Sociodemographic factors: 
A major predictor of anxiety and depression among pregnant women

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Abstract
Background: Pregnancy can be defined as the period which starts with the onset of gestation and ends at child birth. It is the stage in which life goes through various physiological and psychological changes with respect to expectation and hope as well. It is also a test of fertility for women to become a mother. Aims/objectives: The purpose of the study was to investigate socio demographic factors as major predictors of anxiety and depression among pregnant women. Material/Methods: The present research recruited a sample of 47 pregnant women coming to obstetric clinics for their prenatal checkup. Hopkins Anxiety Checklist was used to assess anxiety and depression was examined by using a shortened version of CES-D (Center for Epidemiological Studies-Depression Scale). ANOVA, t-test and multiple regression techniques were used to analyze the data. Results: The age of the participants ranged from 20 to 38 years (Mean = 26.53, SD = 4.99). The majority of the participants (53.20%) had 6 to 9 months gestation period while 25.50% had 3 to 6 months gestation period and 21.30% participants had less than 3 months gestation period. It was found that anxiety was high among pregnant women less than 30 years of age and same findings was found in depression. Further anxiety and depression was found high in pregnant women with gestational age < 3 months as compared to 3-6 and 6-9 months respectively. Regression analysis revealed that age and income shows significant contribution on anxiety (R = .76, R² = .57). These variables jointly explained 57% variance in the scores on anxiety. It was indicated that age and monthly income was negatively and significantly related to anxiety, where as age, gestation age, and qualification shows also a significant contribution to depression (R=.90, R²=.81). These variables jointly explained 81% variance in the scores on depression. It was indicated that age, gestation age, educational qualification and monthly income was negatively and significantly related to depression. Conclusion: The overall findings suggest that demographic factors seem to predict a better understanding of the anxiety and depression among pregnant women.

Key words: Demographic variables, Pregnancy, Anxiety, Depression.
be a stressful time for expectant mothers.\textsuperscript{1, 2} Pregnancy is a very crucial time when a woman feels insecurity and vulnerability. Psychologically healthy woman often find pregnancy as a means of self-realization. Other women use pregnancy to diminish self doubts about feminity or to reassure that they can function as women in the most basic sense. Still others view pregnancy negatively that they may fear childbirth or feel inadequate about mothering. At least one in ten mothers in all levels of society, and regardless of socioeconomic conditions experience clinical depression and/or anxiety before and up to a year after child birth.\textsuperscript{3} The trimesters can bring their characteristic challenges and rewards, nausea, fatigue and emotionality. For many women the first and third trimesters are difficult.\textsuperscript{4} Approximately 21\% of women experience a mood disorder and 30\% anxiety disorder at some points in their lives.\textsuperscript{5} Although historically it was believed that pregnant women are at lower risk of anxiety and mood disorders.\textsuperscript{6} But recent studies don’t support this belief. Rather between 10 and 27\% of women experience depressive symptoms during pregnancy, including 2-11\% who experience major depressive disorder.\textsuperscript{3} According to a study, 23\% of pregnant women receiving prenatal care in California demonstrated depressive and anxiety disorders. In the studies including poor pregnant women the rate of maternal depression ranges from 30-70\%. This empirical data substantiate that mood state neuroendocrine and immune systems may play a critical role in reproductive outcome and fetal development.\textsuperscript{7}

