and then the trait anxiety inventory for those who were illiterate, the researcher did the needful. After filling the trait anxiety inventory subjects were briefed about their high risk status and then asked to fill the state anxiety inventory followed by the correlates of anxiety questionnaire.

Need based intervention: The following need based interventions were carried out; provided knowledge on high risk condition, present high risk condition of the client, information on diversion therapy, deep breathing, dietary modification, and exercises.

Data analysis and interpretation: Data analysis was done using SPSS 11 version. Mann Whitney 'U' test and Pearson's Correlation were used for analysis.

Results

Forty percentage (40%) of total participants were socioeconomic class III, 59% from nuclear family, 63% G_2-G_4, 60% were between P_1-P_4, 54% were in 3rd trimester of pregnancy, 62% had no history of abortions. Spouse was the available support system for 96% of hospitalized group and 86% non-hospitalized group. Ninety eight (98%) percentage of the participants expressed that their husbands provide satisfactory support during pregnancy.

Age was homogenous in both the groups (25.02 ± 4.02; 25.42 ± 4.29), High risk score of hospitalized pregnant women was significantly higher than non-hospitalized pregnant women (Mean=5.76 ± 2.50; 4.56 ± 1.80, $P<0.01$).

The mean trait anxiety score was higher in non-hospitalised group (46.84 ± 6.20; 47.66 ± 5.17) The mean state anxiety score was slightly higher in hospitalised group (46.30 ± 4.87; 45.12 ± 4.99) however was statistically not significant. The mean correlates of anxiety score was higher in hospitalized group and statistically significant (90.64 ± 10.57; 86.36 ± 9.22, $P <0.05$).

Components of correlates of anxiety such as pregnancy related, health care realted, and self-confidence mean score of hospitalised group was slightly higher than the non-hospitalised group except for social support which was similar, however stress factor involved in the household work and child care demand was significantly higher in the hospitalised group than the non-hospitalised group (Mean 7.92 ± 1.58; 7 ± 1.78, $P<0.01$)

There was significant relationship between the trait and state anxiety score, of the hospitalised group when comparing with non-hospitalised group ($P<0.05$). State anxiety score minimally increased with the increase in high risk score in both the groups. Correlates of anxiety total score and all five components individual scores were inversely proportional to the trait anxiety in hospitalised group.

Discussion

This study found that 40% of total participants were socioeconomic class III, 59% from nuclear family, 63% G_2-G_4, 60% were between P_1-P_4, 54% were in 3rd trimester of pregnancy, 62% had no history of abortions. Hospitalized and non-hospitalized groups had homogenous distribution with respect to age, socio economic class, type of family, gravida, and number of abortions and non-homogenous distribution with respect to parity and period of gestation.

Spouse was the available support system for 96% of hospitalized group and 86% non-hospitalized group. Ninety eight (98%) percentage of the participants expressed that their husbands provide satisfactory support during pregnancy.

Age & high risk Score:

In our study age was homogenous in both the groups (25.02 ± 4.02; 25.42 ± 4.29), High risk score of hospitalized pregnant women was significantly higher than non-hospitalized pregnant women (Mean=5.76 ± 2.50; 4.56± 1.80, P<0.01).

Hospitalized high risk pregnant women were compared with the non-hospitalized low risk pregnant women. General anxiety and depression were higher in the hospitalized high risk pregnant group. Study recommended there is a need for psychological support and effective communication on emotions for the hospitalized high risk pregnant women. (Smorti et al., 2023)

We identified the high risk in the pregnant women using Modified Coopland's High Risk Evaluation Form. We assessed all the samples against a total of 31 factors for categorising them as being high risk or severe risk. Among 50 hospitalized patients 41 (75.9%) were in the category of high risk and 9 (16.6%) severe risk (Mean5.76 ±1.86). Among 50 non-hospitalized patients 34 (22.6%) were in the category of high risk and 16 (10.6%) severe risk (Mean 4.56 ± 2.50).

There was significant difference between hospitalized and non-hospitalized group high risk score. The hospitalized participants had high scores in the Coopland's High Risk Evaluation Form. This is natural as the high risk increases in severity the patients are admitted for close observation and timely termination of pregnancy.

