A cross- sectional study to assess the relationship between pregnancy related anxiety and perceived social support in third trimester antenatal females.

Thesis

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DECLARATION

I hereby declare that the thesis titled **"A cross- sectional study to assess the relationship between pregnancy related anxiety and perceived social support in third trimester antenatal females."** embodies the original work carried out by the undersigned in All India Institute of Medical Sciences, Jodhpur.

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CERTIFICATE

This is to certify that the thesis titled **"A cross- sectional study to assess the relationship between pregnancy related anxiety and perceived social support in third trimester antenatal females."** is the bonafide work of **Dr. Isha Kaur Arora** carried out under guidance and supervision, in the Department of Psychiatry, All India Institute of Medical Sciences, Jodhpur, Rajasthan.

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DEDICATED TO OUR PATIENTS WHO ARE ALSO OUR TEACHERS

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SUMMARY

Background: Perinatal period is a stressful time in the life of a woman, where she is vulnerable to develop mental health problems owing to the social change in her role, increased responsibilities, fear of unknown and changes in her body. Various neurobiological reasons have also been implicated for the same. Poor perinatal mental health has adverse effects on the mother affecting her experience of the pregnancy and her quality of life. It has also found to be associated with preterm birth, low birth weight, developmental delay and poor child mental health among others, thus affecting the health of the child. Perceived social support has been hypothesized to alter emotional reactivity, such that high levels of perceived social support can normalize the affective response. It has also found to be consistently associated with perinatal anxiety. However, due to the unique socio-cultural milieu of the Indian subcontinent, the results of the studies done in western countries might not apply here. Understanding the various predictive factors for anxiety among pregnant females will not only help in the early identification and adequate care for the mothers, but may also lead to the birth of healthier babies.

Aims: The primary aim of this thesis is to assess the relationship between pregnancy related anxiety with perceived social support in third trimester antenatal females.

Methodology: A third trimester pregnant woman without any psychiatric illness or very high-risk pregnancy, who met the selection criteria, was explained about the objective and methodology of the study, and written informed consent was taken. Socio-demographic data and clinical details were recorded in a semi structured interview. Pregnancy specific anxiety was assessed using the Perinatal anxiety screening scale (PASS), and the Pregnancy related anxiety questionnaire revised 2 (PRAQ R2) Hindi or English versions, which the patients rated themselves. Multidimensional scale for perceived social support (MSPSS) was used to assess the perceived social support, a self-rated questionnaire. Depression was screened using the Patient health questionnaire 9 (PHQ 9) self-rated questionnaire. Hindi scales for MSPSS and PHQ 9 were used and PRAQ R2 scales and PASS scales were translated to Hindi using the WHO method.

Results: A total of 124 respondents participated in the study. The mean age of the sample was 27.2 ± 4.054 years. Out of 124 study participants 50 screened positive on

the PASS scale. Frequency of anxiety in the study population was found to be 40.3 %. Frequency of depression in the study population was found to be 28.2%. Anxiety was not associated with any socio-demographic variables, except anxious group had significantly higher graduates or above compared to non-graduates ($p = 0.028$). Except for significantly higher ANC visits in the anxious group ($p = 0.031$), no other clinical variable or laboratory parameter was associated with anxiety. The total PRAQ R 2 scale correlated significantly with total ANC visit ($p = .016$), the fear regarding childbirth domain correlated significantly with ANC visits ($p = 0.010$) and age of gestation ($p = 0.010$). Total MSPSS scores were found to be significantly negatively correlated with the number of times the respondent was pregnant ($p = 0.046$), and significantly positively associated with the age at which the respondent got married ($p = 0.012$) and her education status ($p = 0.022$). The significant other domain of MSPSS was found to be positively correlated with the age of marriage ($p = 0.034$). The MSPSS domain concerning perceived social support from family was found to be significantly negatively correlated with the number of pregnancy ($p = 0.022$), and significantly positively associated with the number of females in the family ($p = 0.021$), and the age of marriage ($p = 0.037$). Perceived social support from friends was found to be significantly positively correlated with the age of marriage($p = 0.021$), and education status ($p = 0.011$). Working respondents have significantly more perceived social support from significant other compared to housewives ($p = 0.022$). Respondents who were in a joint family had significantly more perceived social support from their family compared to those living in nuclear families ($p = 0.039$). Those who planned their pregnancy ($p = 0.036$) had significantly more perceived social support from their friends. The total MSPSS scores and all its domains were significantly lower in the anxious group (Total $p = 0.002$, Significant other $p = 0.006$, Family $p = 0.031$ and friends $p = 0.004$). Significant negative correlations were found between the total MSPSS scores and the total PRAQ R2 scores and all the domains of PRAQ R2. The significant other and the family domains of SPSS were found to be significantly negatively associated with the total score, the body image domain and the child domain. The friends domain was found to be significantly negatively correlated with the total PRAQ R2 scores, and the body image domains. Depression was also found to be significantly higher in anxious group ($p < 0.001$).

Conclusion: In this cross-sectional study, around 40% of the women were found to have anxiety during third trimester pregnancy. Higher education was found to be associated with higher anxiety. Anxiety also significantly associated with perceived social support. The findings of this study suggest that low perceived social support leads to increased risk of anxiety in pregnancy. Findings of this study also give an insight into the socio-cultural milieu in Westernn India surrounding a pregnant female. Findings like decrease of a social support with increase in the number of pregnancy, point towards unique stigma women in India have to face possibly around the birth of female children. Increase in social support with increase in age of marriage and education point towards a better support among educated women. The prevalence of pregnancy related anxiety is high, proper screening of anxiety among pregnant females might be necessary. Reassuring them, educating them and enhancing their social support, might be the key to decreasing anxiety, improving their quality of life and also preventing adverse effects on the unborn baby.

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Introduction

INTRODUCTION

Pregnancy is a unique time in a woman's life and one that is expected to be a joyous and delightful. It is a stage that most women go through at least once in their life. A lot of a country's resources go into the care of reproductive health care of women, and as per the United Nations Children's Fund (UNICEF), Maternal Mortality is one of the key health indicators of a country[1]. Despite the large resources of every country going to the care of pregnant women, maternal mental illness was not talked about until the past few years.

In 2007, World Health Organization (WHO) defined the term Maternal Mental health as 'A state of well-being in which a mother realizes her own abilities, can cope with the normal stresses of life, can work productively and fruitfully, and is able to make a contribution to her community'[2]

During the perinatal period, the mother is vulnerable for developing mental health problems due to a wide variety of reasons, which may include adjusting to the new role of becoming a mother, financial reasons, physical and relationship stresses.[3]

Various neurobiological mechanisms have been implicated for the development of maternal depression as well as maternal anxiety. These include endocrinological changes like increase in reproductive hormones including, among others, estrogen and progesterone and neuro-steroids. Some immune system changes have also been implicated with growing evidence for IL-6, IL-1β, and TNF-α. In addition, there is emerging data for some network level changes in the brain. Most of these studies, however, are in their earlier phases and need more research.[4] Other psychological and social mechanisms have also been proposed, which include, changes in the body, changes in the social role of the lady, and apprehensions regarding motherhood and the newborn baby.[5]

Some psychoanalytic theories try to explain the psychology as well as psychopathology during pregnancy. As per a theory, the first trimester's food craving, nausea and vomiting are understood by the oral dominance of this phase, due to the attachment of the fetus inside the uterus. In the second trimester, anal trends become prominent as the fetus shows greater personhood which corresponds to the period of increased separation. Finally, the third trimester is predominated by the phallic-aggressive wishes, associated with urethral issues and the woman's increased fears

that she or the baby may die. Ego regression distorts the woman's perception of reality, induces irrational beliefs and fears due to magical thinking associated with the primary process.[5]

The incidence of mental health problems including stress, anxiety and depression are more common during pregnancy than in the general population. The women who do not receive treatment may continue to have these symptoms postnatally and may even stay through their child's early years of life.[6] Poor perinatal mental health may have adverse consequences not only on the mother, but also on the baby, including effects like preterm birth, low birth weight, developmental delay and poor child mental health among others.[7-10]

Pregnancy related anxiety

Diagnostic and Statistical Manual for Mental Disorders, 5th edition (DSM 5) has no category for the diagnosis of pregnancy related anxiety, not even a 'peripartum onset' specifier, which has been included for depressive disorders and bipolar disorder. [11] Such a diagnostic entity, however, has been included in International Classification of Diseases, 11th edition (ICD 11). If the diagnosis of a neurotic disorder has been made during the pregnancy or within 6 weeks of post-partum, a diagnosis of code 6E20 'Mental or behavioural disorders associated with pregnancy, child birth and the puerperium, without psychotic symptoms' along with the code of the disorder can be made. However even in ICD 11 emphasis is on depression during pregnancy or post-partum and not on anxiety.[12] The symptoms do not differ significantly from anxiety disorders in general, however, the main focus of the worry is usually the outcome of the pregnancy.[3]

Pregnancy related anxiety has been found to have affective, cognitive and somatic attributes. The affective attribute consists of the fear of unknown. The cognitive attribute mainly consists of the fetal and maternal well-being, the body image, child birth, parenting, financial aspects about having the baby. The somatic attribute mainly includes, among others, sleep problems fatigue tremors, sweating, palpitation and breathlessness.[13] Studies in the west have shown that women who belong to ethnic minorities are at a higher risk for experiencing poor mental health.[3]

Prevalence of pregnancy related anxiety

As per a meta-analysis done in 2017, the pooled prevalence of self-reported anxiety symptoms during pregnancy was found to be 18.2% (95% CI 13.6–22.8, 10 studies, n = 10,577), for the first trimester, 19.1% (95% CI 15.9–22.4, 17 studies, n = 24,499) for the second trimester and 24.6% (95% CI 21.2–28.0, 33 studies, n = 116,720) for the third trimester. [14]

Perceived social support

As described by Lin et al. 1986, social support is "the perceived or the actual instrumental and expressive provisions provided by the community, social networks and confiding partners" [15]. Perceived social support has been described by House et al. 1988, as the subjective availability of care and assistance received from social relationships and it is characterized by emotional support, instrumental support, and informational support that can be provided from various sources, such as friends or family.[16] It has also been described as the psychological perspective of social support emphasizes on the perceived availability of social support rather than the actual received social support[17].

The difference between the received social support and the perceived social support is that the received social support measures the actual quality and quantity of social support received form the various sources, whereas the perceived social support is the availability and adequacy of support received from society. [18] Lower levels of perceived social support is strongly associated with adverse mental health outcomes compared to the received social support, and both of them only have a modest correlation.[19, 20]

Perceived social support has been hypothesized to alter emotional reactivity, such that high levels of perceived social support can normalize the affective response. Nyman et al. 2020 tried to test it at the neuronal level by measuring the late positive potential (LPP), a neural index of reactivity to emotional information and measuring it against the perceived social support. In the third trimester of pregnancy, lower perceived social support was associated with an absence of a traditional LPP effect.[21]

Perceived social support is a protective factor against anxiety as well as depression[22-23] .Low levels of perceived social support is associated with worse outcomes in depression and some preliminary evidence suggests, that it might be true for anxiety

disorders as well.[24] It is hypothesized that the social support may act as a buffer in stressful situations and against the adverse events of that high stress environment.[25] Becoming pregnant and preparing for parenthood is a life changing event in a woman's life and hence a stressful time which may induce some mental health problems.[26]

Rationale behind the study

Social support has been found to be consistently associated with anxiety in pregnant females. However, the literature studying these aspects specifically in the third trimester of pregnancy is sparse. Moreover, the evidence gained from western studies might not apply to the expectant Indian mothers, as there is a vast difference in the socio-cultural practices. It has also been established that the mental state of the mother may have a significant impact on the foetus. Hence, this study was planned to assess the relationship of perceived social support, socio-demographic variables, clinical variables, and anxiety among third trimester pregnant females. This study will add to the existing literature and pave the way for further studies regarding maternal mental health. Furthermore, understanding the various predictive factors for anxiety and depression among pregnant females will not only help in the early identification and adequate care for the mothers, but may also lead to the birth of healthier babies.

Review of Literature

REVIEW OF LITERATURE

The existing literature demonstrates a wide range of prevalence of anxiety during pregnancy. It has been studied in multiple studies across the globe and a few Indian studies. In addition, the relationship between pregnancy related anxiety and social support have also been reported in various studies, however, few Indian studies are present for the same.

Various cross-sectional studies, prospective studies, meta-analyses, and systemic reviews have been included in this literature review. The current literature review aimed to examine the association of anxiety with various socio-demographic factors, obstetric factors and perceived social support in antenatal females. In addition, studies on the prevalence of anxiety in antenatal females have been included to make the literature review comprehensive.

Global data on prevalence of anxiety in pregnant females

As per a multivariate Bayesian meta-analysis done by Fawcett et al. 2019, which included 26 prevalence estimates, the prevalence of having at least one anxiety disorder during pregnancy or the postpartum period is estimated to be 20.7%, with a trend towards greater prevalence in pregnancy versus the postpartum period.[27]

As per a meta-analysis done by Dennis et al. 2018, the prevalence of self-reported anxiety symptoms was 18.2% (95% CI 13.6–22.8, 10 studies, n = 10,577) for the first trimester, 19.1% (95% CI 15.9–22.4, 17 studies, n = 24,499) for the second trimester and 24.6% (95% CI 21.2–28.0, 33 studies, n = 116,720) for the third trimester. The overall pooled prevalence for self-reported anxiety symptoms across the three trimesters was 22.9% (95% CI 20.5–25.2, 52 studies, n = 142 833).[14]

According to a rapid review and meta-analysis done by Tomfohr-Madsen in 2021, which assessed Depression and Anxiety in pregnancy during COVID-19, it was found that the pooled prevalence of anxiety, as assessed in 34 studies with a total sample of 42,773, was 30.5%. Prevalence of anxiety was found to be higher in studies conducted later in the pandemic.[28]

As per a systematic review done by Sun et al. 2020 which assessed the impact of COVID-19 on anxiety and depression in pregnant women, eight studies for anxiety during pregnancy were included with a total of 7,589 participants and the overall

prevalence of anxiety was found to be 34%. The rate of anxiety in the pregnant and delivery women reported ranged from 18% to 56%.[29]

Another meta-analysis done by Falah-Hassani et al. in 2017, assessed the prevalence of antenatal and postnatal co-morbid anxiety and depression in a total sample of n = 25,592. It was found that the prevalence of co-morbid anxiety symptoms and mild to severe depressive symptoms were 11.6% for the 1st trimester, 10.6% for the 2nd trimester, and 9.5% for the 3rd trimester. The overall pooled prevalence for co-morbid anxiety symptoms and mild to severe depressive symptoms across the three trimesters was 9.5%. [30]

Prevalence of anxiety among antenatal females in lower and middle income countries

Most of the meta-analysis mentioned above have pointed towards a high prevalence of anxiety in low and middle income countries.

A cross-sectional study was conducted in Pakistan by Ali et al. 2012, in which a total of 167 pregnant women participated. Anxiety and depression were measured using the Hospital Anxiety and Depression Scale and 70.1% women were found to be either anxious or depressed or both (95% CI: 63.1, 77.0), 32.9% were both anxious and depressed, 53.3% women were anxious and 49.7% of the women were found to be depressed. [31]

Another cross-sectional study was done in Pakistan by Waqas et al. in 2015. In the study the authors used Hospital Anxiety and Depression Scale to measure anxiety and depression, they found that 49% of women were found to be anxious in a sample of 500 respondents. (32)

A prospective cohort study was initiated by the National Natural Science Foundation of China, in which participants were recruited from hospitals in Chongqing, a provincial city in south-western China. The authors measured relationship between anxiety and stress in early pregnancy. Anxiety was measured using the Hamilton Anxiety Rating Scale and the prevalence of anxiety (<15 weeks period of gestation) was found to be 15.04%.[33]

As per a cross sectional study conducted at a community based clinic in Cape Town, South Africa, in which a total of 376 women were included, the anxiety was found to be 23% as assessed by the Mini-International Neuropsychiatric Interview (MINI). [34]

As per another a prospective cohort study conducted in Soweto, South Africa (2014-2016) by Redinger et al. 2020, it was found that rates of anxiety in early and late pregnancy were 15% and 17%, respectively as assessed by the State Trait Anxiety Index (STAI). [35]

Hence, prevalence of anxiety and depression in the prenatal period is more common in the lower and middle income countries (World bank data) of which India is a part.

