

A Study on Pregnancy, Perceived Stress and Depression

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Abstract

Introduction: Pregnancy can be a difficult period during which psychosocial and hormonal changes may lead to increased incidence of mental health problems such as stress, depression, anxiety and obsessive compulsive disorders.

Objective: a. To describe the clinical and socio-demographic profile, b. to explore the level of stress and c. to assess the depression among the pregnant women.

Methods: It was a hospital based study using convenient and purposive sampling where only pregnant women were selected for study in 1 year. Instruments used were: the Perceived Stress Scale (Sheldon Cohen), Social Readjustment Scale (Holmes and Rahe) and General Health Questionnaire-12 (David Goldberg).

Results: About 2/3rd of pregnant women were from age range 15-25 years, 49% were housewives and all literate. Patients were mainly from Sunsari and Morang districts. About 28% patients were mild to moderately stressed. About 50% patients were on 50% zone of possibility of sickness on the Social Readjustment Rating Scale. About 50% patients were mild to moderately depressed.

Conclusion: One third of pregnant women were mild to moderately stressed. Nearly half number of the clients were mild to moderately depressed and were in moderate to severe range at > 50% risk for developing sickness.

Key words: Pregnancy, Perceived stress, Depression, Psychiatric 'caseness'

Introduction

Pregnancy, though supposed to be a time of emotional well-being, can be a difficult period for many women. This is a period of confusion, fear, sadness, anxiety, stress, and even depression. Stress is a reaction to any interference or stimulus that upsets a person's mental or physical equilibrium and interrupts normal functioning. When we perceive the situation as threatening and cope with thinking, then it becomes perceived stress. Depression is a

clinical disorder, usually characterized by low mood, loss of interest and lack of energy.

Mental health, an important component of reproductive health, is often neglected. The increased vulnerability for mental illness in pregnancy can be explained by the 'Bio-psychosocial model' integrating biological, psychological and social factors.¹ Death of spouse, divorce, physical illness, loan, unemployment and financial loss are stressors with high score. Other risk factors for antenatal depression include marital dissatisfaction, inadequate psychological supports, recent adverse life events, poor health behavior, lower socioeconomic status, unwanted pregnancy,

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death of an older child and other bereavement.² Research indicates the connection of stress and affective states during pregnancy as predictors of specific pregnancy conditions and birth outcomes.³ Daily hassles are part of average Nepalese women which can be 'irritating, frustrating demands that occur during everyday transactions with the environment, such as: work hassles and time pressures.⁴ For Nepalese women, husband working abroad is usual occurrence these days.⁵ High amounts of stress and its perception are associated with poor mental/ health.

Though comparability of results is complicated by a diversity of definitions and measurements of prenatal maternal stress and different time points of assessment, researches from the past three decades suggest a link between prenatal maternal psychological distress and adverse obstetric, fetal and neonatal outcome.⁶ Evidences from the latest researches on the contributions of depression, anxiety, and stress exposures in pregnancy indicate adverse maternal and child outcomes.^{7,8}

Researches highlight several important correlates of depressive symptoms during pregnancy; including: maternal anxiety, life stress, prior depression, lack of social support, domestic violence, unintended pregnancy, relationship factors, and public insurance.⁹ More subjects with suicide attempt reported from our hospital were females (66/115), a great majority had a stressor (112/115) and depression was the most common diagnosis.¹⁰ Many women (14-23%) struggle with some symptoms of depression during pregnancy. Among perinatal women, depression is additionally associated with particular adverse public health consequences.¹¹ At disorder level, making a most common complication in pregnancy, up to

12.7% of pregnant women experience a major depressive disorder,¹² estimates of 7% and 20% in high- income countries¹³ while rates of 20% or more have been reported in low- and middle-income countries, although less research has been conducted in these areas.¹⁴ American College of Obstetricians and Gynecologists (ACOG) recommends screening for depression during each trimester of pregnancy. There is a need to investigate stress and its association with selected factors, including mental illness and depression among antenatal pregnant women. In a Nepalese study, stress was reported in 34% subjects during pregnancy.¹⁵ Despite the recommendations, the prevalence of antenatal psychosocial stress is under researched¹⁶ and its influence on maternal health is underestimated so far in our context. Further, a little research exists regarding which factors contribute to or coexist with psychosocial stress during pregnancy.