Trait & State anxiety:

Our study found that the mean trait anxiety score was higher in non-hospitalised group (46.84 ± 6.20; 47.66 ± 5.17), the mean state anxiety score was slightly higher in hospitalised group (46.30 ± 4.87; 45.12 ± 4.99) however these were statistically not significant. There was significant relationship between the trait and state anxiety score, of the hospitalised group when comparing with non-hospitalised group (P<0.05). State anxiety score minimally increased with the increase in high risk score in both the groups. There was a significant difference in the presence of any type of anxiety disorders in intervention group -39% and control group – 16.3% (p<0.001). (Adewuya et al., 2006)

RG et al., 2007 identified that, out of 38 hospitalized high risk mothers 16 (42.1%) experienced mild level of anxiety and 22 (57.9%) severe level of anxiety. Seventeen (44.7%) had mild depression and 21 (55.3%) severe depression. (RG et al., 2007)

Trait anxiety scores and prevalence of general anxiety levels were significantly higher in the women with high risk pregnancy (P<0.05) than women without high risk pregnancy. Statistically significant scores were present in Trait, State and Beck anxiety (56.38, 52.14, 43.94; P<0.05). (Sinaci et al., 2020)

Correlates of anxiety

Components of correlates of anxiety such as pregnancy related, health care related, and self-confidence mean score of hospitalised group was slightly higher than the non-hospitalised group except for social support which was similar, however stress factor involved in the household work and child care demand was significantly higher in the hospitalised group than the non-hospitalised group (Mean 7.92 ± 1.58; 7 ± 1.78, P<0.01)   The mean correlates of anxiety score was higher in hospitalized group and statistically significant (90.64 ± 10.57; 86.36 ± 9.22, P <0.05).

Littleton er al., 2007 checked correlate of anxiety symptoms during the perinatal period and found that anxiety symptoms in the pregnant mothers were associated with many psycho-social factors such as symptoms of depression (r=0.66), anxiety related stress (r=0.40), self-respect (r=-0.47). There was no evidence of association between anxiety and adverse effects in the perinatal period. (Littleton et al., 2007)

Blackmore et al., 2016 assessed prenatal anxiety and depressed among the non-hospitalized low-income and diverse population. Questionnaire and clinical interview technique used to collect data from 345 women in different time period during prenatal and postnatal period. Risk related to psychosocial as well as pregnancy was assessed through interview, clinical examination and chart review. Pregnancy related anxiety was more towards child health aspects and birthing process. (Blackmore et al., 2016)

Correlates of anxiety symptoms during pregnancy and association with perinatal outcomes revealed that gestational age at birth evidenced a small relationship with pregnancy-specific anxiety. Anxiety symptoms in pregnancy appear to be most strongly associated with psychosocial variables such as depressive symptoms and social support. **(Littleton et al., 2007)**

These findings can be compared with a descriptive cross-sectional study conducted at Malaysia, in which out of the 38 respondents, 30 (78.9%) strongly identified "unsure of the length of stay in hospital" which is related to lack of information on disease as the most important contributing factor to their level of anxiety and

depression. The other factors identified were in relation to family matters such as "being away from husband" (76.3%) and the inability to care for her children (76.3%). Twenty-four (63.2%) of the respondents identified "lack of information on disease" as a contributing factor to their level of anxiety and depression. The less important contributing factor to the level of anxiety and depression among the high risk pregnant women in this study were the "health service providers. In relation to finance, 50 % "identified insufficient money to pay hospital bills" as a contributing factor to their anxiety and depression level. (RG et al., 2007)

Tables

Table 1

Socio-Demographic characteristics of the participants in the hospitalized & non-hospitalized group

Demographic Variables	Hospitalized (n=50) N (%)	Non-hospitalized (n=50) N(%)
Socio economic class		
I	03 (06)	01 (02)
II	17 (34)	10 (20)
III	20 (40)	20 (40)
IV	10 (20)	19 (38)
Type of family		
Joint	22(44)	19(38)
Nuclear	28(56)	31(62)
Gravida		
G_1	20(40)	11(22)
G_2 to G_4	27(54)	36(72)
$>G_4$	03(06)	03(06)
Parity		
Nullipara	27(54)	13(26)
$P_1 - P_4$	23(46)	37(74)
Period of gestation		
1st trimester	04(08)	08(16)
2nd trimester	11(22)	23(46)
3rd trimester	35(70)	19(38)
Number of abortions		
None	35(70)	27(54)
One	12(24)	15(30)
Two or more	03(06)	08(16)

Note. The study included 100 participants, 40% of participants belonged to the socio-economic class III, 59% of the participants were from nuclear family, 63% had gravida between G_2-G_4, 60% were in the Parity between P_1-P_4, 54% were in their 3rd trimester of pregnancy, 62% had no history of abortions.

Table 2

Available support system among the participants in the hospitalized & non-hospitalized group

Support system	Hospitalized (n=50) N(%)	Non-hospitalized(n=50) N(%)
Spouse	48 (96)	43 (86)
Parents	07 (14)	08 (16)
In-laws	06 (12)	01 (02)
Siblings	03 (06)	01 (02)
Relatives	02 (04)	03 (06)
Friends	02 (04)	-
None	-	03 (06)

Note. Maximum participants from both the groups had expressed that their spouse was the available support system i.e., hospitalized group 96% and non-hospitalized 86%. Other available support system was considered very minimal, 6% of the non-hospitalized group participants expressed that they did not have any support system.