Socio-demographic factors and anxiety

As per a systematic review by Biaggi et al. 2016 it was found that young age at the time of pregnancy was associated with depression and anxiety and adolescents were more prone to developing these ailments. Older age of the pregnant female was also positively associated with anxiety and depression. More anxiety and depression was also prevalent in low educational achievements. However in studies in Malawi and Pakistan, the opposite was found to be true. It was also found that unemployed women were found to be more depressed and women whose partners were unemployed were also found to be more depressed. [36]

A cohort study was done by Loo et al. 2018, in which 2897 women participated. Hospital Anxiety and Depression scale (HADS) was used to assess the presence of anxiety and depression. It was found that among the who participated in the study, the prevalence of anxiety was found to be 17.9% in early pregnancy and 14.2% in late pregnancy. The prevalence of depression was found to be 5.4% in early pregnancy and 10.0% in late pregnancy. Women aged less than 30 years, with an intermediate level of education and a non- Dutch background were found to have significantly higher rates of probable anxiety and women with age more than 35 years, with a low education level and those from a non-Dutch origin were more likely to have probable depression.[37]

In a study done by Silva et al. 2017 in which 209 pregnant women were included and they used HADS to assess depression and anxiety in pregnancy. 26.8% of the pregnant women were found to be anxious. Anxiety was also found to be more frequent in the final trimester of pregnancy (42.9%) although the results were not

significant. This study also concluded that women who were housewives had a greater chance of developing anxiety than women who were working (p = 0.046).[38]

As per a cross sectional study done during the COVID 19 pandemic in China by Shangguan et al. 2021 in which 2,120 Chinese pregnant women who were attending a self-help crisis intervention participated the prevalence of anxiety symptom was found to be 21.7%. It was also found that the anxiety group had significantly more number of women with annual family income of <80,000 Yuan compared the non-anxiety group. Women suffering from chronic illness during or prior to pregnancy and taking oral medication on chronic illness were more in the anxious group than in the non-anxious group.[39]

A cross sectional study was done by Faramarzi et al. 2020, done in five private and public obstetrics clinics of Babol city of Iran with 176 participants, which studied prevalence and factors related to psychiatric symptoms in low risk pregnancy. It measured depression using the Edinburgh Postnatal Depression Scale (EPDS) and anxiety using the Symptoms Checklist 25 (SCL-25) which is a briefer version of Symptoms Checklist 90 (SCL 90), it found that anxiety symptoms were present in 25.8% of the participants. In this study the mean scores of anxiety were significantly higher in mothers who were younger (18-30 years) compared to those who were ≥ 30 years old (p = 0.050).[40]

As per a cross sectional study done in Nigeria in which 456 women participated and anxiety was screened using the Depression Anxiety and Stress Scale-21 (DASS 21), the prevalence of anxiety was found to be 37.5%. Of these mild-to-moderate anxiety was reported by 26.5% of participants. Severe and extremely severe anxiety were reported by 3.3% and 7.7% of the study participants, respectively. Age of 38–45 years (P< 0.001), para 5 and above (P < 0.001), urban residence (P=0.008), tertiary education (P < 0.001), and working as a trader (P < 0.001) were significantly associated with anxiety symptoms.[41]

Another cross-sectional study was conducted in Turkey by González-Mesa et al. 2019, in which 250 Turkish and 264 Spanish low obstetric-risk pregnant women participated. It was found that in state anxiety mild, moderate and severe was observed in 56.8%, 14.7% and 20.5% of participants, respectively About one third of the women (31.4%) scored more than the cut-off score for mild trait anxiety while

19.7% and 20.2% scored for moderate and severe anxiety, respectively. State anxiety scores were found to be significantly higher in women worried about economic issues and about the relationship with their partners ($p < 0.0001$). In the same study multivariate analysis showed that the best predictor variables for state anxiety were religion, family planning and partner's excitement and interest for the pregnancy, and for state anxiety they were unplanned pregnancies among Muslim women whose partners were not excited and interested about.[42]

As per a cross-sectional study conducted during the COVID-19 pandemic by Effati-Daryan et al. 2020, in which 205 women participated in which anxiety was assessed using the DASS-21 scale, it was found that by adjusting other variables, the four variables of spouse's educational level, spouse's support, marital life satisfaction and number of pregnancies were significantly associated with the anxiety score ($P < 0.05$) and were able to predict 19.0% of anxiety score variance.[43]

Obstetric history and pregnancy related factors and anxiety

As per the systematic review done by Biaggi et al. 2016, it was found that depression and anxiety were associated with unplanned and unwanted pregnancies especially in the first trimester, with its importance decreasing over time. Fear of childbirth and negative thoughts about the upcoming delivery have been associated with increased risk of antenatal anxiety and depression.[36]

As per the study by Loo et al. 2018 mentioned above, multiparity was related to more depressive symptoms in late pregnancy ($p < 0.01$). The study also concluded that anxiety symptoms during early pregnancy were more in women who took >12 months to become pregnant ($p < 0.01$). Women with an unplanned pregnancy ($p < 0.01$) and nausea reported more depressive symptoms ($p < 0.01$). Women who had an infection during pregnancy reported slightly more depressive symptoms in early pregnancy and anxiety symptoms in late pregnancy. Nausea was associated more depressive symptoms in early pregnancy whereas, extreme fatigue was associated with more depressive and anxiety symptoms. Exercising 150 minutes or more per week was associated with less depressive and anxiety symptoms.[37]

In the study discussed earlier by Silva et al. 2017 it was found that anxiety was significantly associated with history of abortion/ premature birth in the previous

pregnancy, maternal desire for pregnancy and presence of complications in the previous pregnancy.[38]

As per a cross sectional study in Iran, conducted by Shakarami et al. 2021, which assessed fear, anxiety and self-efficacy of childbirth among primiparous and multiparous women, in which 200 women participated, 100 primipara and 100 multipara, and anxiety was measured using the state and trait anxiety scale, it was found that there was no significant difference between the primipara and multipara with regards to the STAI scores, however significant difference was seen in the two groups in the delivery fear scale (mean scores more in primipara women) ($p < 0.001$), and significantly higher total self-efficacy, outcome expectancies, self-efficacy expectancies in the multipara group.[44]

As per a case-control and cross-sectional study done by Sinaci et al. 2020, during the COVID 19 pandemic, which used STAI, Spielberger State-Trait Anxiety Scale questionnaire (STAI-T) and Beck Anxiety Inventory (BAI), and in which 446 women participated it was found that there was a significant difference in anxiety scores among those with a risk factor in pregnancy and those not ($p <0.05$).[45]

Psychological factors associated with anxiety

As per a systematic review done by Biaggi et al. 2016 it concluded a high comorbidity of depression and anxiety during the antenatal period, and high anxiety during pregnancy was one of the strongest risk factors for prenatal depression. A previous history of anxiety and depression and a history of psychiatric treatment during a previous pregnancy or at any time during the lifetime, is also found to be an important risk factor in the development of antenatal anxiety and depression. Substance use like alcohol and smoking were also found to be associated with anxiety and depression during pregnancy in some studies. Quality of attachment with parents and past history of childhood sexual abuse also predicts anxiety and depression during pregnancy. A family history of psychiatric illness during the lifespan has been observed as another important risk factor for antenatal depression.[36]

As per a cohort study done by Loo et al. 2018, mentioned previously, it was found that women who experienced negative life events reported more depressive and anxiety symptoms throughout pregnancy. Women with a history of depression reported more depressive and anxiety symptoms in early ($P < 0.01$ and $P < 0.01$) and

late pregnancy (P < 0.01 and P < 0.01). A family history of depression only influenced anxiety symptoms in early pregnancy (P < 0.01).[37]

In a study by Silva et al. 2017, mentioned earlier, it was also found that women who smoked more than 10 cigarettes per day had a significantly more chance of having anxiety compared to women who did not and women who consumed illicit substances were at a significantly higher chance of developing anxiety.[38]

As per a meta-analysis done by Abrar et al. 2020, which included 5 case-control studies comparing the anxiety levels among women with and without a medically complicated pregnancy, it was concluded that anxiety symptoms were significantly higher among women experiencing a medically complicated pregnancy compared with women experiencing a medically uncomplicated pregnancy.[46]

Association between Anxiety and Social support

As per a prospective longitudinal study by Martini et al. 2015 assessing the maternal anxiety in relation to infant development where 306 expectant women were recruited, they measured maternal anxiety using the Composite International Diagnostic Interview V and they measured social support using the Social Support Questionnaire and found a significant relationship between maternal anxiety and social support (OR 0.44; CI- 0.27–0.70; p=0.001).[9]

A cross sectional study that used the data from the Prenatal Health Project authored by Akiki et al. 2016, and was conducted in Ontario, Canada and it included 2,357 participants. This study included females who were carrying a singleton fetus of 10–22 weeks gestation. To evaluate anxiety State Trait Anxiety Inventory was used, and social support was measured using the three Social Support Scales developed by Turner and Marino (1994).[47] As per the results of the multiple linear regression models, the study found that women receiving greater social support from their family reported feeling significantly less anxious and a one SD increase in social support from the family was associated with a 0.044 SD decrease in anxiety (p = 0.029). A relationship was also found between anxiety and partner support, a one SD increase in social support from the husband/partner was associated with a 0.033 SD decrease in STAI-State scores (p=0.0051).[48]

As per a multicentric study conducted in Montreal, Canada, which included 5,271 women in 24–26 weeks of gestation pregnancy anxiety was found to be lower in women with better psychosocial resources, however, high anxiety was associated with high social support. [49]

As per a cross-sectional study done by Waqas et al. in 2015, in Lahore Pakistan, where they recruited 500 pregnant females and used Hospital Anxiety and Depression scale (HADS) and Social Provision scale (SPS) to assess depression and anxiety and social support, respectively, found a significant negative correlation between anxiety and social support ($r = -.433$, $P < .001$) and between depression and social support ($r = -.453$, $P < .001$).[32]

In a cross sectional study done by Shaefaei et al. 2017, which included 372 women in the third trimester of pregnancy. They used the Depression Anxiety and Stress Scale (DASS-21) for depression and anxiety and data on the perceived social support was assessed using the Personal Resource Questionnaire (PRS-85). The study was conducted in Tabriz city of Iran. There was a significant negative correlation between depression and social support as per the Spearman test, ($p < .001$, $= -.642$), and also between anxiety and social support ($p < .001$, $r= -.456$).[50]

A prospective cohort study initiated by the National Natural Science Foundation of China. In this study, participants were recruited from hospitals in Chongqing, a provincial city in south-western China and they measured relationship between anxiety and stress in early pregnancy (<15 weeks). Anxiety was measured using the Hamilton Anxiety Rating Scale and social support using the Social Support rating scale. The authors found that on multiple logistic regression a significant association between perinatal anxiety and social support ($p= <0.0001$ OR= 5.097 (2.410–10.779), 95% CI).[33]

As per a longitudinal study conducted in Hong Kong, China, where they included a sample of 423 women and measured anxiety and depression in the 3 trimesters of pregnancy and 6 weeks post-partum, they found that anxiety was more prevalent than depression and both anxiety and depression decreased in the second trimester. The prevalence of antenatal anxiety was 36.3% (95% CI 33.7–38.9%) during the first trimester. It decreased to 32.3% (95% CI 29.7–34.9%) during the second trimester but increased again to 35.8% (95% CI 33.2–38.4%) during the third trimester.[51]

As per a cross sectional study conducted at a community based clinic in Cape Town, South Africa, by Heynigen et al. 2017, in which a total of 376 women were included, and the scales used were MINI to assess the presence of psychiatric disorders and MSPSS to assess the social support, the prevalence of any anxiety disorder was found to be 23%. Prevalence of individual disorders were, generalised anxiety disorder, 2%, social phobia, 7% , agoraphobia, 0.3%, specific phobia, 6% and panic disorder, 3%. Eleven percent of the women were diagnosed with Post Traumatic Stress Disorder and 4% with Obsessive Compulsive Disorder. The diagnostic prevalence of current Major Depressive Episode was 22% and 18% of women had current suicidal ideation and behaviour. Higher levels of perceived social support from friends decreased the odds for diagnosis with anxiety, although perceived support from family did not.[34]

As per a study by Wang et al. 2021, which assessed psychological distress and social support in 2,232 participants across 3 cities in China, Wuhan, Beijing and Lanzhou. GAD-7 scale was used to assess the anxiety among the study participants and social support was assessed using the Social Support Rating Scale (SSRS). In the study it was found that women having high family support had significantly low anxiety. Among women who had low social support 31.1% reported anxiety.[24]

As per a study conducted during the COVID 19 pandemic in China by Shangguan et al. 2021, in which 2,120 Chinese pregnant women participated (as mentioned previously) it was found that pregnant women were 1.81 times more likely to be anxious, as measured by the GAD-7 scale, when there was nobody providing everyday life support (as assessed by clinical interview) (OR = 1.81, 95% CI = 1.18–2.77).[39]

Indian Literature

A cross sectional study was conducted by Nath et al. 2019 in Bengaluru, which included 380 pregnant women less than 24 weeks pregnant. It measured anxiety using the Pregnancy Related Thoughts Scale and measured social support using the Multidimensional Scale for Perceived Social Support, and screened for depression using the 10-item Edinburgh Postnatal Depression Scale (EPDS). As per the study, 55.7% of all women who participated in the study were found to be anxious. Upon

analysis, it was found that the odds of having anxiety were more than twice as higher among women belonging to the lower middle class (p = 0.009). The Odds of anxiety was significantly higher among women with low social support on univariate as well as multivariate analysis (COR 1.733). Anxiety was found to be statistically associated with marital discord (p = 0.051) and spousal violence. Anxiety and depression were to be strongly and significantly associated with each other. As per the study, The Odds of anxiety was significantly higher among women with low social support.[52]

According to Saving Children, Improving Lives (SCIL) project data, a quasi-experimental study conducted among rural, pregnant women in Mysore district of Karnataka, done by Bushan et al. in 2020, where they studied the association between the social support provided by the Asha worker and antenatal anxiety, it was found that in a sample of 480 women, the prevalence of anxiety as measured by the three item sub-scale of the Edinburgh Postnatal Depression Scale (EPDS) known as EPDS-3A was 26.8%. ASHA support was also found to be negatively correlated with antenatal anxiety.[53]

As per a cross-sectional, observational study done by Dere et al. 2019, in a tertiary hospital in rural India, anxiety symptoms as per PRAQR scale, were found to be present in 52% of the 100 primigravida participants. On the PRAQR scale, maximum score was for the subscale of fear of giving birth, and especially high on the domain of "fear of giving birth" and increased with trimester. Depressive symptoms were reported by 23% of the women as per the Whooley's Questions.[54]

As per a multicentric study done in India during the COVID 19 pandemic, which included 620 pregnant women with a gestational age of <36 weeks, and assessed pregnancy based on the GAD-7 (Generalized Anxiety Disorder-7) scale and social support was measured using the Psychosocial Risk Evaluation in Pregnancy- Maternal version (PREP-M), anxiety was found to be prevalent in 35.8% of women out of which 24.7%, 8.5% and 2.6% had mild, moderate and severe anxiety, respectively. Upon analysis, women belonging to Islam religion, those who were employed, semiurban dwelling, presence of financial loss, presence of complications in present and previous pregnancies, presence of general medical or psychiatric illness, positive and recovered COVID status, and women having lower perceived social support were found to be significantly associated with pregnancy related anxiety.[55]

As per a study by Goyal et al. 2020, which included 281 perinatal women (both antenatal and postnatal), as measured by MINI, 10.3% of perinatal women had a current psychiatric diagnosis. The commonest diagnosis was Major Depressive Disorder, which was present in 7.12% women and anxiety disorder in 1.41% of population. Psychosocial stressors ($P < 0.01$), marital discord ($P < 0.01$), and a past history of psychiatric illness ($P < 0.01$) were significantly more in perinatal women with psychiatric morbidity. [56]

A community-based cross-sectional study was conducted in 28 villages of rural Haryana in 2016, done by Jha et al, in which they included 457 pregnant women with period of gestation 25–34 weeks. Enrolment in this study was done in 2 phases including Patient Health Questionnaire for screening and Mini International Neuropsychiatric Interview (MINI) for diagnosis of common mental disorders. It was found that CMDs (Common Mental Disorders) was 15.3% (95% CI, 12.0–18.6). Of these, major depression was 2.8% (95% CI, 1.4– 4.4), and Generalized Anxiety Disorder was 15.1%. No statistically significant association between CMDs during pregnancy with any obstetric and sociodemographic determinants was found as per this study.[57]

In Indian studies, the prevalence of anxiety is variable ranging from 1.41 % to 55.7% in pregnant women. Most studies have shown significant association with low social support, low socio-economic status, marital discord, unemployed, having complications in pregnancy. Understanding that pregnancy might be different in each trimester of the pregnancy, none of the studies have tried to study pregnancy related anxiety exclusively in third trimester females.