We conducted a study in a tertiary care hospital in eastern Nepal to: a. to describe the clinico-socio-demographic profile, b. to explore the level of stress, c. to assess level of life event score, and d. to assess depression among the pregnant women.

Materials and Methods

This is a prospective, cross-sectional study done in B. P. Koirala Institute of Health Sciences (BPKIHS) from April 30, 2012 to March 29, 2013 with convenient and purposive sampling. The sample size was 100 due to inconvenience and unwillingness of participants (during study period) considering their physical conditions. This is a questionnaire based study where a printed proforma were given to pregnant women after obtaining informed written consent, irrespective of gravida or para status attending Obstetrics OPD and admitted in Antenatal

Ward, BPKIHS. The ACOG advocates screening all women for psychosocial stress and other psychosocial issues during each trimester of pregnancy and the postpartum period.¹⁷ Due to willingness issue of pregnant women admitted in ward and opinions from the attendants (pragmatic reason), it was decided to include those pregnant women in the 3rd trimester. Admitted pregnant women not willing or not giving the consent were excluded. After explaining the candidates, they were asked to fill the proforma on the same day as per their convenience, with strict maintenance of confidentiality. The filled proforma were received in a closed envelope. The data on demographic profile, literacy status, occupation, address, marital status were collected and recorded on the Proforma.

Perceived Stress Scale (Sheldon Cohen), Social Readjustment Scale (Holmes & Rahe) and General Health Questionnaire (GHQ-12) (David Goldberg) were used to assess stress, stress related mental illness and 'psychiatric caseness'. The Perceived Stress Scale (PSS) was developed by Sheldon Cohen in 1983 and has been validated in multi-racial, ethnic and general populations and in pregnant women.¹⁸ The General Health Questionnaire (GHQ) is a measure of current mental health and since its development by Goldberg in the 1970s, it has been extensively used in different settings and different cultures.¹⁹ The Social Readjustment Scale (Holmes and Rahe Stress Scale) was developed in 1967 by psychiatrists, Thomas Holmes and Richard Rahe. They surveyed more than 5,000 medical patients and asked them to say whether they had experienced any of a series of 43 life events in the previous two years. Each event, called a Life Change Unit (LCU), had a different 'weight' for stress. The

more events the patient added up, the higher is the score. The higher the score, the larger the weight of each event, the more likely the patient was to become ill.²⁰ The Nepalese versions of all of these scales were used. These scales have been used in Nepalese researches. Confidentiality was maintained about data.

Data was entered into excel sheet and descriptive analysis was done in tabulated format using total numbers and percentages. Ethical clearance was taken from Institute Ethical Review Committee before subject enrollment.

Results

Total of 100 pregnant women were enrolled in this study who successfully answered the proforma. Maximum (61%) of them belonged to age between 15 to 25 years and remaining 39% were of age group 25 to 35 years. All of the participants were literate; 24% had completed education up to SLC, 36% completed 10+2 and 16% graduates. Majority of participants were housewife (49%). Majority of the participants were from Sunsari and Morang districts. All of them were married except one participant who was a widow at the time of pregnancy. (Table 1)

Table 1: Demographic profile

Characteristics	Categories	Patients (N= 100)/ %
Age in years	15- 25	61
	25- 35	39
Education	Illiterate	0
	Literate	100
Level of education	S.L.C	24
	Ten+2	36
	Graduate	16
Occupation	Housewife	49
	Student	32
	Laborer	09
	Agriculture	04
	Business	04
	Teacher	02

Catchment area	Sunsari	49
	Morang	22
	Jhapa	07
	Dhankuta	12
	Saptari	05
	Siraha	01
	Udayapur	03
	Bihar (India)	01
Marital status	Married	99
	Widow	01