Table 3

Satisfaction on support from husband of the participants in the hospitalized & Non-hospitalized group

Husband help	Hospitalized (n=50)	Non-hospitalized (n=50)
Satisfactory	50	48
Not Satisfactory	-	02

Note. Ninety eight (98%) percentage of the participants expressed that their husbands provide satisfactory support during pregnancy.

Table 4

Comparison of age, high risk, trait anxiety, state anxiety and total correlates of anxiety among the participants in the hospitalized & non-hospitalized group

Parameter	Hospitalized (n=50) Mean ± SD	Non-hospitalized (n=50) Mean ± SD	Z Value	P Value
Age (years)	25.02 ± 4.02	25.42 ± 4.29	0.39	>0.05
High risk	5.76 ± 2.50	4.56 ± 1.80	2.79	<0.01*
Trait anxiety	46.84 ± 6.20	47.66 ± 5.17	0.65	>0.05
State anxiety	46.30 ± 4.87	45.12 ± 4.99	1.03	>0.05
Total correlates of anxiety	90.64 ± 10.57	86.36 ± 9.22	2.05	<0.05

*Statistically significant at P<0.05

Note. Age was homogenous in both the groups ((25.02 ± 4.02; 25.42 ± 4.29) High risk score of hospitalized pregnant women was significantly higher than non-hospitalized pregnant women (Mean=5.76 ± 2.50; 4.56± 1.80, P<0.01). This shows that as a general rule the severe high risk pregnant women are always hospitalized for safe progress of pregnancy and delivery. The mean trait anxiety score of non-hospitalised participants (47.66 ± 5.17) was slightly higher than the hospitalized participants (46.84 ± 6.20); however it was statistically not significant. The mean state anxiety score of hospitalised participants (46.30 ± 4.87) was slightly higher than the non-hospitalized participants (45.12 ± 4.99); however it was statistically not significant. The mean correlates of anxiety score of hospitalised participants were higher than the non-hospitalized participants and it was found to be statistically significant (90.64 ± 10.57; 86.36 ± 9.22, P <0.05).

Table 5

Comparison of correlates of anxiety among the participants in the hospitalized & non-hospitalized group

Score	Hospitalized Mean ± SD	Non-hospitalized Mean ± SD	Z Value	P Value
Pregnancy	31.86 ± 7.17	30.16 ± 6.01	1.43	>0.05
Health care aspect	24.02 ± 4.05	22.9 ± 3.07	1.54	>0.05
Self confidence	9.28 ± 1.05	8.74 ± 1.41	2.04	<0.05
Social support	12.56 ± 2.63	12.56 ± 2.43	0	>0.05
Stress factor	7.92 ± 1.58	7 ± 1.78	2.65	<0.01

Note. Table 5 shows that all the components of correlates of anxiety such as pregnancy related, health care aspect, and self-confidence mean score of hospitalised group was slightly higher than the non-hospitalised group except for social support which was similar, however stress factor involved in the household work and child care demand was significantly higher in the hospitalised group than the non-hospitalised group (Mean 7.92 ± 1.58; 7 ± 1.78, P<0.01)

Table 6

Correlation between trait anxiety and state anxiety among the participants in the hospitalized and non-hospitalized group

Variables	Hospitalized (n=50) r value	Non-hospitalized (n=50) r value	P value
Correlation between trait and			
State anxiety	0.34*	0.21	<0.05
Correlation between high risk and			
Trait anxiety	0.11	0.13	>0.05
State anxiety	0.13	0.04	>0.05

Note. Table 6 shows that there was significant relationship between the trait and state anxiety score, of the hospitalised group when comparing with non-hospitalised group (P<0.05). State anxiety score minimally increased with the increase in high risk score in both the groups. This is suggestive of the fact that state anxiety score was affected by the high risk score. Trait anxiety score decreased with the increase in high risk score.

Table 7

Correlation of trait & state anxiety with total correlates of anxiety among the participants in the hospitalized and non-hospitalized group

Correlation between trait & state anxiety and	Trait anxiety score (r value)		State anxiety score (r value)	
	Hospitalized (n=50)	Non-hospitalized (n=50)	Hospitalized (n=50)	Non-hospitalized (n=50)
Total correlates	-0.10	0.005	-0.02	0.11
Pregnancy	-0.07	-0.13	-0.02	0.05
Health care aspect	-0.02	0.11	0.08	0.003
Self confidence	-0.24	0.17	0.06	0.07
Social support	-0.06	0.15	-0.14	0.25
Stress factors	-0.11	-0.05	-0.03	0.02

Note. Table 7 shows correlates of anxiety total score and all five components individual scores were inversely proportional to the trait anxiety in hospitalised group. This is suggestive of the very minimal negative relation of trait anxiety with the relevant correlates of anxiety. This means that wherever the inherent anxiety was low the correlates contribution to anxiety was also low.