Aim and Objectives

AIMS AND OBJECTIVES

Aim

The aim of the present study was to assess pregnancy related anxiety and its association with perceived social support in third trimester antenatal females.

Objectives

Primary:

1. To assess the relationship between pregnancy related anxiety with perceived social support in third trimester antenatal females.

Secondary:

1. To assess the relationship between socio-demographic factors, clinical variables and pregnancy related anxiety in third trimester antenatal females.
2. To assess the relationship between socio-demographic factors, clinical variables and perceived social support in third trimester antenatal females.

Material and Methods

MATERIAL AND METHODS

Study setting

Antenatal females from the antenatal clinic of Department of Obstetrics and Gynaecology, All India Institute of Medical Sciences, Jodhpur, Rajasthan were recruited for the study.

Study design

Cross-sectional study

Study Participants

Inclusion criteria: -

1. Antenatal females enrolled in the antenatal clinic of Department of Obstetrics and Gynecology between 28th week of pregnancy till term.
2. Those who were able to read Hindi or English Language
3. Those willing to participate in the study and signed the informed consent.

Exclusion criteria: -

1. Previous history of Psychiatric disorder
2. Antenatal women on any psychotropic medications
3. Antenatal women with history of profound hearing or visual loss, mental retardation, significant neurological or chronic illness.
4. Antenatal women with high risk pregnancy including Severe Pre-eclampsia, Fetal Growth Restriction, Gestational Diabetes on Insulin
5. Any woman who does not provide consent.
6. Those who are in active labour.

Sampling and sample size

Shafaie et al found a negative correlation of r=-0.355 between perceived social support and anxiety. Using this for calculation, we estimated a sample size of 123 antenatal women at alpha value of 0.01, beta value of 0.10 and 10% contingency.[50, 58]

Calculation steps:

Total sample size, $n = [(Z_\alpha+Z_\beta)/C]^2 + 3 = 111$

Where,

Z_α: The standard normal deviate for $\alpha = 2.5758$

Z_β: The standard normal deviate for $\beta = 1.2816$

$C = 0.5 * \ln[(1+r)/(1-r)] = 0.3712$

A total of 124 participants were included in the study

Study duration

After approval by the Ethics committee to 30th June 2021

Data tools

i. **Clinical profile sheet** Socio-demographic and clinical information

ii. **Perinatal Anxiety Screening Scale (PASS)** The results suggest that the PASS is an acceptable and psychometrically sound measure that performed well in screening for anxiety disorders in the perinatal period. It has a four-factor structure described as (1) acute anxiety and adjustment, (2) general worry and specific fears, (3) perfectionism, control and trauma and (4) social anxiety. the PASS had a screening accuracy of 68 %, sensitivity and specificity of 0.7 to 0.3. The correlation for the PASS global scores was 0.74, indicative of adequate test–retest reliability(59). Severity of anxiety can also be measured using the scale and have been divided into minimal anxiety, mild-moderate anxiety and severe anxiety.[60]

iii. **Pregnancy anxiety questionnaire- Revised 2**: It is a 10-item self-rated Likert scale (1. Absolutely not relevant 2. Hardly ever relevant 3. Sometimes relevant 4. Reasonably relevant 5. Very relevant). It consists of 3 domains fear of giving birth, worries about bearing a handicapped child, concern about own

appearance. For both nulliparous and parous women, the scale showed an acceptable to good fit to the data ($\chi 2$ (32)=114.28, p<0.01, CFI=0.97, TLI=0.96, RMSEA=0.07 for nulliparous, and $\chi 2$ (32)=118.39, p<0.01, CFI=0.97, TLI=0.96, RMSEA=0.07 for parous women).[61]

iv. **Multidimensional scale for perceived social support (MSPSS) (Zimet et al. 1998)**: The Multidimensional scale for perceived social support is a self-report measure and contains 12 items designed to measure perceived social support from three sources: Family, Friends, and a Significant Other. In a study conducted by Zimet et al, The MSPSS was found to have good internal reliability across subject groups as well as strong factorial validity. MSPSS is available freely in public domain.[62]

v. **Patient Health Questionnaire-9 (PHQ-9)** The self-administered nine item scale. Critical to the diagnosis of MDD is the patient's endorsement of either items (1), (2) or both. Each item is rated on a 4-point scale from 0 to 3 (0 – Never; 1 – Several days; 2 –More than half the time; and 3 – Nearly every day) during the two weeks prior to and including the day of survey completion. The total score ranges from 0 to 27. It is found that PHQ-9 with a cut-off score 7 had the best overall screening performance with sensitivity of 83%.[63] PHQ-9 is available freely in public domain and can be used without author's permission.

Hindi versions of PHQ-9 and MSPSS scales were used. PASS and PRAQ R2 scales were translated into Hindi by the WHO method of forward and backward translation of scales.

Data Collection

1. If a patient met the selection criteria, she was explained about the objective and methodology of the study, and written informed consent was be taken.
2. Socio-demographic data and clinical details were recorded in a semi structured interview
3. Screening as well as rating of pregnancy specific anxiety symptoms was be done using Perinatal anxiety screening scale (PASS), which the patients rated themselves.
4. PRAQ R2 scale was also given to the patients to be rated on their own

5. PHQ 9 self-rated questionnaire for the screening for depression was given to the patients to be rated on their own
6. Multidimensional scale for perceived social support was then applied to assess the perceived social support.
7. If the scores on PASS are ≥ 26, confirmation of diagnosis of Anxiety was done with detailed psychiatric interview and psychiatric diagnosis were recorded, as per ICD-11 Diagnostic criteria for Research.
8. If PHQ 9 scores are ≥ 7, confirmation of diagnosis of depression will be done with detailed psychiatric interview and psychiatric diagnosis were recorded, as per ICD-11 Diagnostic criteria for Research.

Ethical Consideration

Data collection was started after obtaining ethical clearance (certificate number: AIIMS/IEC/2020/3348) from the institute's ethics committee. Study participants were recruited after seeking written informed consent.

Any patient who was found to have anxiety or depression were referred to the psychiatry OPD for further evaluation and management

Statistical Analysis

Descriptive analysis of the socio-demographic variables, clinical factors, perceived social support, and coping strategies scores was done. The prevalence of anxiety and depression among the study participants was calculated.

Fisher exact test was used to test the association between anxiety and categorical socio-demographic and clinical variables.

Man U whitney test was applied to assess the relationship between anxiety and continuous variables.

Spearman’s correlation was used to assess the correlation between PRAQR2 and MSPSS scores with continuous variables, age, gestational age, number of pregnancy,

Results

RESULTS

Descriptive statistics

A total of 124 respondents took part in the study, socio-demographic and clinical data was collected, and scores on Pregnancy Anxiety Screening Scale (PASS), Pregnancy Related Anxiety Questionnaire Revised 2 (PRAQ R2), PHQ 9 scale and MSPSS was collected.

Socio-demographic variables

Age

The mean age of the study population was 27.2 ± 4.1 years with a maximum age of 40 years and a minimum age of 19 years. The maximum number of participants was in the age group 26-30 years. (Table 1, Figure 1)

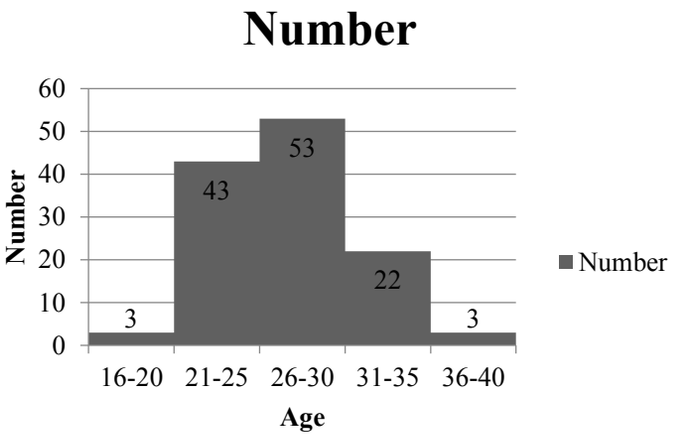

Figure 1: Age group of study participants

Education status of respondents and their husbands

Majority of respondents (30.6%) (figure 2) studied till their post graduate level, with mean years of education being 14.9 ± 3.9 years. Most of the participants were housewives (77.40%). (figure 3)

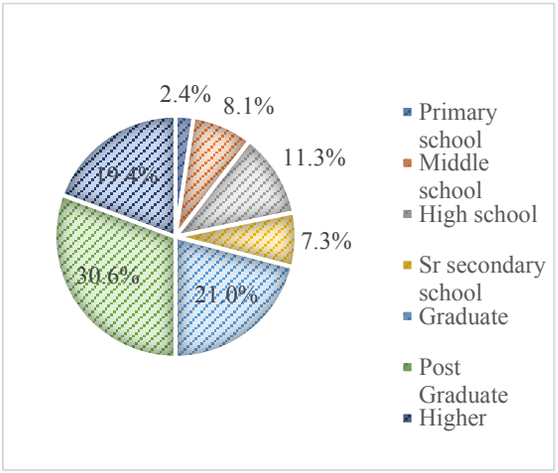

Figure 2: Education status of the respondents

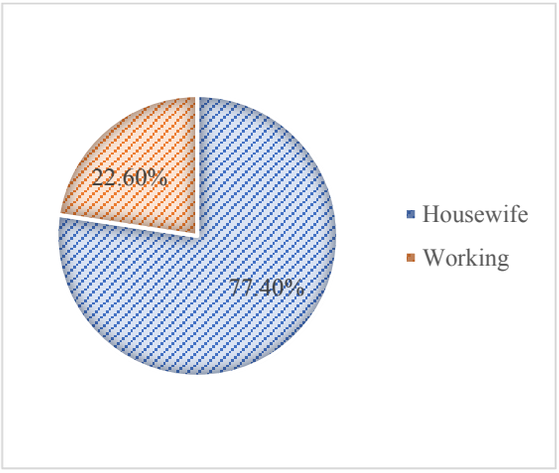

Figure 3: Occupation of the respondents

The average years of the respondents' husbands' education were 14.9 ± 3.6 years (Table 1), with majority of husbands (41.9%) (figure 4) completed their graduation, and most of the husbands were semi-skilled professionals (38.2%) (figure 5).

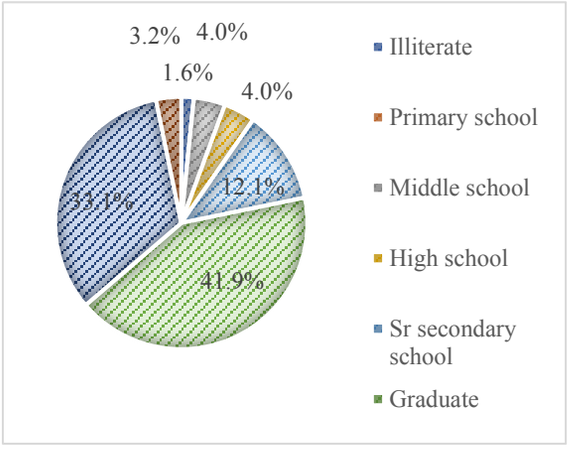

Figure 4: Education status of the respondents' husbands

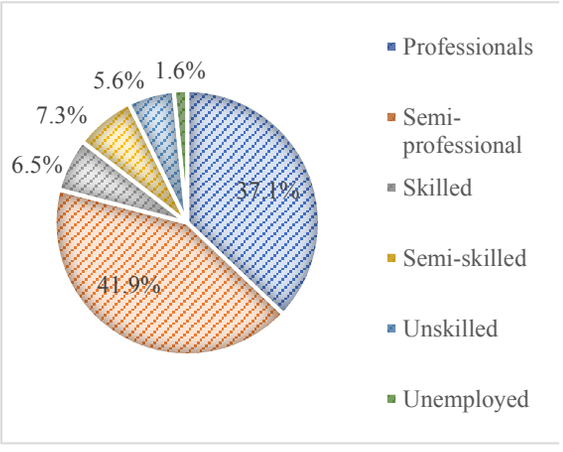

Figure 5: Occupation of the respondents' husbands

Family characteristics

Most of the respondents lived in a joint family (86.3%), remaining lived in a nuclear family, the median (IQR) of family members being 6 (4) and the median (IQR) of female members in the families were 3 (1). The income median (IQR) of the sample was Rs 60,000 (1,25,000). Maximum number of respondents (96.0%) belonged to upper class as per the BG prasad scale, and maximum were in the income group of ≥ Rs 80,000 (Figure 7).

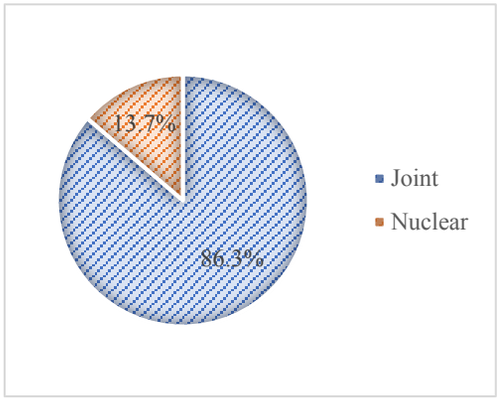

Figure 6: Type of family

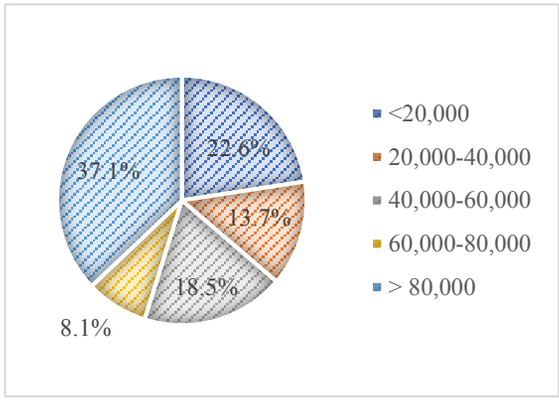

Figure 7: Family income

Marriage

The mean age of marriage of the respondents was 23.2 ± 4.1 years with minimum being the age of 4 years (one patient was married as a child) and maximum being the age of 39 years. The median (IQR) of the years of marriage of the respondents was 3 (4) years, with the minimum being 0.6 years (around 7 months) and maximum being 15 years.