\textit{Anxiety}

Researchers, psychiatrists and related disciplines have been concerned about women experiencing anxiety and depression during pregnancy. They mostly focus on diagnosable mental disorders, primarily anxiety, and depressive disorders.\textsuperscript{8}\textsuperscript{9} These periods are considered to be a high risk time both for preexisting and new psychiatric illness. These psychiatric illnesses occurring during the period not only affect maternal health but causes adverse action on fetal development as well.\textsuperscript{10} It was found in studies that a significant portion of women experience prenatal anxiety both in general and about their pregnancy.\textsuperscript{11, 12} Anxiety during pregnancy have manifestations like: feeling anxious, concerned, afraid, or panicky about the pregnancy.\textsuperscript{13} In a study using 10- item scale reflecting anxiety about the baby’s growth during pregnancy, it was found that loss of the baby and harm during delivery were important variables.\textsuperscript{14} Empirical evidence across studies of diverse populations regarding the adverse effects of pregnancy anxiety on gestational age at birth.\textsuperscript{15} Multidimensional modeling techniques revealed that state anxiety, pregnancy anxiety, and perceived stress all predicted the length of gestation. But pregnancy anxiety (as early as 18 weeks into pregnancy) was the only significant predictor when all three indicators were tested together with medical and demographic risks controlled.\textsuperscript{16} Women with high pregnancy anxiety were at 1.5 times greater risk of preterm birth (PTB) controlling for sociodemographic covariates, medical and obstetric risks, and specific worries over a high-risk condition in pregnancy.\textsuperscript{17} Women who are most anxious about pregnancy seem to be more insecurely attached, of certain cultural backgrounds, more likely to have a history of infertility or to be carrying unplanned pregnancies, and have fewer psychosocial resources.\textsuperscript{18} Screening for pregnancy anxiety, state anxiety, depressive symptoms, and stress in pregnancy stands to provide potentially important clinical benefits not only for mothers but their children as well.\textsuperscript{19, 20}

\textit{Depression}

Attention must be paid to these levels of influence in any attempts to screen and treat depression, anxiety, pregnancy anxiety among women because it has its own consequence which affects her either directly or indirectly. Depression occurs as frequently during pregnancy as in the postpartum.\textsuperscript{21} It has been shown that women prefer psychosocial treatments for depression during the perinatal period.\textsuperscript{22} More than a dozen studies on depressed mood or symptoms of trauma found significant effects on gestational age.\textsuperscript{23} Changes in relationship adjustment and changes in depressive symptoms vary within individuals at times. When an individual’s relationship adjustment is lower than usual, depressive symptoms tend to be higher.\textsuperscript{24, 25, 26} Relationship adjustment was found to be associated with depressive symptoms during pregnancy.\textsuperscript{27} Marital adjustments continue to be significantly associated with depressive symptoms.\textsuperscript{28} Resear-
Chers have found differences in risk factors associated with first onset versus recurrences of depression. Recent study reporting that women with both depression and anxiety disorders were at highest risk of low birth weight (LBW) as compared to those with only depressive or anxious symptoms or none. A recent review found relatively large effects of maternal depressive symptoms on infant birth weight. Evidence for effects of maternal stress, depression, and anxiety in pregnancy has adverse neuro developmental outcomes for the child. Couple therapy has been shown to be effective in reducing depression and improving relationship adjustment in depressed individuals in the general population as well as among pregnant women.

Material and method

Sample: The present research recruited a sample of forty seven participants included pregnant women coming to obstetric clinics for their prenatal checkup. The age of these participants includes 20 to 38 years (Mean = 26.53, SD = 4.99). The majority of the participants (53.20%) had 6 to 9 months gestation period while 25.50% had 3 to 6 months gestation period and 21.30% participants had less than 3 months gestation period. Participants with at least having one child and monthly income not less than 8000 has been included in the study. However women with less than 20 years of age and not having at least one child have been excluded from the study.

Tools

Demographic Questionnaire: The information about demographic profile of the participants have been collected with the help of questions related to their age, gestation period and education qualification. In addition, information about their family background including area of residence, family type, family occupation, income, etc were collected.

Anxiety: The Hopkins Anxiety Checklist was used to assess anxiety. Ten items were rated on a 4-point Likert scale with higher scores indicating higher anxiety. Pregnant women rates how true each of the symptoms is for her. In the present sample the internal consistency reliability (Cronbach’s alpha) of this measure was 0.89.

Depression: Depression was examined using a shortened version of the Center for Epidemiological Studies – Depression Scale (CES-D) a 10-item, 4-point Likert scale that asks participants about a variety of depression related symptoms. The scale asks to describe how often he/she has experienced those symptoms over the past week. In the present sample the internal consistency reliability (Cronbach’s alpha) of this measure was 0.83.