References

Adewuya, A. O., Ola, B. A., Aloba, O. O., & Mapayi, B. M. (2006). Anxiety disorders among Nigerian women in late pregnancy: A controlled study. *Archives of Women's Mental Health*, *9*(6), 325–328. https://doi.org/10.1007/s00737-006-0157-5

Blackmore, E. R., Gustafsson, H., Gilchrist, M., Wyman, C., & O'Connor, T. G. (2016). Pregnancy-Related Anxiety: Evidence of Distinct Clinical Significance from a Prospective Longitudinal Study. *Journal of Affective Disorders*, *197*, 251–258. https://doi.org/10.1016/j.jad.2016.03.008

Dunkel Schetter, C. (2011). Psychological science on pregnancy: Stress processes, biopsychosocial models, and emerging research issues. *Annual Review of Psychology*, *62*, 531–558. https://doi.org/10.1146/annurev.psych.031809.130727

Gennaro, S., O'Connor, C., McKay, E. A., Gibeau, A., Aviles, M., Hoying, J., & Melnyk, B. M. (2020). Perinatal Anxiety and Depression in Minority Women. *MCN. The American Journal of Maternal Child Nursing*, *45*(3), 138–144. https://doi.org/10.1097/NMC.0000000000000611

Lavender, T. J., Ebert, L., & Jones, D. (2016). An evaluation of perinatal mental health interventions: An integrative literature review. *Women and Birth: Journal of the Australian College of Midwives*, *29*(5), 399–406. https://doi.org/10.1016/j.wombi.2016.04.004

Lederman, R. P. (2011). Preterm birth prevention: A mandate for psychosocial assessment. *Issues in Mental Health Nursing*, *32*(3), 163–169. https://doi.org/10.3109/01612840.2010.538812

Littleton, H. L., Breitkopf, C. R., & Berenson, A. B. (2007). Correlates of anxiety symptoms during pregnancy and association with perinatal outcomes: A meta-analysis. *American Journal of Obstetrics and Gynecology*, *196*(5), 424–432. https://doi.org/10.1016/j.ajog.2007.03.042

Littleton, H. L., Bye, K., Buck, K., & Amacker, A. (2010). Psychosocial stress during pregnancy and perinatal outcomes: A meta-analytic review. *Journal of Psychosomatic Obstetrics and Gynaecology*, *31*(4), 219–228. https://doi.org/10.3109/0167482X.2010.518776

Nagle, U., & Farrelly, M. (2018). Women's views and experiences of having their mental health needs considered in the perinatal period. *Midwifery*, *66*, 79–87. https://doi.org/10.1016/j.midw.2018.07.015

Ponting, C. D. S., Melissa Julian, Carolyn. (2021). Pregnancy-related anxiety and birth outcomes. In *Pregnancy-Related Anxiety*. Routledge.

RG, R., Hassan, H., M, R., & SZ, S. (2007). *A Study On Anxiety And Depression Level Among High Risk Inpatient Pregnant Women In An Obstetric Ward*.

Sinaci, S., Ozden Tokalioglu, E., Ocal, D., Atalay, A., Yilmaz, G., Keskin, H. L., Erdinc, S. O., Sahin, D., & Moraloglu Tekin, O. (2020). Does having a high-risk pregnancy influence anxiety level during the COVID-19 pandemic? *European Journal of Obstetrics, Gynecology, and Reproductive Biology*, *255*, 190–196. https://doi.org/10.1016/j.ejogrb.2020.10.055

Smorti, M., Ginobbi, F., Simoncini, T., Pancetti, F., Carducci, A., Mauri, G., & Gemignani, A. (2023). Anxiety and depression in women hospitalized due to high-risk pregnancy: An integrative quantitative and qualitative study. *Current Psychology*, *42*(7), 5570–5579. https://doi.org/10.1007/s12144-021-01902-5

Villar, J., Farnot, U., Barros, F., Victora, C., Langer, A., & Belizan, J. M. (1992). A randomized trial of psychosocial support during high-risk pregnancies. The Latin American Network for Perinatal and Reproductive Research. *The New England Journal of Medicine*, *327*(18), 1266–1271. https://doi.org/10.1056/NEJM199210293271803

Willey, S. M., Blackmore, R. P., Gibson-Helm, M. E., Ali, R., Boyd, L. M., McBride, J., & Boyle, J. A. (2020). "If you don't ask … you don't tell": Refugee women's perspectives on perinatal mental health screening. *Women and Birth: Journal of the Australian College of Midwives*, *33*(5), e429–e437. https://doi.org/10.1016/j.wombi.2019.10.003

Appendix

Blue print of the tool

This questionnaire has V Sections. Section I, II, III, IV and V. All the sections are common for both the group (hospitalized and non-hospitalized high risk pregnant women). The details of the sections are given below

Section I   Modified Coopeland's High Risk Evaluation
Section II   Demographic Profile
Section III   Spielberger Trait Anxiety Inventory - 20 statements
Section IV   Spielberger State Anxiety Inventory - 20 statements
Section V   Factors associated with level of anxiety due to pregnancy, health related aspects, support system and other stress.