Religion

96% of the respondents were Hindus, 3.2% were Muslims, and 0.8% of the respondents were Sikhs. (Figure 8)

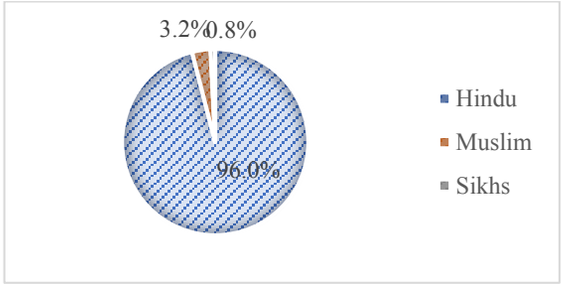

Figure 8: Religion of the respondents

Obstetric history

The average gestation of the respondents was 239.3 ± 24.4 days. Around half of the respondents (50.8%) of the respondents were primigravida and 32.3% were second gravida (Figure 9). Most of the respondents (56.5%) had a period of gestation of ≥ 34 weeks (Figure 10). Majority of the respondents (22.4%) had a history of abortion (Figure 12), and 35.3% had children previously (Figure 11). Around half of the respondents (53.2%) had planned their pregnancy (Figure 13). Around half of the women (46%) expected a male child out of the pregnancy, 35.5% a female child and 18.5% were indifferent to sex of the baby (Figure 14). The number of ANC visits in the sample varied from 1 to 20 with the median of the ANC visits 7 (6). 36.1% of the respondents had a risk factor in pregnancy, with the most common risk factor being gestational diabetes mellitus on dietary modification. 4% respondents had a past history of medical illness, the most common being hypothyroidism. 13.5% of the respondents reported a family history of medical illness, the most common being diabetes mellitus, and 1.6% of the respondents reported a family history of psychiatric illnesses, the most common being depressive disorder. None of the respondents in the sample reported using any substances.

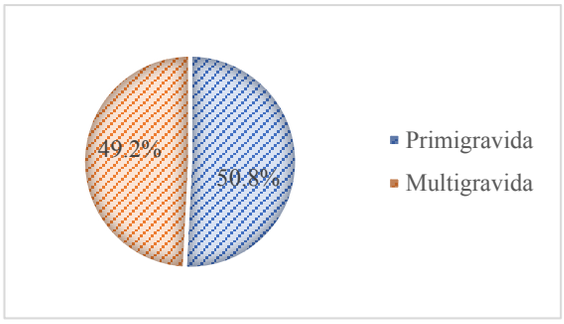

Figure 9: Number of times the woman got pregnant

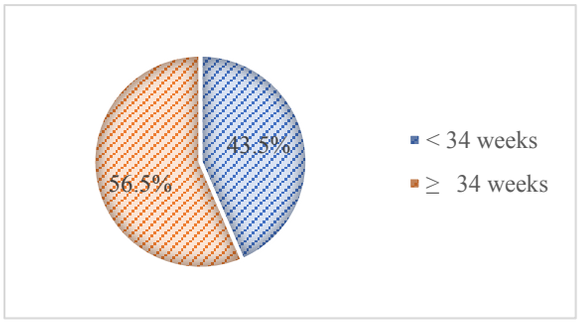

Figure 10: Period of gestation

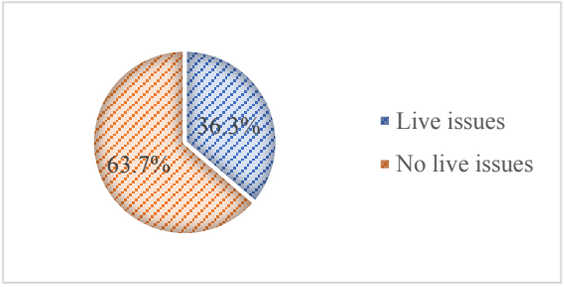

Figure 11: Presence of children

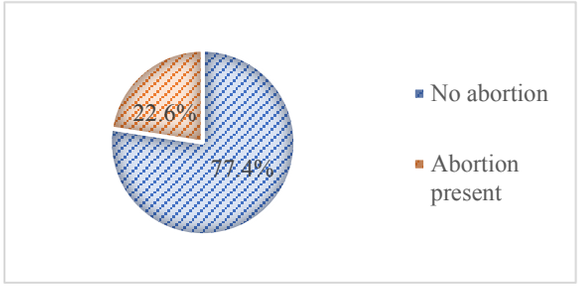

Figure 12: History of abortion

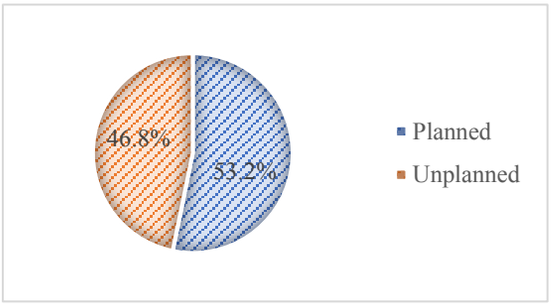

Figure 13: Planning of pregnancy

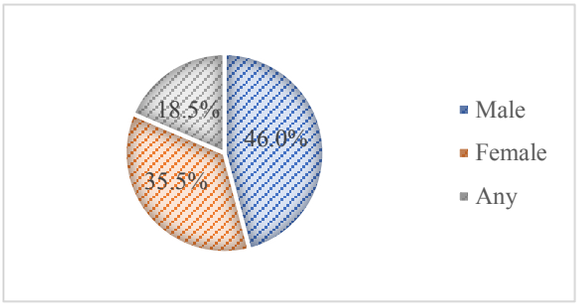

Figure 14: Expected sex of the baby

Laboratory parameters

Table 2 provides the mean and range of information on the investigations. 12.9 % of the respondents had gestational diabetes mellitus on either modified diet, or on oral hypoglycemic agents. 6.3% of the study population in the sample had anemia, and 2.1% of the had hypothyroidism. 7.3% of the respondents in the sample had an Rh-negative pregnancy (Figure 16), most of the respondents had B+ blood group and 7.4% of the respondents in the sample had fetal USG abnormalities. (Figure 15)

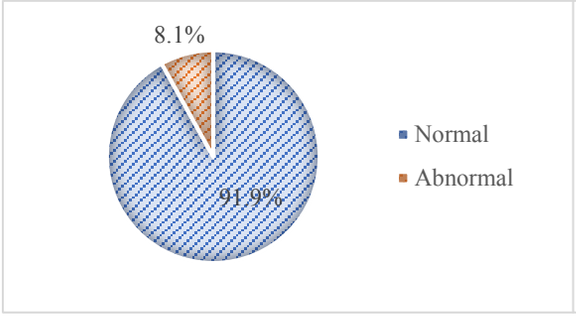

Figure 15: Fetal USG findings

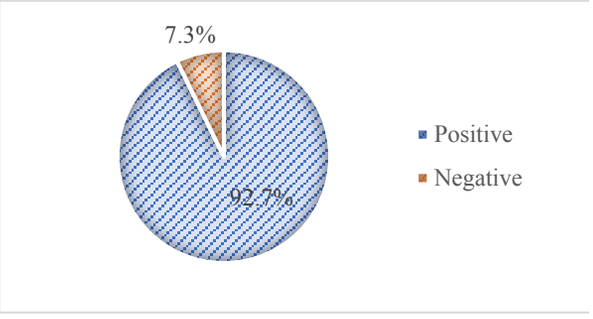

Figure 16: Rh factor

Perinatal anxiety screening scale (PASS)

Out of 124 study participants 50 had a score of 26 or more on the PASS scale and hence they screened positive for the same. The minimum PASS score was 0 and the maximum was 71. The mean PASS score in the study population was found to be 23.1 ± 16.1.

The frequency of pregnancy related anxiety for the study population was calculated using the following formula:

Frequency (P) = (Number of participants who had pregnancy related anxiety ÷ Number of participants in the sample) x 100

Frequency = $\frac{50}{124} * 100 = 40.3\ \%$

Hence, the frequency of pregnancy related anxiety among the third trimester antenatal females in our study is **40.3%.**

Pregnancy related anxiety questionnaire revised 2 (PRAQ R2) in the study population

The mean PRAQ R2 scale and the subscale scores of the 124 respondents are provided in table 3. The maximum scores on the PRAQ R2 scales was 50 and the minimum score was 10.

Table 1: Mean scores of PRAQ R 2 scale and its subdomains in the study population

PRAQ R2	**Mean ± SD**
PRAQ R2 total	22.4 ± 9.1
Subscales	
Fear of giving birth,	9.2 ± 3.8
Concern about own appearance	6.6 ± 3.7
Worries about bearing a handicapped child	6.5 ± 3.7

PRAQ R2 = Pregnancy Related Anxiety Questionnaire Revised 2; SD = Standard deviation

Anxiety disorders in the study sample

As per ICD 11, the code 6E20 codes for Mental and behavioural disorders associated with pregnancy, childbirth and the puerperium, without psychotic symptoms. Based on a clinical interview, diagnosis of anxiety disorder were made based on ICD 11 and the following diagnosis were made.

Among those who screened positive for anxiety on PASS scale (n = 50) majority of the respondents had other specified anxiety or fear related disorders (40%), followed by panic disorder (14%), GAD(14%), specific phobia (12%), social anxiety disorder (10%), OCD (6%) and Agoraphobia (4%).

Perceived social support in the study population

As shown in Table 4, the mean total score of perceived social support of 124 respondents was 66.8 ± 16.4. Out of the three sub-domains, family, friends and significant other, significant other (24.4 ± 5.7) was found to have the highest mean score, followed by family (23.8 ± 6.1) and the least was the friends sub-domain score (18.6 ± 8.1). Hence, the respondents reported receiving the maximum perceived social support from their partners.

Table 2: Perceived social support (as measured in MSPSS)

MSPSS	Mean ± SD
Total score	66.8 ± 16.4
Family score	23.8 ± 6.1
Friend score	18.6 ± 8.1
Significant other score	24.4 ± 5.7

MSPSS: Multidimensional Scale For Perceived Social Support; SD = Standard deviation

Frequency of depression in the study population

PHQ 9 scale was used to screen for depression. In the study population, the minimum scores were 0 and the maximum scores were 23. Out of 124 study participants, 35 screened positive for depressive disorders as per the PHQ 9 (i.e. they had a score ≥ 7)

The frequency of depression was calculated using the following formula:

Frequency (P) = (Number of participants with depression ÷ Number of participants in the sample) x 100

$$\text{Frequency} = \frac{35}{124} * 100 = 28.2\ \%$$

Hence, the frequency of depression among the third trimester antenatal females in our study is **28.2 %.**

Inferential statistics

Comparison of socio-demographic profile between anxious and non-anxious group

Independent T test was used to compare the mean age between the anxious and non-anxious groups as shown in table 3. There was no significant age difference that was found in both the groups. (p = 0.545)

Table 3: Comparison of mean of age between the anxious and non-anxious groups

	N	Anxiety present (Mean ± SD)	Anxiety absent (Mean ± SD)	p (2 tailed significance)
Age (years)	124	27.5 ± 4.5	27.0 ± 3.8	0.545

Independent T test applied; N= total respondents; SD = Standard deviation

Table 4: Comparison of socio-demographic between the anxious and non-anxious groups

	N	Anxiety present N= 50 Median (IQR)	Anxiety absent N = 74 Median (IQR)	p (2 tailed significance)
Family members	124	5 (4)	6 (2)	0.099
Female family members	124	2.5 (1)	3 (2)	0.076
Income per month (Rs)	124	70,000 (10,5000)	55,000 (131000)	0.491
Age of marriage	124	23.5 (5)	23 (5)	0.551
Years of marriage	124	3 (4.4)	3 (4)	0.949

Mann Whitney U test applied; N= Total respondents; IQR= Interquartile range; Rs =. Rupees

Table 5: Comparison of socio-demographic profile between the anxious and non-anxious groups

Socio-demographic factors	N (%) (Total=124)	Anxiety present N= 50 (40.3%)	Anxiety absent N = 74 (59.7%)	p (two tailed)
Occupation				
Working	28 (22.6%)	13 (46.4%)	15 (53.6%)	0.514
Housewife	96 (77.4%)	37 (38.5%)	59 (61.5%)	
Education status				
Less than graduate	36 (29.0%)	9 (25.0%)	27 (75.0%)	**0.028***
Graduate or higher	88 (71.0%)	41 (46.6%)	47 (53.4%)	
Husband's education				
Not graduate	27 (21.8%)	10 (37.0%)	17 (63.0%)	0.825
Graduate or higher	97 (78.2%)	40 (41.2%)	57 (58.8%)	
Husband's occupation				
Professional semi-professional	98 (79%)	41 (41.8%)	57 (58.2%)	0.654
Others	26 (21%)	9 (34.6%)	17 (65.4%)	
Family type				
Nuclear	17 (13.7%)	8 (47.1%)	9 (52.9%)	0.796
Joint/Extended	107 (86.3%)	42 (39.3%)	65 (62.7%)	

Fischer exact test applied; N= total respondents; %= percentage, Percentages are row wise

Mann Whitney U test was used to compare the income between the anxious group and the non-anxious group. There was no significant association between the two groups (Table 4). Similarly, there was no significant difference between the number of family members, the number of female family members, the age of marriage and the years of marriage in the anxious and non-anxious groups.

Variables like the occupation of the respondent, her education status, occupation of her husband, her husband's education and the type of family were compared using the Fischer exact test between the anxious and non- anxious groups. It was found that there was no significant association was found between the anxious and non-anxious groups except for the respondent's education status. There were significantly more

graduates or above in the anxious group than in the non-anxious group (p = 0.028). (Table 5)

Comparison of clinical profile between anxious and non-anxious group

For comparing the variables like the parity of women (primigravida or multigravida), planning of pregnancy, presence of risk factors in pregnancy, expected sex of the baby, history of an abortion and live issues were compared with the anxious and non-anxious group using the Fischer Exact test and it was found that there was no significant difference between the two groups. (Table 6)

Table 6: Comparison of clinical profile between anxious and non-anxious group

Clinical variables	N (%) (Total=124)	Anxiety present N = 50 (40.3%)	Anxiety absent N = 74 (59.7%)	P (two tailed)
Gravida				
Primigravida	63 (50.8%)	28 (44.4%)	35 (55.6%)	0.365
Multigravida	61 (49.2%)	22 (36.1%)	39 (63.9%)	
Expected sex of the baby				
Boy	57 (46.0%)	23 (40.4%)	34 (59.6%)	0.380
Girl	44 (35. 5%)	15 (34.1%)	29 (65.9%)	
Any	23 (18.5%)	12 (52.2%)	11 (47.8%)	
Planning of pregnancy				
Planned	66 (53.2%)	24 (36.4%)	42 (63.6%)	0.364
Unplanned	58 (46.8%)	26 (44.2%)	32 (55.8%)	
Associated risk with pregnancy				
Present	46 (37.1%)	21 (45.6%)	25 (54.4%)	0.229
Absent	78 (62.9%)	49 (62.8%)	29 (37.2%)	
History of abortion				
No	96 (77.4%)	40 (41.7%)	56 (58.3%)	0.664
Yes	28 (22.6%)	10 (35.7%)	18 (64.3%)	
History of an issue				
No	79 (63.7 %)	33 (41.8%)	46 (58.2%)	0.707
Yes	45 (36.3%)	17 (37.8%)	28 (62.2%)	

Fischer exact applied; N= total respondents; % percentage value; Percentages are row wise

Table 7: Comparison of clinical profile between anxious and non-anxious group

	N	Anxiety present N = 50 Median (IQR)	Anxiety absent N = 74 Median (IQR)	p (2 tailed)
POG (days)	124	243.5 (34.5)	241 (42.25)	0.735
Number of antenatal visits	124	8 (3)	6.5 (6)	**0.031***

Mann Whitney U test applied; N= Total respondents; IQR= Interquartile range

Mann-Whitney U test was used to compare variables like the period of gestation and number of antenatal visits between the anxious and non-anxious groups and it was found that there was no significant difference between the two groups in the matter of their POG, however anxious group had significantly more number of antenatal visits. (Table 7)

Table 8: Comparison of laboratory parameters between anxious and non-anxious group

Investigations	N (100%) (Total=124)	Anxiety present N = 50 (40.3%)	Anxiety absent N = 74 (59.7%)	p
USG abnormalities				
Normal	114 (8.1%)	46 (40.4%)	68 (59.6%)	1.000 (two sided)
Abnormal	10 (91.9%)	4 (40%)	6 (60%)	
RH factor				
Positive	115 (92.7%)	47 (40.9%)	68 (59.1%)	0.739 (two sided)
Negative	9 (7.3%)	3 (33.3%)	6 (66.7%)	
Blood group				
A	20 (16.1%)	9 (45.0%)	11 (55.0%)	0.693 (2 sided)
B	54 (43.5%)	23 (42.6%)	31 (57.4%)	
AB	13 (10.5%)	6 (46.2%)	7 (53.8%)	
O	37 (29.8%)	12 (32.4%)	25 (67.6%)	

Fischer exact test applied; Fischer exact applied; N= total respondents; % percentage value; Percentages are row wise

Comparison of laboratory parameters between the anxious and non-anxious groups

Fischer exact test was used to compare lab parameters like blood group, rhesus factor and USG abnormalities in the anxious and non-anxious groups. As shown in the table, no significant difference was found between both the groups. (Table 8)

Correlation between Pregnancy Related Anxiety Questionnaire Revised 2 and socio-demographic and clinical variables

Table 9 shows the Spearman's correlation between various continuous socio-demographic and clinical variables with PRAQR2 scores and also with the three PRAQR2 subdomains. Total PRAQ-2 scores were found to be significantly positively correlated with the total number of ANC visits (p = 0.016). The fear regarding childbirth was found to be significantly positively correlated with the age of gestation (p = 0.010) and with total number of ANC visits (p = 0.010). The concern about appearance nearly significantly negatively correlated with the number of females in the family (p = 0.052).