Procedure

After getting consent from hospital authorities, participants were identified by the investigators like nurse coordinators and nursing staff through appointment books, logs, and schedules. The participants were informed about the nature and purpose of the study by the researcher himself. The informed consent before data collection was taken from the participants and they were instructed that there were no right or wrong answers and the information obtained from them would remain confidential and can be used only for research purpose. The questionnaires took approximately 10 to 30 minutes to complete. Some participants completed their questionnaire and others took them home and returned it the day after. After completion participants returned the questionnaire and were thanked for their participation and cooperation. The obtained data was then statically analysed by using Statistical Package for Social Science (SPSS 16.0)

Results and discussion

Majority of the participants belonged to rural areas (77%). Only 11 (23.00%) participants were residents of urban areas. The percentages of participants belonging to nuclear and joint families were 46.00% and 54.00% respectively. Majority (40.40%) of the participants of the present study were illiterates.

In Table 2, Mean scores and standard deviations of two groups of participants with varying age of anxiety and depression showed significant difference between mean anxiety scores of two groups of participants F (1, 45) = 38.17, p < .01. Mean scores show that anxiety was higher among participants with < 30 years of age (M = 19.84, SD = 4.32), in comparison to the participants with 30 years and above (M = 11.63, SD = 4.77). Whereas depression revealed significant differences between mean scores of two groups of participants F (1, 45) = 38.17, p < .01. Mean scores show that depression was higher among participants with < 30 years of age (M = 20.47, SD = 4.99), in comparison to the participants with 30 years and above (M = 12.84, SD = 4.77).
In Table 3, Mean scores of anxiety and depression and standard deviations of participants with different gestation age showed significant difference between mean anxiety scores of three groups of participants $F(2, 44) = 4.32, p < .01$. Mean scores show that anxiety was higher among participants with less than 3 months of gestation age ($M = 18.94, SD = 4.89$), in comparison to the participants with 3 – 6 months ($M = 15.45, SD = 7.61$) and 6 - 9 months of gestation age ($M = 13.39, SD = 5.14$). Depression revealed significant differences between mean scores of three groups of participants $F(2, 44) = 9.69, p < .01$. Mean scores clearly revealed that participants with less than 3 months of gestation age ($M = 18.39, SD = 3.73$) shows higher depression in comparison to the participants with 3 – 6 months ($M = 15.36, SD = 5.66$) and 6 - 9 months of gestation age ($M = 11.78, SD = 4.45$).

In Table 4, Multiple -regression revealed that age and income shows a significant contribution on anxiety. In explaining scores on anxiety $R = .76, R^2 = .57, F (12, 34) = 3.81, p < .01$. These variables jointly explained 57% variance in the scores on
**Table- 4: Multiple Regression analysis predicting demographic factors from Anxiety**

<table>
<thead>
<tr>
<th>Predictors</th>
<th>B</th>
<th>Seb</th>
<th>Bet</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>-6.24</td>
<td>2.17</td>
<td>-.52</td>
<td>-2.88</td>
<td>.01</td>
</tr>
<tr>
<td>Gestation period</td>
<td>-1.16</td>
<td>1.06</td>
<td>-.17</td>
<td>-1.09</td>
<td>.28</td>
</tr>
<tr>
<td>Area of residence</td>
<td>1.11</td>
<td>1.04</td>
<td>.13</td>
<td>1.07</td>
<td>.29</td>
</tr>
<tr>
<td>Qualification</td>
<td>.07</td>
<td>.49</td>
<td>.02</td>
<td>.15</td>
<td>.88</td>
</tr>
<tr>
<td>Occupation</td>
<td>-2.30</td>
<td>2.48</td>
<td>-.15</td>
<td>-1.09</td>
<td>.36</td>
</tr>
<tr>
<td>Income</td>
<td>-2.38</td>
<td>1.17</td>
<td>-.30</td>
<td>-2.04</td>
<td>.05</td>
</tr>
<tr>
<td>No. of children</td>
<td>.32</td>
<td>1.28</td>
<td>.09</td>
<td>.25</td>
<td>.80</td>
</tr>
<tr>
<td>Last delivery</td>
<td>-.47</td>
<td>1.63</td>
<td>-.06</td>
<td>-2.29</td>
<td>.07</td>
</tr>
<tr>
<td>Parity</td>
<td>.40</td>
<td>1.37</td>
<td>.10</td>
<td>.29</td>
<td>.77</td>
</tr>
<tr>
<td>Age of previous child</td>
<td>-.22</td>
<td>.60</td>
<td>-.07</td>
<td>-3.6</td>
<td>.72</td>
</tr>
<tr>
<td>Husband’s occupation</td>
<td>-2.35</td>
<td>1.90</td>
<td>-.19</td>
<td>-1.24</td>
<td>.22</td>
</tr>
</tbody>
</table>

\[ R = .76 \]
\[ R^2 = .57 \]
\[ F (12, 34) = 3.81** \]