On evaluation using Perceived Stress Scale scoring, 22 % of participants were having mild stress and 6% had moderate level of stress. (Table 2)

Table 2: Perceived Stress Scale score

Stress level	Stress Score	N / %
Normal	0- 14	72
Mild stressed	15- 28	22
Moderately stressed	29- 42	6
Severely stressed	43- 56	0
Total		100

On interpreting the life event score scale, risk of developing depression was up to 50% in 42 participants, > 50% in 33 participants. Risk of developing depression about > 80% was found in 9 participants. (Table 3)

Table 3: Life Event scale

Life Event Score	Score	N/%	Interpretation
Normal	0- 149	16	
Mild	150- 199	42	50% chance of developing depression
Moderate	200- 299	33	> 50% chance of developing depression
Severe	≥ 300	09	> 80% chance of developing depression
Total		100	

On evaluation with GHQ-12 scale scoring, 30% pregnant women had mild and 18% had moderate symptoms, indicating 48% as having 'psychiatric caseness'. (Table 4)

Table 4. General Health Questionnaire (GHQ-12) score

GHQ-12 range	Score	N/ %
Normal	0- 12	52
Mild	13- 24	30
Moderate	25- 36	18
Severe	37- 48	0
Total		100

Discussion

Pregnancy is a unique experience to women which has excitement of motherhood in one side and has to undergo lots of physiological changes in body along with social and family reasons putting them under intense mental stress at the same time. There are various known and unknown causes of the stress which many time are unique to different women. Our study highlights that 75% of pregnant women were suffering from some form of stress. Another fact is that up to 50% are at risk of developing depression. The GHQ-12 scale scoring has even shown that 48% of them had 'psychiatric caseness' and 18% of them had moderate level. There may be various risk factors of stress in pregnant women.

Majority of our subjects were in the age range of 15-25 years. Costa et al. (1999) reported among 161 pregnant women the age range 19-38 years, the mean age 24.7±4.29 years.²¹ Shakya et al (2008) in a study of eastern Nepal reported mean age of 24.7±4.29 years, with a range of 16 to 35 years.²² Pais et al. (2014) reported age range of antenatal women 20-45 years²³ and Solivan et al. (2015) reported 79% of women in age range of 18-34 years.²⁴ Our findings are similar to these results.

We had all subjects literate to various levels in this study. Status of illiteracy, unemployment and lack of family support or unsupportive other family members were remarkable among the mentally ill wives of Nepalese abroad workers.⁵ Vijayaselv et al. reported among 156 pregnant women, the majority with college education (97; 62.2%),²⁵ and Shakya et al. too mostly literate.²² Solivan et al. reported that the majority of women (52.5%) had some college education and 16.0% had either a college education or higher.²⁴ These results resemble with our findings where all were literate and more than 50% were educated. In our findings, about 50% were home makers which resembles with study of Vijayaselv et al. with the most clients being home makers.²⁵ All of our subjects were married which resembles with Tesera et al. from Ethiopia with married subjects 98.7%.²⁶

Overall, the prevalence of antenatal depressive symptoms in our study is 48%. Anselmi et al. from Southern Brazil reported rates of antenatal depressive symptoms of 30-39% using other screening tools (Self-Reporting Questionnaire and Edinburgh Postnatal Depression Scale)²⁷ and Shakya et al. reported from eastern Nepal 50% of the pregnant women with some form of depression.²² Similarly, 28.7% of pregnant women in Brazil were screened to have symptoms of depression²⁷ and worldwide estimates range from 10 to 20%.¹³ Lutsiv conducted retrospective cohort study of pregnant women with singleton in Canada and depression was reported in 5.0%.²⁸ Our depression symptom rate is consistent with the studies in Ghana (26.3%) and Cote d'Ivoire (28.3%) which used the same measure by Bindt.²⁹ Priya et al. (2014, India) conducted a cross-sectional community-based descriptive study among 165 antenatal women and reported

prevalence of depression as 25.5%.³⁰ Victoria et al. (1987) showed multivariate model among 133 pregnant women in which the influence of maternal anxiety, depression and stress are seen on infant postnatal status as mediated by attitudes toward pregnancy.³¹