Table 9: Correlations between PRAQ R2 scores and its domains with socio-demographic and clinical profile

	PRAQ R2			
	Total	Childbirth	Appearance	Child's health
	ρ(p)	ρ(p)	ρ(p)	ρ(p)
age	-0.99	-1.28	-1.01	0.45
	(0.276)	(0.155)	(0.267)	(0.617)
Age of gestation	0.148	**0.232**	0.091	-0.052
	(0.100)	**(0.010)***	(0.316)	(0.313)
Number of	-.042	-0.138	-0.018	0.080
pregnancy	(.643)	(.126)	(.844)	(0.377)
Family Members	-0.027	-0.039	-0.072	0.030
	(.764)	(.668)	(.426)	(0.742)
Females in family	-0.160	-0.151	-0.175	-0.045
	(.077)	(.095)	(.052)	(0.621)
Total ANC visits	**0.216**	**0.229**	0.166	0.072
	(0.016)*	**(0.010)***	(.066)	(0.425)
Age of marriage	-0.068	-0.043	-0.108	0.013
	(.454)	(.635)	(.231)	(0.888)
Number abortions	-0.036	-0.076	-0.018	0.056
	(.692)	(.404)	(.846)	(0.537)
Live issues	-0.042	-0.126	-0.032	0.094
	(.641)	(.164)	(.722)	(0.299)
Education	-0.033	0.024	-0.067	-0.035
	(.718)	(.790)	(.457)	(0.703)
Husband's	-0.088	-0.079	-0.056	-0.068
education	(.329)	(.386)	(.537)	(0.455)

Spearman Correlation applied, ρ = Spearman correlation coefficient; ANC: antenatal clinic

Correlation between the MSPSS scores with socio-demographic and clinical variables

Table 10 shows the Spearman correlation between MSPSS scores and various socio-occupational and clinical variables. Total MSPSS scores were found to be significantly negatively correlated with the number of times the respondent was pregnant ($p = 0.046$), and significantly positively associated with the age at which the respondent got married ($p = 0.012$) and her education status ($p = 0.022$). The significant other domain of MSPSS was found to be positively correlated with the age of marriage ($p = 0.034$). The MSPSS domain concerning perceived social support from family was found to be significantly negatively correlated with the number of pregnancy ($p = 0.022$) and nearly significantly negatively correlated the number of abortions ($p = 0.055$), and significantly positively associated with the number of females in the family ($p = 0.021$), and the age of marriage ($p = 0.037$). Perceived social support from friends was found to be significantly positively correlated with the age of marriage($p = 0.021$), education status ($p = 0.011$) and nearly significantly positively correlated with husband's education ($p= 0.052$).

Mann Whitney U test was used to compare the scores of MSPSS with categorical socio-demographic and clinical variables. It was found that, working respondents have significantly more perceived social support from significant other compared to housewives ($p = 0.022$) (table 11). Respondents who were in a joint family had significantly more perceived social support from their family compared to those living in nuclear families ($p = 0.039$) (Table 12). Those who planned their pregnancy ($p = 0.036$) had significantly more perceived social support from their friends (Table 13)

Table 10: MSPSS scores and various socio-occupational and clinical variables

	MSPSS			
	Total PSS	SO	FAM	FRI
	ρ(p)	ρ(p)	ρ(p)	ρ(p)
age	0.119	0.084	0.062	0.151
	(0.190)	(0.353)	(0.497)	(0.093)
Age of gestation	0.037	0.030	0.052	0.027
	(0.683)	(0.737)	(0.564)	(0.764)
Gravida	**-0.180**	-0.016	**-0.206**	-0.150
	(0.046)*	(0.857)	**(0.022)***	(0.095)
Family Members	-0.033	-0.068	0.038	-0.086
	(0.720)	(0.453)	(0.674)	(0.344)
Females in family	0.126	0.000	**0.207**	0.080
	(0.165)	(0.998)	**(0.021)***	(0.376)
Total ANC visits	-0.019	0.065	-0.047	0.007
	(.835)	(0.476)	(0.607)	(0.936)
Age of marriage	**0.224**	**0.191**	**0.188**	**0.208**
	(0.012)*	**(0.034)***	**(0.037)***	**(0.021)***
Number abortions	-0.154	-0.084	-0.173	-0.088
	(0.088)	(0.352)	(0.055)	(0.334)
Live issues	-0.096	0.049	-0.119	0.99
	(0.287)	(0.587)	(0.188)	(0.274)
Education	**0.206**	0.172	1.06	**0.229**
	(0.022)	(0.056)	0.241	**(0.011)***
Husband's education	0.128	0.128	0.063	0.175
	(0.156)	(0.156)	(0.488)	(0.052)

Spearman Correlation applied, ρ = Spearman correlation coefficient; SO: significant other; FAM: family; FRI: friends, ANC: antenatal clinic

Table 11: Mann Whitney U test to compare the scores of total MSPSS and its various domains with occupation

		Housewife (N= 96 (77.4%)) Median (IQR)	Working (N= 28 (22.6%)) Median (IQR)	P (two tailed)
MSPSS	Total	69.5 (24)	75 (55)	0.101
	SO	26 (6)	28 (1)	**0.002***
	FAM	26.5 (5)	26.5 (6)	0.624
	FRI	20 (13)	22.5 (11)	0.176

Mann Whitney U test applied; N= number, MSPSS: Multidimensional scale for perceived social support; SO: significant other; FAM: family; FRI: friends; SD: standard deviation; IQR: Interquartile range

Table 12: Man Whitney U test to compare the scores of total MSPSS and its various domains with family type

		Joint family (N= 107 (86.3%)) Median (IQR)	Nuclear family (N= 17 (13.7%)) Median (IQR)	P (two tailed)
MSPSS	Total	71 (21)	68 (26)	0.455
	SO	27 (4)	28 (4)	0.519
	FAM	27 (4)	24 (14)	**0.039***
	FRI	20 (13)	21 (10)	0.745

Mann Whitney U test applied; N= number, MSPSS: Multidimensional scale for perceived social support; SO: significant other; FAM: family; FRI: friends; SD: standard deviation, IQR: Interquartile range

Table 13: Mann Whitney U test to compare the scores of total MSPSS and its various domains with planning of pregnancy

		Planned pregnancy (N= 66 (53.2%)) Median (IQR)	Unplanned pregnancy (N= 58(46.8%)) Median (IQR)	P (two tailed)
MSPSS	Total	73.5 (24)	68 (20)	0.081
	SO	27.5 (4)	27 (7)	0.380
	FAM	27 (4)	25.5 (6)	0.297
	FRI	22 (13)	19.5 (14)	**0.036***

Mann Whitney U test applied; N= number, MSPSS: Multidimensional scale for perceived social support; SO: significant other; FAM: family; FRI: friends; IQR: Interquartile range

Association of perceived social support and anxiety

As shown in the table 14, Man Whitney U test was applied to compare mean scores of MSPSS scale and all its domains between the anxious and non-anxious groups. It was found that anxious group had significantly low total MSPSS scores (p = 0.002) and the scores of all their subdomains, significant other, friends and family (p = 0.006, 0.031 and 0.004 respectively)

Table 14: Comparison of MSPSS scale sores and its subdomains between the anxious and non-anxious groups

		Anxiety present Median (IQR) (N = 50 (40.3%))	Anxiety absent Median (IQR) N = 74 (59.7%)	p (two tailed)
MSPSS	Total	66 (24)	73 (20)	**0.002***
	SO	25 (8)	28 (3)	**0.006***
	FAM	25 (11)	27 (4)	**0.031***
	FRI	18.5 (15)	22 (13)	**0.004***

Mann Whitney U test applied; N= number, MSPSS: Multidimensional scale for perceived social support; SO: significant other; FAM: family; FRI: friends; IQR: Interquartile range

Association of perceived social support with pregnancy related anxiety.

Table 15 shows the spearman correlation between PRAQ R2 scale, its various domains and MSPSS scale, and various domains. Significant negative correlations were found between the total MSPSS scores and the total PRAQ R2 scores and all the domains of PRAQ R2.

The significant other and the family domains of SPSS were found to be significantly negatively associated with the total score, the concerns about own appearance scores and the fear of bearing a handicapped baby scores. The friends domain was found to be significantly negatively correlated with the total PRAQ R2 scores, and the concerns regarding appearance scores and the fear regarding childbirth scores.

Table 15: Correlation of MSPSS scale scored and subdomains with PRAQ R2 scale scores and subdomains.

	PRAQ R2			
	Total	Childbirth	Appearance	Child's health
	ρ (p)	ρ (p)	ρ (p)	ρ (p)
Total PSS	**-.293**	**-.185**	**-.294**	**-0.197**
	(.001)*	**(.040)***	**(.001)***	**(0.028)***
SO	**-.209**	-.144	**-.179**	**-0.251**
	(.020)*	(.109)	**(.047)***	**(0.005)***
FAM	**-.257**	-.108	**-.297**	**-0.231**
	(004)*	(.231)	**(.001)***	**(0.010)***
FRI	**-.268**	**-.208**	**-.265**	-0.85
	(.003)*	**(.020)***	**(.003)***	(0.350)

Spearman correlation applied; ρ = Pearson's correlation co-efficient

Comparison of the depression between the anxious and non-anxious groups

Table 16: Comparison of the depression between the anxious and non-anxious groups

Depression	N (%) (Total=124)	Anxiety present N = 50 (40.3%)	Anxiety absent N = 74 (59.7%)	P (two tailed)
Present	35 (28.2%)	26 (74.3%)	9 (12.2 %)	**<0.001***
Absent	89 (71.8%)	24 (27.0%)	65 (73.0%)	

Fischer exact test applied; N = number; %= percentage

Fischer exact test was used to compare the presence or absence of depression in the anxious and non- anxious groups. It was found that those who had pregnancy related anxiety had significantly more depression.($p < 0.001$) (Table 16)

Comparison of perceived social support between the depressed and non-depressed groups

The Table 17 shows a that respondents with depression had significantly low total MSPSS scores (p = 0.010) and significantly low scores on the significant other (p = <0.001) and family domains (p = 0.012), but no significant difference in the scores of friends domain.

Table 17: Comparison of MSPSS scores and all their subdomains in the depressed and non-depressed groups

		Depression present Median (IQR) (N= 35 (28.2%))	Depression absent Median (IQR) (N= 89 (71.8%))	P (two tailed)
MSPSS	Total	73 (20)	64 (36)	**.010***
	SO	24 (11)	28 (3)	**<.001***
	FAM	24 (12)	27 (4)	**.012***
	FRI	18 (15)	21 (14)	0.098

Mann Whitney U test applied; N = number; MSPSS: Multidimensional scale for perceived social support; SO: significant other; FAM: family; FRI: friends; IQR: Interquartile range

Discussion

DISCUSSION

Discussion

The aim of the study was to assess the relationship of various socio-demographic variables, clinical variables and perceived social support with pregnancy related anxiety in third trimester antenatal females.

Prevalence of pregnancy related anxiety

In the present study, the frequency of pregnancy related anxiety in third trimester females is found to be 40.332%. The prevalence of anxiety in antenatal females is highly variable in existing literature. This may be due to differences in socio-demographic characteristics of study participants, diagnostic criteria, instruments used and the differences in the study population i.e. phase of the pregnancy. The global prevalence of anxiety disorder in pregnancy is found to be 20.7% as per a meta-analysis.[27] Prevalence during the third trimester was found to be 24.5%.[14] Higher prevalence was found in the studies conducted during the COVID 19 pandemic ranging from 30.5% to 34%. [28, 29]

In the existing Indian literature too, the prevalence of anxiety was found to be highly variable ranging from 1.41% to 55.7%.[52-56] In the Indian study, conducted by Nath et al. 2019, in a tertiary care hospital in Bangalore, a higher prevalence was found around 55.7%. Pregnancy related thoughts scale was used to screen for pregnancy related anxiety. In this study, the authors report a disproportionately higher prevalence rates compared to rest of the Indian studies. The authors speculate the reason for such a high prevalence of anxiety is the screening tool they used.[52] In another study done by Goyal et al, in North India, anxiety disorders were diagnosed with the help of MINI structured interview. It was found that 1.41% of the women suffered from anxiety unspecified. Other anxiety disorders were not mentioned in the study, and pregnancy related anxiety was not assessed. The assessment of anxiety using MINI and not assessing for the pregnancy related anxiety might have led to the low prevalence of anxiety in this study.[56] In a multicentric study done by Tikka et al. 2021, it was found that the prevalence of moderate to severe anxiety as measured by GAD 7 scale was found to be 11.1% and that of mild anxiety was found to be 24.5%.[55] Hence the reason for high variability might be due to difference in the scales used for assessment of anxiety. It is also important to note that pregnancy specific

anxiety scales are not used in many studies, which might lead to a decreased prevalence of pregnancy specific anxiety. Another reason for the same might be differences in the study sample e.g. the phase of pregnancy.

The present study was not powered to calculate the prevalence of pregnancy related anxiety, hence this finding is not generalizable. Higher frequency than the global data for anxiety in pregnancy was found among our study participants. The reason for higher frequency might be due to the study being conducted during the COVID 19 pandemic when the hospital in consideration was taking patients on the basis of appointments and booking an appointment in the hospital for routine antenatal check-up was difficult. Another reason for high prevalence in the present study might be that we included only the third trimester antenatal females in the study.

Anxiety during pregnancy

It was found that the women were significantly more worried about the process of childbirth than worrying about the changes in the body, which was significantly higher than worries regarding bearing of a handicapped child.