**Significant level at .01**

anxiety. It was indicated that age was negatively and significantly related to anxiety \( (\beta = .52, t = 2.88, p < .01) \). This shows that participants who had less than 30 years of age show greater anxiety in comparison to those who had more than 30 years of age. Monthly income was negatively and significantly related to anxiety. This means that participants who had low income experience more anxiety in comparison to those who had high income. None of the other demographic variables were found significant predictors of anxiety among participants.

In Table 5 Multiple regression revealed that age, gestation period, and educational qualification shows significant contribution to depression. In explaining scores on depression \( R = .90, R^2 = .81, F (12, 34) = 12.36, p < .01 \). These variables jointly explained 81% variance in the scores on depression. It was indicated that age was negatively and significantly related to depression \( (\beta = .65, t = 5.52, p < .01) \). This shows that participants who had less than 30 years of age show greater depression in comparison to those who had more than 30 years of age. Gestation period was negatively and significantly related to depression. This means that participants who had short experience of pregnancy reported more depression in comparison to those who had long experience of pregnancy. Education

**Table-5: Multiple Regression analysis predicting demographic factors from Depression**

<table>
<thead>
<tr>
<th>Predictors</th>
<th>B</th>
<th>Seb</th>
<th>Bet</th>
<th>T</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
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<td>Age</td>
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<td>-5.52</td>
<td>.00</td>
</tr>
<tr>
<td>Gestation period</td>
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<td>.60</td>
<td>-.21</td>
<td>-2.11</td>
<td>.02</td>
</tr>
<tr>
<td>Area of residence</td>
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<td>.59</td>
<td>-.02</td>
<td>-.29</td>
<td>.70</td>
</tr>
<tr>
<td>Qualification</td>
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<td>.28</td>
<td>-.18</td>
<td>-1.89</td>
<td>.05</td>
</tr>
<tr>
<td>Occupation</td>
<td>-.04</td>
<td>1.41</td>
<td>-.00</td>
<td>-.03</td>
<td>.97</td>
</tr>
<tr>
<td>Income</td>
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<td>.67</td>
<td>-.09</td>
<td>-1.01</td>
<td>.31</td>
</tr>
<tr>
<td>Family Type</td>
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<td>.82</td>
<td>.14</td>
<td>1.55</td>
<td>.12</td>
</tr>
<tr>
<td>No. of children</td>
<td>.41</td>
<td>.73</td>
<td>.12</td>
<td>.56</td>
<td>.57</td>
</tr>
<tr>
<td>Last delivery</td>
<td>-.91</td>
<td>.93</td>
<td>-.12</td>
<td>-.97</td>
<td>.33</td>
</tr>
<tr>
<td>Parity</td>
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<td>.78</td>
<td>-.00</td>
<td>-.02</td>
<td>.98</td>
</tr>
<tr>
<td>Age of previous child</td>
<td>.20</td>
<td>.34</td>
<td>.07</td>
<td>.59</td>
<td>.55</td>
</tr>
<tr>
<td>Husband’s occupation</td>
<td>-1.53</td>
<td>1.08</td>
<td>-.14</td>
<td>-1.40</td>
<td>.16</td>
</tr>
</tbody>
</table>

\[ R = .90 \]
\[ R^2 = .81 \]
\[ F (12, 34) = 12.36** \]

**Significant level at .01**
qualification was also found negative and significantly related to depression. This means that participants who had low level of education experience more depression in comparison to those who had high level of education qualification. None of the other demographic variables were found significant predictors of depression among participants.

Discussion

The purpose of the present study was to find out various socio-demographic factors which are major predictors of anxiety and depression among pregnant women. The findings obtained by the present study can be discussed as under:

**Age:** Findings of the present study regarding age differences in terms of anxiety shows significant difference. Mean difference revealed that anxiety was found higher among participants with <30 years of age in comparison to the participants with 30 years and above. The observed finding was supported by the study conducted by Pigott on anxiety disorders in women found high anxiety disorders during middle to late twenties.