SNo	Section and Content	No. of Items	Weightage
1.	Section II Demographic Profile		
	Socioeconomic data	7 (1-5,9,10)	58%
	Pregnancy related	3 (6-8)	25%
	Hospitalization	2 (11,12)	17%
2.	Section III trait anxiety inventory	20	100%(5X20)
3.	Section IV State anxiety inventory	20	100%(5X20)
4.	Section V Anxiety Correlates		
	Pregnancy related	10 (1 – 10)	40%
	Health care aspects	8(11,12,15,16,18,19, 20,21)	32%
	Self confidence	2 (13,14)	8%
	Social support	3 (17,24,25)	12%
	Stress due to house hold activities	2 (22,23)	8%

TOOL

Section I

Modified Coopland's High Risk Evaluation Form

Reproductive history		Medical or surgical associated conditions		Present pregnancy	
Age:		Previous gynecologic Surgery		Bleeding <20 weeks >20 weeks	
Parity:		Chronic renal disease		Anemia (<10g %)	
No of abortions		Diabetes Mellitus		Postmaturity	
History of infertility		Cardiac disease		Gestational hypertension	
Anaemia		Other significant medical disorders		Gestational diabetes	
Antepartum Haemorrhage		Jaundice		PPROM	
Postpartum bleeding		Fever		Oligohydramnios	
Child >4 kgs		APLA/ACLA positive		Polyhydram-nios	
Child <2 kgs				IUGR	
Gestational hypertension				Multiple pregnancy	
Previous cesarean section				Breech Malpresent-ation	
Abnormal or difficult labor				Congenital Anomalies	
Congenital anomalies				Rh isoimm-unization	
IUFD					
Still births					
Column Total		Column Total		Column Total	
Total Score (sum of the three columns)		(Score 1 to 3 according to the severity)		Low risk High risk Severe risk	

Data collected on the high risk using Modified Coopland's High Risk Evaluation Form was categorised as high risk and severe risk.

- High risk - score between 3 -6
- Severe risk- score 7 or more.

Section II

Demographic profile

1. Age:

2. Education: Wife: Husband:

3. Occupation: Wife: Husband

4. Family Income:

5. Type of Family: Nuclear family /Joint family

6. Gravida:

7. Para:

8. Period of Gestation:

9. Abortions: number of abortions

   Spontaneous / Planned

10. Support System: Spouse / Parents / Siblings / Friends / Relatives/ Neighbours/ None

11. Support from Husband in the previous pregnancy: Satisfactory/ Not Satisfactory

12. Hospitalized (Date of Admission):

13. Non – Hospitalized: Reasons for Non Hospitalization:

     Can be managed OPD basis

     Waiting for Hospitalization

     Not willing for Hospitalization

Kuppuswamy scale was used for socioeconomic class scoring. The following table gives the information on

Kuppuswamy scale (Jun 2008)

Income Original	Modified by using conversion factor (multiplied by 10.83)	score
> 2000	>21660	12
1000-1999	10830-21659	10
750-999	8122-10829	6
500-749	5415-8121	4
300-499	3249-5414	3
101-299	1093-3248	2
<100	<1093	1

The Total score in Kuppuswamy's classification is calculated as the sum total of the three scores, i.e.,

Education (A) + Occupation (B) + Income (C). Depending on the total score so computed, the five socio-economic

classes are as follows :-

	Total Score	**Class**	**Description**
●	26 – 29	I	(upper class)
●	16 – 25	II	(upper middle)
●	11 – 15	III	(lower middle)
●	5 – 10	IV	(upper lower)
●	Below 5	V	(lower)

Section III

Self -Evaluation Questionnaire STAI (Form Y-2)

Directions:

A number of statements which people have used to describe themselves are given below. Read each statement and then circle the appropriate number to the right of the statement to indicate how you *generally* feel.