Costa et al. reported, in a study among 161 pregnant women (19-38 years old) using the Hassles Scale for stress in the form of hassles that women in third trimester of pregnancy had significantly higher pregnancy-specific stress. The data provide support for a multidimensional conceptualization of stress during pregnancy.²¹ Studies on stress in pregnant women have shown that one in ten pregnant women report high levels of stress and about 40% report their lives as moderately stressful. Women who experience high levels of stress are more likely to be from low socioeconomic status, less than 20 years of age, single, have less than grade 11 educations and have no social support.³² In our study, 28% pregnant women were stressed on Perceived Stress Scale which is similar to above mentioned findings. Use of multidimensional modeling techniques later revealed that state anxiety, pregnancy anxiety and perceived stress all predicted the length of gestation.³³ Tang et al. conducted a research among 1220 pregnant women from four hospitals with different economic conditions in China. The prevalence of prenatal stress, anxiety and depression in early pregnancy were 91.86%, 15.04% and 5.19% respectively.³⁴

A recent study of a diverse urban sample found that 78% experienced low-to-moderate antenatal psychosocial stress and 6% experienced high levels.³⁵ The present study reveals no or mild stress level among antenatal women in 22% and moderate to severe stress in 6%. Solivan et al.²⁴

found 31.1% with moderate stress and 28.8% severe stress in a sample of 258 of pregnant women. Priya et al. found 23% of antenatal females with stress.³⁰ Vijayaselv et al. found 65.4% with the scoring higher than the mean value of total score (13.5 ± 5.02) among 102 women on Perceived Stress Scale.²⁵ On Life Events Scale (e.g. chronic illness in the family, marital disharmony, poor economic condition to sustain the family), Shakya et al. found it to be associated with antenatal depression in antenatal women.²² In our study, 42% pregnant female had more than 50% chance of developing sickness on Life Event Scale of Holmes and Rahe. A prospective observational study was conducted in the Antenatal Clinic of Patan Hospital, Nepal using GHQ-12 and Modified Life Events Inventory (21 items). Prevalence of stress was reported 34.2% in the third trimester.¹⁵ Kishore et al. conducted a prospective cohort study on perinatal mental health in an urban antenatal clinic among 589 pregnant women using Life Events Checklist adapted from the Social Readjustment Rating Scale. Thirty-eight women (6.5%) who had depression (EPDS score ≥ 11) had significantly higher number of life events (i.e. on average three; $U=3,826$; $p<0.01$), lower resilience scores ($U=4,053$; $p<0.01$).³⁶ Our finding of mild to moderate stress level and mild to moderate level of depression / 'psychiatric caseness' keeps with the discussed literature.

This study has some limitations: it is a questionnaire and single clinic based study, not to be generalized and we did not see depression with any depression specific tool. Hence, we recommend further in-depth and elaborate study with other dimensions and with more specific tools for depression.

Conclusion

Pregnant females were mainly of age range 15-25, all literate, and about fifty percent home makers. About 28% clients were mild to moderately stressed and 48% had possibility of developing sickness. Nearly half of pregnant female were mild to moderately depressed.

List of abbreviations

ACOG- American College of Obstetricians and Gynecologists

BPKIHS- B. P. Koirala Institute of Health Sciences

GHQ- General Health Questionnaire

ICD-10- International Classification of Diseases and Infirmary

IRC-Institutional Research Committee

OPD- Out-patient department

PSS- Perceived Stress Scale

Declarations

Ethics approval and consent to participate:

The study was done after obtaining the approval of Institute Ethical Review Committee, BPKIHS (Ref. No. Acd. 609/069/070). Cases were enrolled after informed written consent from the subject. Strict confidentiality of information was maintained and the results were utilized for management of the problem concerned and similar problems in general.

Consent for publication: Not applicable.

Availability of data and materials: All data generated during this study are included in this published article.

Competing interests: The authors declare that they have no competing interests.

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