In a study by Brunton et al. 2020, done in Australia, it was found that the body image concerns scored the highest on pregnancy anxiety scale, followed by childbirth related concerns, which was followed by the baby concerns. Whether the difference between them was significant or not, it was not mentioned in the study.[64] The study points out how in the first world nations, body image issues are matters of major concerns for the pregnant lady.

In another study done in Turkey by Ozan et al. 2020, and it was found that the highest score for PRAQ R 2 in the study population was about fear of giving birth which was in line with our study. Hence in low to middle income countries, worries regarding the process of childbirth are higher. However, in this study, it was found that worries regarding bearing a handicapped child ranked next which was followed by the concern about own appearance. [65] This is in contrast to the present study in which worries regarding own appearance was more than bearing a handicapped baby.

The reason for this conflicting finding, lies in the socio-cultural milieu of the study population. In this region there is belief that whatever is thought about, read, listened to or dealt with during the pregnancy, affects the baby. Hence women in this region during pregnancy start reading religious texts and listen to devotional songs so that

the child has born with good values. Women do not want to think or speak about the baby's ill health because as per the beliefs, these thoughts might actually affect the unborn baby.

Socio-demographic factors and anxiety

As per the existing literature, multiple socio-demographic variables are associated with anxiety. However, findings in most studies are not consistent. The inconsistency can be explained by the difference in the study population (phase of the pregnancy), the difference in the method of diagnosis, i.e., interview-based or questionnaire-based, the difference in the instruments used, i.e., self-reported or clinician-reported, and the socio-cultural-economic differences among various populations.

Our study also found that anxious group had significantly higher individuals with higher education (graduates or higher) ($p = 0.028$). This is in line with a few studies,[36, 41, 45] the proposed reasons for the same being that women with higher education have worries regarding their career, and caring for the baby and career simultaneously might be difficult to manage in the future. Another reason is that educated and working women live in smaller families, which would decrease their support from family members, due to which they are more anxious. These findings are however, in contrast to other studies, where it was found that respondents with low education levels were found to be significantly more anxious compared to highly educated women.[36, 37, 66] This was also concluded in a systematic review, done by Nisar et al. in which high education was found to be a protective factor against perinatal depression.[67] The hypothesized reasons for the same include that less educated women do not have the necessary knowledge regarding the pregnancy, delivery and child-care which may lead them to be more anxious. The reason for this unusual finding might be that the majority of participants in the study were highly educated. The reason for this might be that the study was conducted at the height of COVID 19 lockdown, and taking an appointment for a regular antenatal checkup was difficult and hence might have been difficult for less educated population.

In the present study, the age of the anxious group was slightly higher than the non-anxious group, however, there was no significant difference between both the groups. In some studies, however, anxious group was significantly younger than the non-anxious groups[37, 44] and in some studies, anxious group was significantly older

compared to the non-anxious group.[41] The hypothesized reasons for the same are that younger woman especially adolescents are more prone to developing anxiety during pregnancy because of their unpreparedness with their pregnancy and higher age group might be more anxious due to probable complications in their pregnancy associated with age.

In the present study, the rest of the socio-demographic variables like number of family members, number of female family member, income, age of marriage and years of marriage were not significantly different in the anxious and non-anxious groups. It is in contrast to a few studies, which found that those belonging to a minority population group, [37, 42] low socio-economic status[39, 68], housewives[33, 38] were found to be more in the anxious group than the non-anxious groups. As per a study done in Nigeria, women working as traders and those living in urban setting had significantly more anxiety. [41] As per a study by Effati-Daryan et al. 2020, it was found that, spouse's educational level, spouse's support, marital life satisfaction and number of pregnancies were significantly associated with the anxiety score.[43]

The number of female members of the family nearly significantly and negatively correlated ($p = 0.052$) with the worries regarding the body changes associated with the pregnancy. This finding might be explained by the concept that females seeing other females going through the similar process of child bearing, might feel less worried about the changes in their own body. Existing literature does not comment on this finding and more literature needs to be done to understand the role of female family members in reducing the anxiety of pregnant women.

Clinical variables and laboratory parameters

In our study, there was no significant difference between the POG, between the anxious and non-anxious groups. However, worries regarding the process of childbirth correlated significantly with period of gestation. This is in line with the study by Silva et al. 2017, it was found that anxiety in pregnancy increased with increase in gestation, and anxiety was more in third trimester compared to the first and second trimester, however, the result was not significant. [38] The explanation for this finding is that with the advancement of pregnancy and the approaching childbirth and the anticipation of increasing responsibility, anxiety might increase. In contrast to this, as per a study done in Australia, it was found that anxiety levels were higher in

both the first trimester and the last trimester of pregnancy and were significantly lower in the middle of the pregnancy.[69] The possible explanation of this finding is that women are unprepared and unsure of their pregnancy, hence are more anxious.

In the present study, the reason for no significance may be that only third trimester females have been included in the study, hence significant difference was not seen with gestation. However, in our study it was found that worries regarding the process of childbirth correlated significantly with period of gestation. This implies that worries regarding process of childbirth increases with the increase in period of gestation, hence approaching childbirth increases the fears associated with it.

In the present study, no significant association was found between the anxiety and whether the respondent is primigravida or multigravida. Studies in this sphere have given varied results. As per a study by Fisher et al. 2013, it was found that primiparity was significantly associated with common mental disorders in early pregnancy.[70] As per a study by Faisal-Cury the findings were similar to the present study and there was no significant difference between the two groups.[71] In yet another study, multiparity was significantly associated with depressive symptoms.[37] The hypothesized reasons for more anxiety in primiparous women is that women who are experiencing pregnancy for the first time may be anxious about it. The possible reasons for experiencing more anxiety in multiparous women might be bad experience in the previous pregnancy, or in lower- and middle-income countries, pressure of delivering at least one male child.

In our study, no significant difference between the anxious and non-anxious group and respondents having a history of abortion. This is in contrast with the study by Silva et al. 2017, in which there was a significantly higher number of women who had previous bad obstetric history in the anxious group.[38] A similar finding was found in a study done in Brazil, anxiety was significantly associated with previous abortions, [71] similar findings were also seen in a study done in Vietnam.[70] Similar conclusion was also made in a systematic review.[36] However there has been a study in literature which found no significant association between previous pregnancy loss and anxiety.[72] Reason for this finding might be that very high risk pregnancies were removed from the study and the women were attending a tertiary care hospital hence more reassured about a better treatment.

There was no significant difference in planning of pregnancy and associated risk with pregnancy between the anxious and non-anxious groups. This is also in contrast with the findings in the previous studies, which found that anxious women were significantly more likely to have an unwanted pregnancy than non-anxious women.[37, 38, 73] However, it has also been mentioned in literature that these symptoms are more prominent in early pregnancy and decrease in late pregnancy.[37] The reason that has been quoted in existing literature is that in the first trimester, women with an unplanned pregnancy are unsure about having a baby in the first trimester, however, by the third trimester, they are more accepting of their pregnancy and the child. This finding was not found to be significant in our study as we have included only the third trimester antenatal females.

High risk pregnancies are also found to be significantly associated with anxiety in literature.[13, 36, 45] High risk pregnancies were not found to be significantly associated with anxiety in our study since we excluded very high-risk pregnancies from the study like severe pre-eclampsia, eclampsia, gestational diabetes mellitus on insulin or women with chronic illnesses.

The number of times, the respondent came for antenatal checkup was significantly higher in the anxious compared to the non-anxious groups. In addition, the total ANC visits also significantly correlated with the total PRAQ R2 scores and the worries fears related to childbirth on the PRAQ R2 scale. Similar findings were found in a study done by Andersson et al. in 2004 it was found that antenatal depression and anxiety increased the number of antenatal visits.[74] In another study, it was found that low risk pregnant women who were advised less number of antenatal visits were found to have higher worries about their pregnancy.[75] In another study it was found that women having higher neuroticism had higher healthcare utilization during their pregnancy than those who did not.[76] The reasons for these findings might be bidirectional, on one hand, women who are not able to visit their obstetricians as frequently might be anxious and on the other hand, women who are anxious may visit more frequently for antenatal checkups. Also women who have risk factors during pregnancy may have to visit more frequently and hence are more anxous.

In the present study, anxious and non-anxious groups did not have any significant difference between the number of respondents with abnormal USG findings. This is in line with the study done by Larsson et al. 2009, which found that there was no

significant difference in anxiety as measured by the State Trait Anxiety inventory between women who had and had not have choroid plexus found in their USG findings.[77] This is in contrast with the study done by Hoskovek et al. 2008 in Turkey which found that soft signs on USG were significantly higher levels of state anxiety as measured by the State trait anxiety form Y.[78] In another study in the USA, indeterminate findings on the USG was associated with higher pretest and post-test anxiety compared to normal antenatal ultrasound.[79]

The reason for different findings across studies might be due to the various socio-cultural differences between the groups and the understanding of the perinatal ultrasound findings in antenatal females. In the Indian setting, women due to lower education status might not understand the meaning and importance of an antenatal scan. Sometimes, in the Indian setting, less educated or illiterate women may not be able understand abnormal findings in their antenatal scan and hence not feel worried about the same.

In the present study ABO blood group, RH negative blood group had no significant difference between the anxious and non-anxious women. Similar studies were not found in literature.

Sociodemographic and clinical variables with the perceived social support

In the present study, the total perceived social support significantly positively correlated with the age of marriage and also with the respondent's education levels. Existing literature does not comment on similar findings. The probable reason for this finding is that with increased with higher age of marriage, the education status of the women also increases and hence, those around her view her as an asset and support her more.

The total social support significantly negatively correlated with the number of times the women had got pregnant. It was also found that social support from the family nearly significantly negatively correlated with the number of times the women had got pregnant and the number of abortions the woman had previously.

The possible reason for this finding is that those around her care for a woman more during her first pregnancy, and the care decreases with subsequent pregnancies. Another reason might be that in low and middle-income countries, higher number of pregnancies is associated with higher female children, and there is a pressure on the

women to give birth to at least one male child, hence the perceived social support declines. Also, women in India have to face stigma associated with birth of a female child and recurrent abortions, which might cause a decline in their social support. Existing literature does not comment on these factors, and further studies are needed.

Social support from significant other significantly positively correlated with the age of marriage. Support from family was also found to be significantly correlated with age of marriage and number of females in the family. In addition to this, working women were also found to have significantly more perceived support from their significant others. Education levels might be associated with age of marriage. Women who are either working or educated might receive more support from their partners as they would be viewed as an equal by the spouse and an asset to the household. In existing literature, similar studies are scarce and more research needs to be done on the same.

As expected, women who were living in joint families were found to have significantly more support from family members compared to women who were living in nuclear families.

Social support from friends significantly correlated with age of marriage, education, and husband's education. In addition to this, support from friends was found to be significantly higher in respondents who had planned their pregnancy. The probable reason for this finding is that women who have support from friends are often more educated, married late, probably had a career, and were generally from a higher social stratum pertaining to their husband's education. Also, these women had more control over when they wanted to start their families. Similar studies were found in literature that studied the role of social support and undesired pregnancies. As per a study, done by Moseson et al. 2018 in United states of America, it was found that those who reported low social support had nearly seven times the odds of an undesired pregnancy as compared to women who reported higher social support among white women. No relation was found between undesired pregnancy and social support in black women.[80] In another study done by Feld et al. 2021, in a low-income population in the United States, it was found that for every 1 unit increase of tangible social support, women were 14% less likely to have an unintended pregnancy.[81] In the Indian setting, where women usually live in joint families, where support from family

is usually high, social support from friends stand out in empowering a woman to have desired pregnancies.

It can thus be concluded that women who married late, had higher education, working women, those who had less number of pregnancies and less number of previous abortions had more social support from one or more sources.

Anxiety and perceived social support

In the present study, we found that perceived social support and all its domains was significantly lower in the anxious group compared to the non-anxious group. This finding is in line with most studies conducted in the high-income nations, as well as the low- and middle-income nations. Studies done in high income countries like a study done by Akiki et al. 2016 it was found that feeling unsure about the pregnancy, having a low self-esteem and low social support from significant other and family were significantly associated with state-anxiety during the second trimester.[48] Similarly, a study done in Germany by Martini et al. in 2015 it was found that psychosocial and interpersonal factors like partnership satisfaction, social support, maternal education were associated with anxiety significantly. [9]

These findings have also been replicated in the low- and middle-income countries like a study done by Shafaie et al. 2018 among 372 Iranian participants, it was found that significant negative correlation between perceived social support with anxiety. [50] Similar results were found in a study done in Paksitan by Waqas et al. 2015 found that relationship between the total number of children, gender of previous children and anxiety and depression was mediated by social support. [32]

Studies done in China by Tang et al. 2019, it was found that low to moderate level of social support is a risk factor for the development of perinatal stress.[33] In another study done by Shangguan et al. 2021, it was found that no one providing everyday support is associated with mild anxiety.[39]

Similar findings have also been found in a study done in India in Bangalore by Nath et al. 2019, which included 380 women found that lower socioeconomic status, low social support and depression emerged as significant determinants of anxiety.[52] Similar conclusions were also drawn in two a systematic reviews.[24, 82]

However, one study from Canada, done by Dunkel Schetter et al. 2016 did not have similar results. It was a cohort study including 5217 pregnant women, it was found

that higher anxiety was associated with higher social support.[49] The reason for the same might be difference in the study population characteristics.

It must however, be borne in mind that perceived social support is deeply seated in the social interaction and culture of a population. In our study, we found that anxiety due to worries regarding child birth did not significantly correlate with social support from significant other and family, however, it significantly correlated with social support from friends. The reason for this finding might be due to the social convention that women do not talk about issues of childbirth with their husbands or family members, except possibly the mother or mother-in-law, while it is socially appropriate for women to discuss these matters with their friends. Similarly, the anxiety regarding the birth of a handicapped baby did not significantly correlate with the friends domain, but did so with the significant other and family domain. The reason for this might be that significant other and family support may prove useful in case of the birth of a handicapped baby, while support from friends might not.

In a study from Iran, which studied 270 nulliparous women, it was found that the total perceived social support correlated significantly with fear of childbirth,[83] in another study in Malawi however, social support did not differ between women who were afraid or not afraid of childbirth.[84] Similarly it has been found in a African study, that anxiety did not correlate significantly with social support of family, however it did so with the social support from friends.[34] In another study conducted in Icelandic women, it was found that distressed pregnant women had significantly low family and friends' support, but not partner support[85]. Depending upon the country and their social and cultural milieu, social support from different sources is negatively associated with anxiety. In collectivistic cultures like Eastern nations, support from family might be more important. In Western nations, having individualistic cultures, social support from significant others might be more important. More research is needed in this area comparing social support from various sources and anxiety during pregnancy in different regions of the world.

Prevalence of Depression

Frequency of depression in our study during the third trimester in antenatal females is found to be 28.3%. In comparison to the world literature which included 173 studies and 182 reports was the prevalence of anxiety was found to be 20.7%.[86] As per a

meta-analysis done in South East Asia, which included 13,087 pregnant women across thirty-three studies, it was found that pooled prevalence of antenatal depression was 24.3 %. With lower prevalence rates for India and Sri Lanka and higher rates for Pakistan and Nepal.[87]

The prevalence was found to be slightly higher during the COVID 19 pandemic depression was assessed in 37 studies (N = 47,677) and a pooled prevalence of 25.6% was found.[28]

In our study, prevalence of depression is found to be similar to that of studies done during the COVID 19 pandemic.

Anxiety and depression

In our study it was found that anxiety has been significantly associated with depression. Anxious third trimester pregnant females have a significantly higher rate of depression compared to non-anxious females. Similar findings have been found in most of the studies across countries, including the higher as well as the lower income countries. A study done in India by Nath et al. 2019 in India, it was found that anxiety and depression appeared to be strongly and significantly associated.[52] In another study done in Pakistan by Waqas et al. 2015, similar results were found.[32] Similar findings were found in a study done by González-Mesa et al. 2019 done among Turkish and Spanish women in Turkey.[42] The reason for this may pertain to the similar neuro-biological mechanisms that mediate anxiety and depression.[88]

Depression and perceived social support

In the present study, the depressed group had a significantly low levels of perceived social support than the non-depressed group. Not only that, social support from significant other and family domain were significantly lower in the depressed group than in the non-depressed group however, there was no significant difference between the social support from the friends in both the groups.