4 = Almost Always,   **3** = Often,   **2** = Sometimes,   **1** = Almost Never

S No	Criteria	1	2	3	4
1	I feel pleasant				
2	I feel nervous and restless				
3	I feel satisfied with myself				
4	I wish I could be as happy as others seem to be				
5	I feel like a failure				
6	I feel rested				
7	I am "calm, cool, and collected"				
8	I feel that difficulties are piling up so that I cannot overcome them				
9	I worry too much over something that really doesn't matter				
10	I am happy				
11	I have disturbing thoughts				
12	I lack self confidence				
13	I feel secure				
14	I make decisions easily				
15	I feel inadequate				
16	I am content				
17	Some unimportant thought runs through my mind and bothers me				
18	I take disappointments so keenly that I can't put them out of my mind				
19	I am a steady person				
20	I get in a state of tension or turmoil as I think over my recent concerns and interest				

Section IV

State Trait Anxiety Inventory

Directions:

Read each statement and select the appropriate response to indicate how you feel right now, that is, at this very moment in relation to your high risk pregnant state. There are no right or wrong answers. Do not spend too much time on any one statement but give the answer which seems to describe your present feelings best.

1   Not at all   **2**   A little   **3**   Somewhat   **4**   Very Much So

S No	Criteria	1	2	3	4
1	I feel calm				
2	I feel secure				
3	I feel tense				

4	I feel strained				
5	I feel at ease				
6	I feel upset				
7	I am presently worrying over possible misfortunes				
8	I feel satisfied				
9	I feel frightened				
10	I feel uncomfortable				
11	I feel self-confident				
12	I feel nervous				
13	I feel jittery				
14	I feel indecisive				
15	I am relaxed				
16	I feel content				
17	I am worried				
18	I feel confused				
19	I feel steady				
20	I feel pleasant				

Data related to the trait/state anxiety and the correlates of anxiety were scored and the subjects were categorized into 4 groups as shown below:

State anxiety	Mild	Moderate	Severe	Very severe
	Up to 25	26 – 50	51 - 65	66 – 80
Trait anxiety	**Mild**	**Moderate**	**Severe**	**Very severe**
	Up to 25	26 – 50	51 - 65	66 – 80
Correlates score	**Mild**	**Moderate**	**Severe**	**Very severe**
	101 - 125	76 - 100	51 – 75	25 – 50

Section V

Questionnaire on correlates of anxiety

Put a circle in the appropriate option of the following questions:

1. How do you feel when you think about the mode of delivery?

a) Worried very often

b) Worried often

c) Ignore

d) Less worried

e) Not worried at all

2. What do you feel about normal labour process?

a) Extremely stressful

b) Very stressful

c) Moderately stressful

d) Somewhat stressful

e) Not at all stressful

3. What are your feelings about operative delivery?

a. Extremely stressful

b. Very stressful

c. Moderately stressful

d. Somewhat stressful

e. Not at all stressful

4. You think that these feelings are due to high risk pregnancy

a) Strongly Agree

b) Moderately Agree

c) Undecided

d) Moderately disagree

e) Strongly disagree

5. You fear of bearing a child with congenital anomaly

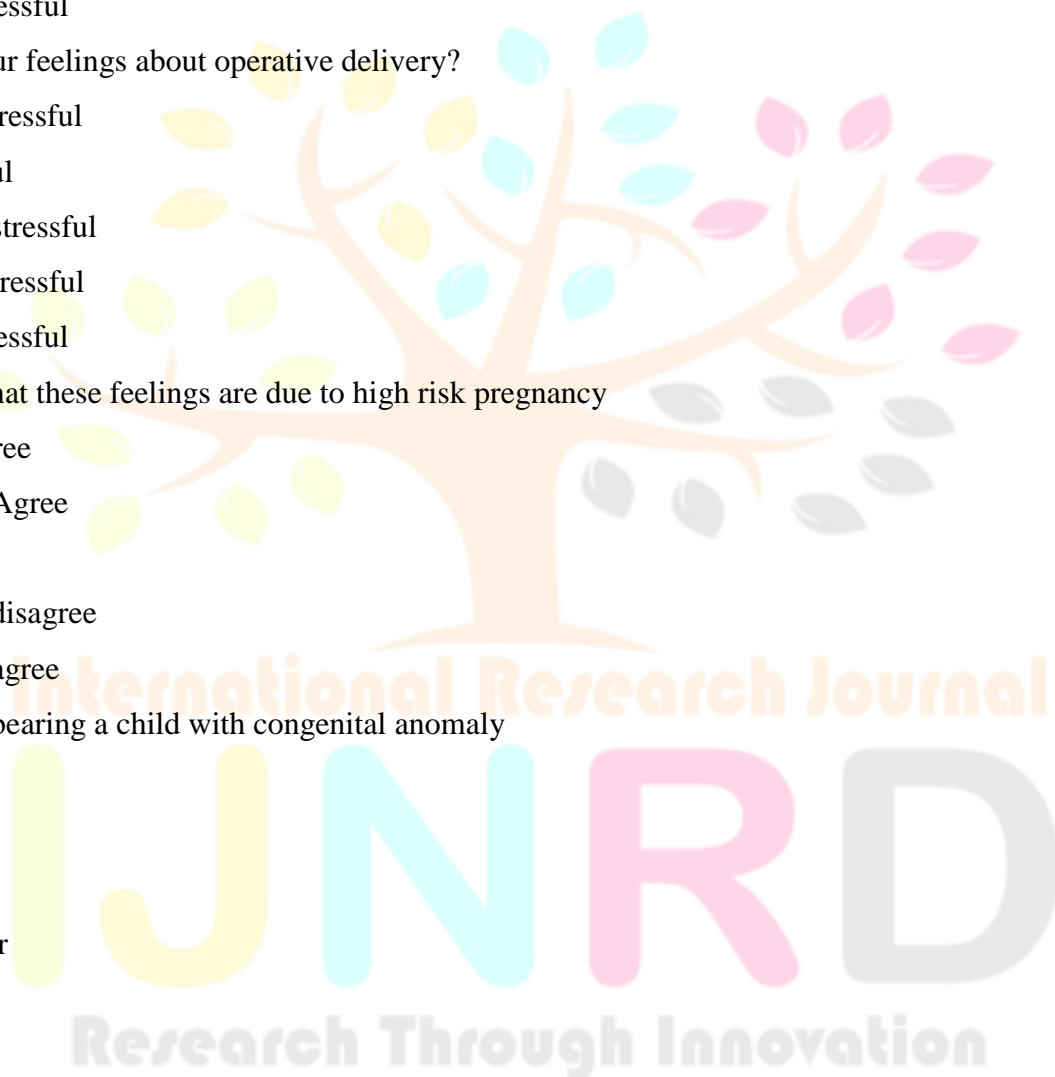a) Very often

b) Often

c) Sometimes

d) Almost never

e) Never

6. You worry about the pregnancy related physical changes

a) Strongly agree

b) Agree

c) Not sure

d) Disagree

e) Strongly disagree

7. You feel the relationship with your partner is changed due to pregnancy changes

a) Extremely unlikely

b) Very unlikely

c) Not sure

d) Somewhat likely

e) Extremely likely

8. You have fear of changes in your personal life due to newer commitment with pregnancy

a) Strongly disagree

b) Disagree

c) Not sure

d) Agree

e) Strongly Agree

9. How is your mood during pregnancy (nowadays)?

a) Elated

b) Pleasant

c) Stable

d) Gloomy

e) Depressed

10. What do you think of the responsibility of parenting?

a) Strenuous

b) Difficult

c) No difference

d) Easy

e) Very easy

11. You are satisfied with the information provided to you about the present pregnancy state

a) Always

b) Often

c) Not sure

d) Occasionally

e) Never

12. Your doubts and queries answered adequately

a) Very often

b) Fairly often

c) Sometimes

d) Almost never

e) Never

13. You are confident in self-assessment for abnormal pregnancy changes

a) Strongly agree
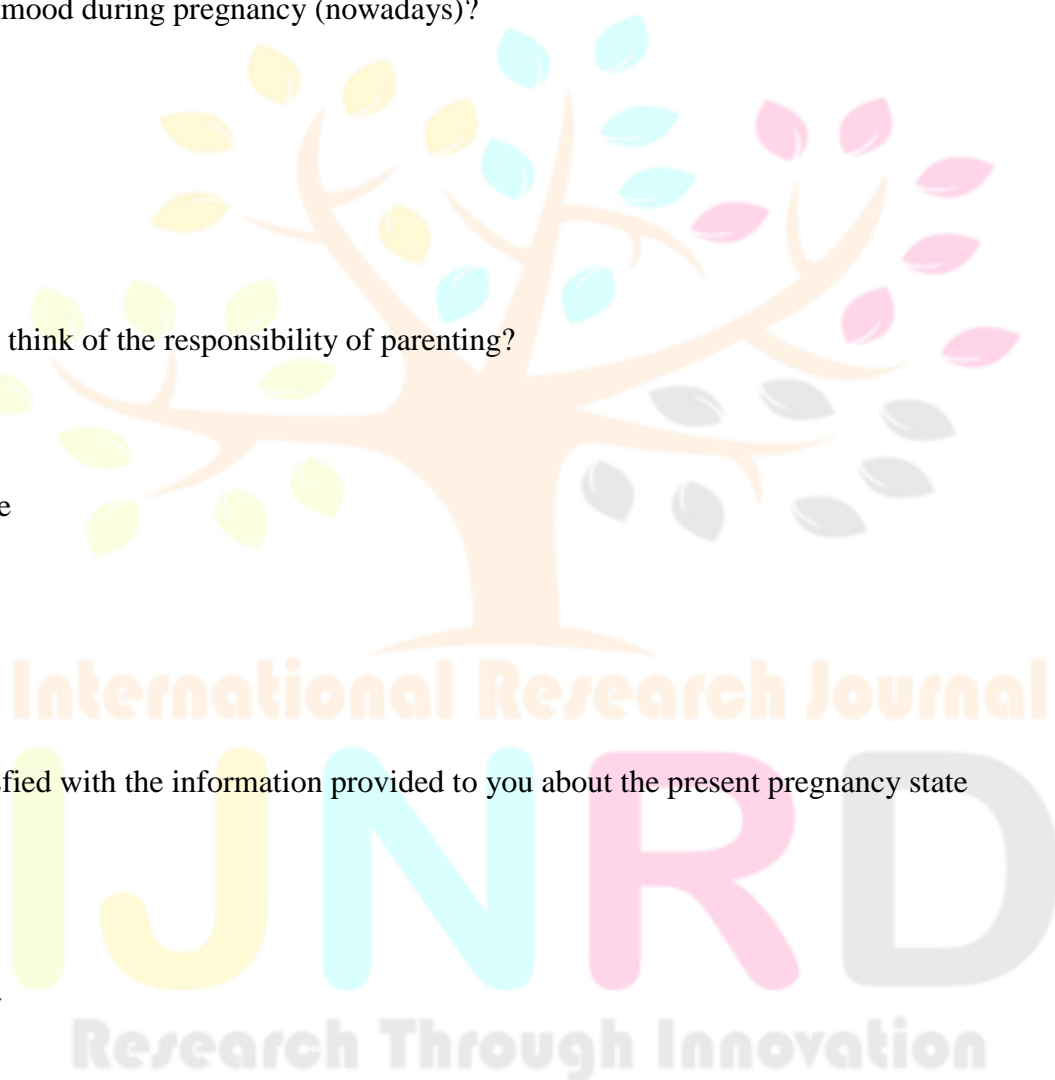
b) Agree

c) Not sure

d) Disagree

e) Strongly disagree

14. You are confident in foetal assessment

a) Strongly disagree

b) Disagree

c) Not sure

d) Agree

e) Strongly agree

15. You need to stay near the health care facility

a) Strongly agree

b) Agree

c) Not sure

d) Disagree

e) Strongly disagree

16. There are known health care provider around you to depend upon

a) Strongly disagree

b) Disagree

c) Not sure

d) Agree

e) Strongly agree

17. You have someone to accompany you to the hospital

a) Very often

b) Fairly often