**Gestation Period:** In respect to gestation period of pregnant women scores of one-way analysis of variance revealed significant differences. Result of one-way analysis revealed that anxiety was found higher among participants with less than 3 months of gestation age in comparison to the participants with 3–6 months and 6–9 months. The study conducted by Huizink found high anxiety among nulliparous women during the first trimester of pregnancy. Furthermore, gestation period was negatively and significantly related to depression. This means that participants who had short experience of pregnancy reported more depression in comparison to those who had long experience of pregnancy. The present finding was supported by the study conducted by Bergink as mentioned in earlier findings.

**Role of Demographic factors:**

Multiple regression analysis revealed that only age and monthly income is a significant predictor of anxiety among pregnant women less than 30 years of age. This means that less the age greater will be the anxiety. The same finding has supported by the study done by Huizink. Monthly income is also a significant predictor of anxiety among pregnant women less than 30 years of age means that less will be the monthly income greater will be the anxiety. The consistent finding was supported by the study done by Da-Silva et al on prenatal and postnatal depression among low income Brazilian women.

Multiple regression analysis revealed that depression is a significant predictor of age, gestation age and educational qualification. This shows that participants who had less than 30 years of age show greater depression as compared to 30 years and above. Education qualification was also found negative and significantly related to depression. This means that participants who had low level of education experience more depression in comparison to those who had high level of education qualification. The same results were found by Bolton in an inner city, London population on incidence and demographic correlates of depressive symptoms during pregnancy. Furthermore, gestation period was negatively and significantly related to depression. This means that participants who had short experience of pregnancy reported more depression in comparison to those who had long experience of pregnancy. The present finding was supported by the study conducted by Bergink as mentioned in earlier findings.

**Conclusion**

Thus, from the above discussion it was concluded that the age of the participants ranged from 20 to 38 years (Mean = 26.53, SD = 4.99). The majority of the participants (53.20%) had 6 to 9 months gestation period while 25.50% had 3 to 6
months gestation period and 21.30% participants had less than 3 months gestation period. It was found that anxiety was high among pregnant women less than 30 years of age and same findings was found on depression. Further anxiety and depression was found high on gestation age of pregnant women < 3 months as compared to 3-6 months and 6-9 months respectively. Regression analysis revealed that age and income are significant predictors of anxiety ($R = .76, R^2 = .57$). These variables jointly explained 57% variance in the scores on anxiety indicating that age and monthly income was negatively and significantly related to anxiety. Further regression analysis revealed that age, gestation age, and qualification is also a significant predictor of depression ($R = .90, R^2 = .81$). These variables jointly explained 81% variance in the scores on depression. It was indicated that age, gestation age, educational qualification and monthly income was negatively and significantly related to depression. The overall findings suggest that demographic factors seem to predict a better understanding of the anxiety and depression among pregnant women.

**Limitations of the Research**

There are a number of limitations to this study. First, the sample size was small and study only used a cross-sectional data from pregnant women. Second, these analyses relied only on self-report data which may be biased by the respondents, social desirability or conscious awareness of themselves. Third, there are a variety of statistical weaknesses with analyzing the data. Finally, the results of this study underscore the need for more empirical investigations of psychotherapies and interventions. This study contributes to an understanding of the role that demographic factors play in pregnant women experiencing pregnancy.

**References:**


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Forthcoming Events Contd...

12. 11 NPY-PYY-PP Meeting 2015. 22 Aug 2015 – 26 Aug 2015. Leipzig, Germany http://research.uni-leipzig.de/11npymeeting2015/ Local Organizing Committee; Email: 11npymeeting2015@uni-leipzig.de
14. WPCA 2015 — 9th World Psychotherapy Conference Asia 2015. 30 Aug 2015 – 02 Sep 2015. Kuching, Sarawak, Malaysia http://www.counselingmalaysia.com/Jeniece Yong, Congress Secretariat; Phone: [603 2727 7434 / 6012 695 0234]; Email: secretariat@counselingmalaysia.com Psychology