Association of low social support is in line with various studies done in the past which also conclude that low social support is associated with depression.[36, 89-91] As per a meta-analysis done for assessing social support and post-partum depression among Indian post-partum females concluded that a lack of support from husband was significantly associated with depression.[92] A study done in China also found a similar

finding of high influence of partner and parental support on perinatal depression compared to support from friends which is similar to our study.[93]

As per a study done in Australia it was found that social support in the form of reassurance of worth and a reliable alliance during their pregnancy significantly associated with depression, however, social support in the form of guidance did not associate significantly with depression during pregnancy. This may point towards a less importance of peers in perinatal depression.[90]

The possible reason for significant association between depression and partner and family support in pregnant females might be due to the Indian cultural setting where the women is usually living with their partners in a joint family. The possible reason for not finding a significant association between the depression and social support from friends might also lie in the peculiar Indian social setting where the female after her marriage goes to her husband's home, leaving her own family and friends behind.

Conclusion

CONCLUSION

In this cross-sectional study, around 40% of the women were found to have anxiety during third trimester pregnant females. Higher education was found to be associated with higher anxiety. Anxiety also significantly associated with perceived social support. The findings of this study suggest that low perceived social leads to increased risk of anxiety in pregnancy.

Findings of this study also give an insight into the socio-cultural milieu in Western India surrounding a pregnant female. Findings like decrease in the social support with increase in the number of pregnancy, point towards unique stigma women in India have to face possibly around the birth of female children. Increase in social support with increase in age of marriage and education point towards a better support among educated women.

The prevalence of pregnancy related anxiety is high, proper screening of anxiety among pregnant females might be necessary. Reassuring them, educating them and enhancing their social support, might be the key to decreasing anxiety and improving their quality of life and also preventing adverse effects on the unborn baby.

Strengths of the study:-

1. The study highlights pregnancy related anxiety in pregnancy and its association with the perceived social support.
2. It was done during the COVID 19 pandemic, hence found a unique opportunity to study anxiety among pregnant women amidst global health crisis.
3. The study was done in Indian setting, where social support holds great importance owing to the collectivistic eastern culture and close family bonding.
4. The study provides an insight to the Indian social and cultural milieu surrounding a pregnant female.
5. The study sheds light on the various domains of perceived social support and pregnancy related anxiety and their relation with each other, which helps us understand the various types of worries during pregnancy and the possible areas of social support women have in our country, and their interplay with each other.

Limitations of the study:-

1. Small sample size is the major limitation of the study.
2. Sample drawn from a tertiary care center and not from the community.
3. The study was a cross - sectional study, hence does not comment upon the course of anxiety during pregnancy.
4. Since the study is done in the COVID 19 pandemic, it may not be generalizable to the population.

Clinical implications of the study:-

1. Prevalence of pregnancy related anxiety is high.
2. Proper screening of pregnancy related anxiety must be done in the antenatal clinics in India
3. Capacity building for proper screening and referral must be done for obstetricians across the country
4. Building up referral system for proper mental health care of distressed pregnant woman needs to be done
5. Capacity building for basic counselling services for obstetricians must be done
6. Reducing stigma associated with mental illnesses specifically among pregnant women, so that there is a better utilization of psychiatric services wherever they are needed
7. Enhancing social support must be considered as an important method for reducing pregnancy related anxiety.

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Annexures

ANNEXURES

अखिल भारतीय आयुर्विज्ञान संस्थान, जोधपुर
All India Institute of Medical Sciences, Jodhpur
संस्थागत नैतिकता समिति
Institutional Ethics Committee

No. AIIMS/IEC/2020/3348 **Date: 03/11/2020**

ETHICAL CLEARANCE CERTIFICATE

Certificate Reference Number: **AIIMS/IEC/2019-20/984**

Project title: **"A cross-sectional study to assess the relationship between pregnancy related anxiety with perceived social support in third trimester antenatal females"**

Nature of Project:	**Research Project**
Submitted as:	**M.D. Dissertation**
Student Name:	**Dr.Isha Kaur Arora**
Guide:	**Dr.Pratibha Gehlawat**
Co-Guide:	**Dr. Pratibha Singh, Dr. Charu Sharma, Dr. Navratan Suthar, Dr. Tanu Gupta & Dr. Akhil Dhanesh Goel**

Institutional Ethics Committee after thorough consideration accorded its approval on above project.

The investigator may therefore commence the research from the date of this certificate, using the reference number indicated above.

Please note that the AIIMS IEC must be informed immediately of:

- Any material change in the conditions or undertakings mentioned in the document.
- Any material breaches of ethical undertakings or events that impact upon the ethical conduct of the research.

The Principal Investigator must report to the AIIMS IEC in the prescribed format, where applicable, bi-annually, and at the end of the project, in respect of ethical compliance.

AIIMS IEC retains the right to withdraw or amend this if:

- Any unethical principle or practices are revealed or suspected
- Relevant information has been withheld or misrepresented

AIIMS IEC shall have an access to any information or data at any time during the course or after completion of the project.

Please Note that this approval will be rectified whenever it is possible to hold a meeting in person of the Institutional Ethics Committee. It is possible that the PI may be asked to give more clarifications or the Institutional Ethics Committee may withhold the project. The Institutional Ethics Committee is adopting this procedure due to COVID-19 (Corona Virus) situation.

If the Institutional Ethics Committee does not get back to you, this means your project has been cleared by the IEC.

On behalf of Ethics Committee, I wish you success in your research.

Dr. Praveen Sharma
Member secretary
Institutional Ethics Committee
AIIMS,Jodhpur

Basni Phase-2, Jodhpur, Rajasthan-342005; **Website:** www.aiimsjodhpur.edu.in; **Phone:** 0291-2740741 Extn. 3109
E-mail : ethicscommittee@aiimsjodhpur.edu.in; ethicscommitteeaiimsjdh@gmail.com

PATIENT INFORMATION SHEET

Study conducted by: Dr Isha Kaur Arora

Name of Participant:

Date:

Title: **A cross- sectional study to assess the relationship between pregnancy related anxiety and perceived social support in third trimester antenatal females.**

Aim of study: The aim of the present study is to assess the relationship between pregnancy related anxiety with perceived social support in third trimester antenatal females.

Centre: Study will be carried in patients antenatal clinic of the Obstetrics and Gynaecology department of All India Institute of Medical Sciences, Jodhpur, Rajasthan under the supervision of Dr Pratibha Gehlawat

Study procedure: The patient will be one of the multiple patients recruited in this study. After taking written informed consent, socio-demographic and clinical information will be collected. Patient will be given questionnaire booklet to fill self-administered questionnaire. Detailed psychiatric interview will be taken for all patients for confirmation of diagnosis of anxiety and other psychiatric disorders.

Confidentiality: The identity of each patient will be kept confidential.

Risk: Enrolment in the study will not pose any risk to the patient. Patient can withdraw from the study at any time without offering reasons. Not participating in study will not lead to any treatment being denied

For further information or questions, the following personnel can be contacted:

Dr Isha Kaur Arora, Junior Resident, Department of Psychiatry, All India Institute of Medical

Sciences, Jodhpur, Rajasthan.

Phone number: 7568372224, email address: ishaarora1050@gmail.com

Dr Pratibha Gehlawat

Assistant Professor

Dept. of Psychiatry,

All India Institute of Medical Sciences,

Jodhpur, Rajasthan.

All India Institute of Medical Sciences

Jodhpur, Rajasthan

Informed Consent Form

Title of Thesis/Dissertation : **A cross- sectional study to assess the relationship between pregnancy related anxiety and perceived social support in third trimester antenatal females.**

Name of PG Student : Dr. Isha Kaur Aroa Tel. No. 7568372224

Patient/Volunteer Identification No. :

I,_____,_____ S/o or D/o, R/o _____give my full, free, voluntary consent to be a part of the study "**A cross- sectional study to assess the relationship between pregnancy related anxiety with perceived social support in third trimester antenatal females."** the procedure and nature of which has been explained to me in my own language to my full satisfaction. I confirm that I have had the opportunity to ask questions.

I understand that my participation is voluntary and am aware of my right to opt out of the study at any time without giving any reason.

I understand that the information collected about me and any of my medical records may be looked at by responsible individual from AIIMS Jodhpur or from regulatory authorities. I give permission for these individuals to have access to my records.

Date: _____ _____

Place: _____ Signature/Left thumb impression

This to certify that the above consent has been obtained in my presence.

Date: _____ _____

Place: _____ Signature of PG Student

1. Witness 1

Signature

Name: _____

Address: _____

2. Witness 2

Signature

Name: _____

Address: _____

Patient Information sheet (Hindi)

अध्ययन प्रतिभा गयों के लए सूचना पत्र

इनवेस्टिगेटरः डॉ. ईशा कौर अरोड़ा
प्रतिभागी का नामः
दिनांकः

शीर्षकः तीसरी तिमाही के प्रसवपूर्व महिलाओं में कथित सामाजिक समर्थन के साथ गर्भावस्था से संबंधित चिंता के बीच संबंध का आकलन करने के लिए एक क्रॉस–अनुभागीय अध्ययन।

अध्ययन का उद्देश्यः तीसरी तिमाही के प्रसवपूर्व महिलाओं में कथित सामाजिक समर्थन के साथ गर्भावस्था से संबंधित चिंता के बीच संबंध का आकलन करने के लिए एक क्रॉस–अनुभागीय अध्ययन।

केंद्रः डॉ. प्रतिभा गेहलावत की देखरेख में ऑल इंडिया इंस्टीट्यूट ऑफ मेडिकल साइंसेज, जोधपुर, प्रसव व स्त्री रोग के ओपीडी विभाग में आने वाले रोगियों में अध्ययन किया जाएगा।

अध्ययन प्रक्रियाः प्रतिभागि इस अध्ययन में कई रोगियों में से एक होगा। लिखित सूचित सहमति लेने के बाद, व्यक्तिगत जानकारी एकत्र की जाएगी। रोगी को स्व–प्रशासित प्रश्नावली भरने के लिए प्रश्नावली दी जाएगी। प्रश्नावली में स्कोर के आधार पर, रोगियों का साक्षात्कार किया जाएगा ।

गोपनीयताः प्रत्येक रोगी की पहचान गोपनीय रखी जाएगी।

अध्ययन के संभावित लाभरू यदि किसी रोगी को नैदानिक रूप से चिंतित पाया जाता है, तो बीमारी के प्रबंधन के लिए मनोरोग सेवाओं के लिए उपयुक्त रेफरल बनाया जाएगा।

जोखिमः अध्ययन में नामांकन से रोगी को कोई खतरा नहीं होगा। रोगी बिना किसी कारण के किसी भी समय अध्ययन से हट सकता है। अध्ययन में भाग नहीं लेने से किसी भी उपचार से इनकार नहीं किया जाएगा

अधिक जानकारी या प्रश्नों के लिए, निम्नलिखित कर्मियों से संपर्क किया जा सकता है:

डॉ ईशा कौर अरोड़ा
जूनियर रेजिडेंट
मनोचिकित्सा विभाग,
अखिल भारतीय आयुर्विज्ञान संस्थान
जोधपुर, राजस्थान।
फोन नंबरः 7568372224, ईमेल पताः ishaarora1050@gmail.com

डॉ प्रतिभा गेहलावत
सहायक प्रोफेसर
मनोचिकित्सा विभाग,
अखिल भारतीय आयुर्विज्ञान संस्थान,
जोधपुर, राजस्थान

Informed Consent form- Hindi

ऑल इं डया इंस्टिट्यूट ऑफ मै डकल साईंडसस

जोधपुर, राजस्थान

सूचित सहमति प्रपत्र

थीसिस/शोध प्रबंध का शीर्षकः तीसरी तिमाही के प्रसवपूर्व महिलाओं में कथित सामाजिक समर्थन के साथ गर्भावस्था से संबंधित चिंता के बीच संबंध का आकलन करने के लिए एक क्रॉस–अनुभागीय अध्ययन।

पीजी छात्र का नामः डॉ. ईशा कौर अरोड़ा

टेलीफोन नंबर 7568372224

रोगी/ स्वयंसेवक पहचान संख्याः .....

मैं, ...

.....

निवासी : .....

.....

मेरी पूर्ण, मुक्त, स्वैच्छिक सहमति को 'तीसरी तिमाही के प्रसवपूर्व महिलाओं में कथित सामाजिक समर्थन के साथ गर्भावस्था से संबंधित चिंता के बीच संबंध का आकलन करने के लिए एक क्रॉस–अनुभागीय अध्ययन।' अध्ययन का एक हिस्सा बनने के लिए दें, जिसकी प्रक्रिया और प्रकृति ने मुझे अपनी पूर्ण संतुष्टि के लिए अपनी भाषा में समझाया है। मैं पुष्टि करता हूं कि मुझे सवाल पूछने का अवसर मिला है।

मैं समझता हूं कि मेरी भागीदारी स्वैच्छिक है और बिना किसी कारण के किसी भी समय अध्ययन से बाहर निकलने के मेरे अधिकार से अवगत हूं।

मैं समझता हूं कि मेरे और मेरे किसी भी मेडिकल रिकॉर्ड के बारे में एकत्रित जानकारी को AIIMS, Jodhpur या नियामक अधिकारियों के जिम्मेदार व्यक्ति द्वारा देखा जा सकता है। मैं इन व्यक्तियों को अपने रिकॉर्ड तक पहुंचने की अनुमति देता हूं।

दिनांक : .....

जगह : .....

हस्ताक्षर/बाएं अंगूठे का निशान

यह प्रमाणित करने के लिए कि मेरी उपस्थिति में उपरोक्त सहमति प्राप्त हुई है।

दिनांकः .....

जगह : .....

पीजी छात्र के हस्ताक्षर

1. साक्षी	2. साक्षी
हस्ताक्षर	हस्ताक्षर
नाम	नाम
पता	पता

Sociodemographic and Clinical Profile

Name: Age:
Gravida/Parity LMP
EDD POG
Occupation Working status
Education
Husband's Occupation Husband's Education
Family Income (per capita) Type of family
Socioeconomic status
Number of family members Number of female members
Satisfaction in marital relationship
Pregnancy planned/unplanned
Years of Marriage Age of Marriage
Birth Order of the child
Gender of Previous children
Age at which first child was born
Illness in Previous child
Complication in the previous pregnancy

Total ANC visits
Expectation of the sex of the baby
Worry regarding breastfeeding
Worry regarding labour
Worries about the newborn baby

Obstetric history

Sr. No.	Year	Pregnancy Complication	Mode of delivery	Post natal period	Sex of the baby

High Risk Factor: Yes/no
Details

Past History: Psychiatric illness/ Medical illness

Family history: Medical illness/ psychiatric illness

Substance use:

Wt: Ht: Pulse: BP:

Blood Group	Dual Markers
HIV/HBsAg/ HCV/VDRL	Fasting blood sugar
OGTT	Hba1c
Urine R/M	TSH
Others	
Ultrasound any abnormalities	

Relation to the COVID 19 pandemic

1. Do you feel a fear of contamination?
2. Fear of being quarantined
3. Fear the child will be infected ?
4. Do you feel worried about the access to medical services in case a complication occurs?
5. How would it be different if it was not COVID 19 pandemic era?

Government of **Western Australia**
Department of **Health**

Women and Newborn Health Service
King Edward Memorial Hospital
Western Australia
Women's Health Care Clinical Care Unit (WHCCU)
Department of Psychological Medicine

Name: .....

.....

DOB: .....