c) Sometimes

d) Almost never

e) Never

18. Hospitalization will help you at this time

a) Strongly agree

b) Agree

c) Not sure

d) Disagree

e) Strongly disagree

19. Ward environment is congenial for stay

a) Strongly disagree

b) Disagree

c) Not sure

d) Agree

e) Strongly agree

20. The doctors are approachable

a) Strongly agree

b) Agree

c) Not sure

d) Disagree

e) Strongly disagree

21. Nurses are supportive

a) Strongly agree

b) Agree

c) Not sure

d) Disagree

e) Strongly disagree

22. You are able to cope with house hold activities

a) Very often

b) Fairly often

c) Sometimes

d) Almost never

e) Never

23. How stressed are you as a result your child care demands?

a. Extremely stressed out

b. Very stressed out

c. Moderately stressed out

d. Somewhat stressed out

e. Not at all stressed

24. You have adequate support system

a) Strongly agree

b) Agree

c) Can't say

d) Disagree

e) Strongly disagree

25. You are able to afford the cost of health services

a) Almost always

b) Often

c) Sometimes

d) Almost never

e) Never

Questionnaire on Correlates of Anxiety. It had total 25 items. Five different aspects of correlates were included.

1. Pregnancy related – 10 items. These items were formulated on the basis of the Van den Bergh's concepts on "Pregnancy Specific Anxiety" which is not in relation to the high risk status of the pregnant woman.

 The pregnancy related 10 items were distributed in the following manner,

S No	Items	Total No.
1.	Fear related to mode of delivery	04
2.	Fear related to the health of the unborn child	01
3.	Fear related to changes in the self	02
4.	Fear related to changes in the relationship with the partner	01
5.	Fear related to newer commitment	01
6.	Fear related to the caring of the child	01

2. Health care related - 8 items

S No	Items	Total No.
1.	Health information on the present condition	02
2.	Behaviour of the health care workers	02
3.	Accessibility of the health facility	01
4.	Need for hospitalization and ward condition	03

3. Social support – 3 items

S No	Items	Total No.
1.	Anyone present at home to help after delivery	01
2.	Affordability for health related matters	01
3.	Anyone to accompany to the hospital	01

4. Self-confidence – 2 items

S No	Items	Total No.
1.	Self-assessment for untoward changes	01
2.	Assessment of the foetal movements	01

5. Stress related to household activities – 2 items

S No	Items	Total No.
1.	Burden of house hold activities & responsibilities	01
2.	Child care demand	01