Perinatal Anxiety Screening Scale (PASS)

☐ ANTENATAL ☐ POSTNATAL DATE: .....

Weeks pregnant ..... Baby's age .....

Over the past month, how often have you experienced the following? Please tick the response that **most** closely describes your experience for every question.

	Not at all	Some times	Often	Almost Always
1. Worry about the baby/pregnancy	0	1	2	3
2. Fear that harm will come to the baby	0	1	2	3
3. A sense of dread that something bad is going to happen	0	1	2	3
4. Worry about many things	0	1	2	3
5. Worry about the future	0	1	2	3
6. Feeling overwhelmed	0	1	2	3
7. Really strong fears about things, eg needles, blood, birth, pain, etc	0	1	2	3
8. Sudden rushes of extreme fear or discomfort	0	1	2	3
9. Repetitive thoughts that are difficult to stop or control	0	1	2	3
10. Difficulty sleeping even when I have the chance to sleep	0	1	2	3
11. Having to do things in a certain way or order	0	1	2	3
12. Wanting things to be perfect	0	1	2	3
13. Needing to be in control of things	0	1	2	3
14. Difficulty stopping checking or doing things over and over	0	1	2	3
15. Feeling jumpy or easily startled	0	1	2	3
16. Concerns about repeated thoughts	0	1	2	3
17. Being 'on guard' or needing to watch out for things	0	1	2	3
18. Upset about repeated memories, dreams or nightmares	0	1	2	3

Continued on Back

	Not at all	Some times	Often	Almost Always	
19. Worry that I will embarrass myself in front of others	0	1	2	3	
20. Fear that others will judge me negatively	0	1	2	3	
21. Feeling really uneasy in crowds	0	1	2	3	
22. Avoiding social activities because I might be nervous	0	1	2	3	
23. Avoiding things which concern me	0	1	2	3	
24. Feeling detached like you're watching yourself in a movie	0	1	2	3	
25. Losing track of time and can't remember what happened	0	1	2	3	
26. Difficulty adjusting to recent changes	0	1	2	3	
27. Anxiety getting in the way of being able to do things	0	1	2	3	
28. Racing thoughts making it hard to concentrate	0	1	2	3	
29. Fear of losing control	0	1	2	3	
30. Feeling panicky	0	1	2	3	
31. Feeling agitated	0	1	2	3	
Global Score					

Reference:

Somerville, S., Dedman, K., Hagan, R., Oxnam, E., Wettinger, M., Byrne, S., Coo, S., Doherty, D., Page, A.C. (2014).

The Perinatal Anxiety Screening Scale: development and preliminary validation. *Archives of Women's Mental Health*, DOI: 10.1007/s00737-014-0425-8

Perinatal Anxiety Screening Scale (PASS)- Hindi

पछले एक महीने में, आपने कतनी बार निम्न ल खत अनुभव कया है? कृपया उस प्रति क्रया पर टिक करें, जो आपके प्रत्येक प्रश्न के लए आपके अनुभव का सबसे सही करती है।

दिनांक:

नाम:

गर्भावस्था (सप्ताह):

सप्ताह:

	कभी नहीं	कभी कभी	अक्सर	ज़्यादातर हमेशा
1. बच्चे / गर्भावस्था की चंता	0	1	2	3
2. डर है क बच्चे को नुकसान हो जाएगा	0	1	2	3
3. भय का आभास क कुछ बुरा होने वाला है	0	1	2	3
4. बहुत सारी चीज़ों की चंता होना	0	1	2	3
5. भ वष्य की चंता होना	0	1	2	3
6. व्याकुल होना	0	1	2	3
7. चीज़ें जैसे सुई, खून, जन्म, दर्द, आदि का बहुत डर लगना	0	1	2	3
8. अचानक अत्या धक भय या बेचैनी होना	0	1	2	3
9. बार बार वचार आना जिन्हें रोकना या नियंत्रण करना मुश्किल है	0	1	2	3
10. मौका होने के बावजूद भी सोने में कठिनाई होना	0	1	2	3
11. कसी निश्चित तरीके या क्रम से चीजें करना	0	1	2	3
12. चाहना की हर चीज़ उत्तम रूप से हो	0	1	2	3
13. चीज़ों को नियंत्रित करने की अ धक चाह रखना	0	1	2	3
14. चीज़ों को बार बार करना, या चेक करने को रोक न पाना	0	1	2	3
15. आसानी से चौंका हुआ या असमंजस्य महसूस करना	0	1	2	3
16. बार-बार आने वाले वचारों को लेकर चंता	0	1	2	3
17. हमेशा सतर्क होना, या चीज़ों का ध्यान रखने की	0	1	2	3

ज़रुरत होना				
18. बार-बार आने वाली यादों, सपनों, या डरावने सपनों के कारण परेशान होना	0	1	2	3
19. चंता होना की मैं दूसरों के सामने खुद को श र्मंदा कर लूंगी	0	1	2	3
20. डर लगना क अन्य लोग मुझे नकारात्मक रूप में आंकेंगे	0	1	2	3
21. भीड़ में व्याकुल होना	0	1	2	3
22. सामाजिक गति व धयों से बचना क्यों क मैं बेचैन हो सकती हूँ	0	1	2	3
23. उन चीजों से बचना जो मुझे चंतित करती हैं	0	1	2	3
24. अपने आप से अलग महसूस करना जैसे आप अपने आप को एक फल्म में देख रहे हैं	0	1	2	3
25. समय का ध्यान न रहना और याद नहीं नहीं रहना की क्या हुआ था	0	1	2	3
26. हाल ही में हुए परिवर्तनों में ढलने में परेशानी होना	0	1	2	3
27. चंता के कारण चीज़ें ना कर पाना	0	1	2	3
28. बहुत सारे वचारों के कारण ध्यान केंद्रित करने में परेशानी	0	1	2	3
29. नियंत्रण खोने का डर	0	1	2	3
30. बहुत तीव्र घबराहट महसूस होना	0	1	2	3
31. व्याकुलता महसूस होना	0	1	2	3

PRAQ R2

1. Absolutely not relevant
2. Hardly ever relevant
3. Sometimes relevant
4. Reasonably relevant
5. Very relevant

1. 1. I am anxious about the delivery. 1 2 3 4 5
2. I am worried about the pain of contractions and the pain during delivery. 1 2 3 4 5
3. I am worried about the fact that I shall not regain my figure after delivery. 1 2 3 4 5
4. I sometimes think that our child will be in poor health or will be prone to illnesses. 1 2 3 4 5
5. I am concerned about my unattractive appearance. 1 2 3 4 5
6. I am worried about not being able to control myself during labour and fear that I will scream. 1 2 3 4 5
7. I am worried about my enormous weight gain. 1 2 3 4 5
8. I am afraid the baby will be mentally handicapped or will suffer from brain damage. 1 2 3 4 5
9. I am afraid our baby will be stillborn, or will die during or immediately after delivery. 1 2 3 4 5
10. I am afraid that our baby will suffer from a physical defect or worry that something will be physically wrong with the baby 1 2 3 4 5

PRAQ R2 - Hindi

1. बिलकुल प्रासं गक नहीं
2. मुश्किल से कभी प्रासं गक होता है
3. कभी कभी प्रासं गक होता है
4. कुछ हद तक प्रासं गक
5. बहुत प्रासं गक

1. मैं प्रसव को लेकर चंतित हूँ	1	2	3	4	5
2. मैं प्रसव के पहले एवं प्रसव के दौरान होने वाले दर्द के बारे में चंतित हूं	1	2	3	4	5
3. मैं इस बात को लेकर चंतित हूं क प्रसव के बाद में अपनी पुराना देह-आकार दोबारा हा सल नहीं कर पाऊँगी	1	2	3	4	5
4. मुझे कभी-कभी लगता है क हमारा बच्चा की तबियत नाज़ुक होगी या उसे बीमारी होने की सम्भावना अ धक होगी	1	2	3	4	5
5. मैं अपने अनाकर्षक रूप को लेकर चंतित हूं	1	2	3	4	5
6. मुझे चंता है की मैं प्रसव के दौरान खुद को रोक नहीं पाऊँगी और और डर है क मैं चल्ला दूंगी	1	2	3	4	5
7. मैं अपने असाधारण बढे हुए वज़न को लेकर चंतित हूँ	1	2	3	4	5
8. मुझे चंता है क बच्चा मान सक रूप से वकलांग होगा या मस्तिष्क क्षति से पी ड़त होगा	1	2	3	4	5
9. मुझे डर है क बच्चा मरा हुआ पैदा होगा या प्रसव के दौरान या उसके तुरंत बाद मर जाएगा	1	2	3	4	5
10. मुझे चंता है क हमारा बच्चा शारीरिक दोष से पी ड़त होगा, या बच्चे के साथ शारीरिक रूप से कुछ गलत हो सकता है	1	2	3	4	5

Multidimensional Scale of Perceived Social Support (Zimet, Dahlem, Zimet & Farley, 1988)

Instructions: We are interested in how you feel about the following statements. Read each statement carefully. Indicate how you feel about each statement.

Circle the "1" if you **Very Strongly Disagree**
Circle the "2" if you **Strongly Disagree**
Circle the "3" if you **Mildly Disagree**
Circle the "4" if you are **Neutral**
Circle the "5" if you **Mildly Agree**
Circle the "6" if you **Strongly Agree**
Circle the "7" if you **Very Strongly Agree**

1.	There is a special person who is around when I am in need.	1	2	3	4	5	6	7	SO
2.	There is a special person with whom I can share my joys and sorrows.	1	2	3	4	5	6	7	SO
3.	My family really tries to help me.	1	2	3	4	5	6	7	Fam
4.	I get the emotional help and support I need from my family.	1	2	3	4	5	6	7	Fam
5.	I have a special person who is a real source of comfort to me.	1	2	3	4	5	6	7	SO
6.	My friends really try to help me.	1	2	3	4	5	6	7	Fri
7.	I can count on my friends when things go wrong.	1	2	3	4	5	6	7	Fri
8.	I can talk about my problems with my family.	1	2	3	4	5	6	7	Fam
9.	I have friends with whom I can share my joys and sorrows.	1	2	3	4	5	6	7	Fri
10.	There is a special person in my life who cares about my feelings.	1	2	3	4	5	6	7	SO
11.	My family is willing to help me make decisions.	1	2	3	4	5	6	7	Fam
12.	I can talk about my problems with my friends.	1	2	3	4	5	6	7	Fri

The items tended to divide into factor groups relating to the source of the social support, namely family (Fam), friends (Fri) or significant other (SO).

Multidimensional scale for perceived social support (MSPSS)- Hindi

"1" पर गोला लगायें अगर आप बहुत दृढ़ता से असहमत हैं

"2" पर गोला लगायें अगर आप र्द्तापुर्वक असहमत हैं

"3" पर गोला लगायें अगर आप हलके रूप से असहमत हैं

"4" पर गोला लगायें अगर आप नाह तो सहमत हैं और न ही असहमत

"5" पर गोला लगाएँ अगर आप हलके रूप से सहमत हैं

"6" पर गोला लगायें अगर आप द्रिड़तापुर्वक सहमत हैं

"7" पर गोला लगायें अगर आप बहुत दृढ़ता सहमत हैं

1. जब मुझे ज़रूरत होती है तो मेरे आस पास एक वशेष व्यक्ति होता है।	1	2	3	4	5	6	7	SO
२. एक खास व्यक्ति है जिस से मैं अपनी खु शयाँ और दुख सांझा कर सकता हूँ।	1	2	3	4	5	6	7	SO
3. मेरा परिवार वास्तव में मेरी मदद करने की को शश करता है।	1	2	3	4	5	6	7	FAM
4. मुझे मेरे परिवार से ज़रूरी भावनात्मक सहायता / मदद और समर्थन मलता है।	1	2	3	4	5	6	7	FAM
5. मेरे पास एक ख़ास व्यक्ति है जो क मेरे लए वास्त वक रूप में आश्वासन का स्त्रोत है।	1	2	3	4	5	6	7	SO
6. मेरे मत्र वास्तव में मेरी मदद करने की को शश करते हैं।	1	2	3	4	5	6	7	FRI
7. जब कुछ गलत हो जाता तो मैं मत्रों पर निर्भर कर सकता हूँ।	1	2	3	4	5	6	7	FRI
8. मैं अपने परिवार से अपने समस्याओं के बारे में बातचीत कर सकता हूँ।	1	2	3	4	5	6	7	FAM
9. मेरे पास ऐसे मत्र हैं जिनसे मैं अपना सुख दुख साँझा कर सकता हूँ।	1	2	3	4	5	6	7	FRI
10. मेरी ज़िन्दगी में एक ऐसा वशेस व्यक्ति है जो मेरी भावनाओं की कद्र करता है।	1	2	3	4	5	6	7	SO
11. मेरा परिवार निर्णय लेने में मेरी सहायता करने को इच्छुक रहता है।	1	2	3	4	5	6	7	FAM
12. मैं अपनी समस्याओं के बारे में अपने मत्रों से बात कर सकता हूँ।	1	2	3	4	5	6	7	FRI

PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

ID #: _____ DATE: _____

Over the last 2 *weeks*, how often have you been bothered by any of the following problems? *(use "✓" to indicate your answer)*	Not at all	Several days	More than half the days	Nearly every day
1. Little interest or pleasure in doing things	0	1	2	3
2. Feeling down, depressed, or hopeless	0	1	2	3
3. Trouble falling or staying asleep, or sleeping too much	0	1	2	3
4. Feeling tired or having little energy	0	1	2	3
5. Poor appetite or overeating	0	1	2	3
6. Feeling bad about yourself—or that you are a failure or have let yourself or your family down	0	1	2	3
7. Trouble concentrating on things, such as reading the newspaper or watching television	0	1	2	3
8. Moving or speaking so slowly that other people could have noticed. Or the opposite — being so figety or restless that you have been moving around a lot more than usual	0	1	2	3
9. Thoughts that you would be better off dead, or of hurting yourself	0	1	2	3
	add columns		+	+
(Healthcare professional: For interpretation of TOTAL, please refer to accompanying scoring card).	TOTAL:			

10. If you checked off *any problems*, how *difficult* have these problems made it for you to do your work, take care of things at home, or get along with other people?	Not difficult at all	_____
	Somewhat difficult	_____
	Very difficult	_____
	Extremely difficult	_____

PHQ 9- Hindi

पिछले 2 सप्ताहों में, आप इन समस्याओं में से किसी से भी कितनी बार परेशान रहे/रही हैं? *(अपना उत्तर बताने के लिए "✓" का प्रयोग करें)*	बिल्कुल नहीं	कई दिन	आधे से अधिक दिन	लगभग हर दिन
1. कुछ करने में बहुत कम दिलचस्पी या मज़ा आना	0	1	2	3
2. उदास, अवसादग्रस्त या निराश महसूस करना	0	1	2	3
3. नींद आने या सोये रहने में परेशानी, या फिर बहुत अधिक सोना	0	1	2	3
4. थकान महसूस करना या बहुत कम ऊर्जा होना	0	1	2	3
5. भूख कम लगना या ज़्यादा खाना	0	1	2	3
6. अपने बारे में बुरा महसूस करना - या ऐसा महसूस करना कि आप नाकाम इंसान हैं और आपने खुद को और अपने परिवार को नीचा दिखाया है	0	1	2	3
7. अखबार पढ़ने या टेलीविज़न देखने जैसी चीज़ों पर ध्यान देने में परेशानी	0	1	2	3
8. इतना धीमे चलना-फिरना या बोलना कि लोगों का ध्यान जाये? या इसका उल्टा - इतना अस्थिर या बेचैन होना कि आप सामान्य से काफ़ी ज़्यादा हिलते-डुलते और चलते-फिरते रहे हैं	0	1	2	3
9. ऐसे विचार कि आप मर जाते तो अच्छा होता या किसी ढंग से ख़ुद को नुक्सान पहुंचाना	0	1	2	3