

ORIGINAL RESEARCH

A study of epidemiological correlates of perceived stress among antenatal women in urban area of Faridkot**Dr. Bharti¹, Dr. Vishal Gupta², Dr. Gaganpreet Singh³, Dr. P.D. Bansal⁴, Dr. Shalini⁵, Dr. Hobinder Arora⁶, Dr. Urvashi⁷**¹Junior Resident, ^{2,5} Professor, ^{3,6,7} Associate Professor, Department of Community Medicine, Guru Gobind Singh Medical College, Faridkot, Punjab, India⁴Professor & Head, Department of Psychiatry, Guru Gobind Singh Medical College, Faridkot, Punjab, India**Corresponding author**

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Abstract**Background and objective:** Pregnancy is a stage during which a woman is prone to feel stressed at any point. Perceived stress is the feelings or thoughts an individual has about how much stress they are under at a given time or over a given period. This study was conducted to assess the perceived stress among antenatal women and its epidemiological correlates.**Materials and methods:** A cross-sectional study was conducted among 133 antenatal women registered at antenatal clinic in Urban Health Training Centre (UHTC). Relevant Information regarding perceived stress and socio-demographic profile was taken using Cohen Perceived Stress Scale-10 (PSS-10) self-designed pre-tested proforma.**Results:** Out of 133 antenatal women more than half 69(52%) experienced moderate and 19 (14%) experienced high perceived stress. Relationship with husband & in-laws ($p=0.003$, 0.000), physical and verbal abuse by husband ($p=0.000$, 0.001), overcrowding in the house ($p=0.03$) are the predictors of level of stress in antenatal women in our study.**Conclusion:** The study concludes that, increased social, partner and adequate in-laws support appear to decrease the risk for stress. It is important to educate women and their family, about importance of spouse and family support during pregnancy to decrease stress among antenatal women.**Keywords:** Antenatal, Perceived stress, Pregnancy, Perceived stress score**Introduction**

Pregnancy is a state of emotional wellbeing. For healthy outcome of pregnancy mother should be in good physical/mental state of health. Lots of studies have suggested that poor state of mind during pregnancy affects pregnancy outcome (1). Pregnancy stress occurs when pregnant woman is unable to cope with the demands so she feels imbalance, that is expressed physiologically and behaviorally (2). Perceived stress is the feelings or thoughts that an individual has about how much a stress event or situation generates at a given point in time or over a given time period (3). Many factors such as confused state of mind, panic, despair, anxiety, worry, stress and depression is present at this time (4). Antenatal maternal stress, conceptualized to be a multidimensional entity, results from imbalance between environmental demands and individual resources and leads to increased stress perception and

maladaptive coping (5). Poor obstetrics outcomes may be observed in women who experience perceived stress in their pregnancy such as pre-term birth, defective neural and cognitive development, intra uterine growth retardation (IUGR), hyaline membrane disease, attention deficit hyperactive disorder (ADHD) (6,7,8,9). Maternal health has profound effect on child health, starting from the point of conception till 280 days of pregnancy and thereafter too. So, it is utmost important that mother should be in good physical health and surrounding environment must be good to have good mental health also. As stress during antenatal period can lead to adverse outcomes, this makes necessary to address the issue of perceived stress during pregnancy. There are very few studies on perceived stress among antenatal women and epidemiological factors associated with it in India and no such study has been done in Punjab. Therefore, we planned to conduct study to assess perceived stress in antenatal women and epidemiological correlates related with it. We have tried to assess perceived stress level in antenatal women and perceived stress association with different epidemiological and social factors like overcrowding, ventilation, lighting, socioeconomic status, relationship with husband & other family members.

Material & methods

- **Study settings:** Urban field practice area of Urban Health Training Centre (UHTC) of Department of Community Medicine, Guru Gobind Singh Medical College & Hospital, Faridkot.
- **Study period:** The study was conducted over a period of one year.
- **Study design:** This was a cross-sectional study design.
- **Study population:** Study was conducted among all the pregnant women registered at antenatal clinic in Urban Health Training Centre.
 - **Inclusion criteria:** All pregnant women attended or registered at antenatal clinic in Urban Health Training Centre and were willing to participate in study.
 - **Exclusion criteria:** History of any psychiatric illness. Coexisting medical diseases.
- **Sampling:**
 - **Sample Size:**
 - Sample size was calculated using single proportion sample size formula:

$$X = Z_{\alpha/2} * p * (1-p) / MOE^2$$

$Z_{\alpha/2}$: critical value of the Normal distribution at $\alpha/2$

MOE: margin of error

P: proportion of interest i.e. (23%) of perceived stress in antenatal women according to study by Thongsomboon W et al. in year 2020 in urban Thailand (6).

Margin of error 7.5% at confidence interval of 95%. The sample size (n) using this formula came out to be 121. After taking into consideration non-response rate of 10%, total study subjects included in the study was not <133.

- **Sampling technique:** Sampling technique used in study to collect the sample was simple random sampling technique. A line list of all pregnant women those who registered or attended UHTC was procured from the four Auxiliary Nurse Midwifery (ANM) of UHTC covering urban field practice area of Department of Community Medicine of G.G.S. Medical College & Hospital, Faridkot. The study subjects were selected randomly (computer generated random numbers).
- **Study tool:** Self-designed pretested proforma for baseline information about:
 - Socio-demographic profile.
 - Environment characteristics.
 - Social/Family problems.
 - Personal history
 - Obstetrical history
 - Gynecological history
 - Physical examination.

Cohen's Perceived Stress Scale- 10 (PSS-10) which comprised 10 questions with responses varying from 0 to 4 for each item, 0=never to 4 very often was used to measure the level of perceived stress.

Individual score for PSS-10 ranges from 0-40. Higher score indicates greater stress.

Reverse scoring for questions 4, 5, 7, and 8.

0 = 4, 1 = 3, 2 = 2, 3 = 1, 4 = 0.

Each item score was added, to get a total score (4).

Scores ranging from 0-13 was considered low stress.

Scores ranging from 14-26 was considered moderate stress.

Scores ranging from 27-40 was be considered high perceived stress.

Methodology

Prior to commencement of study, list of all the antenatal women registered at Urban Health Training Centre was obtained from four ANMs of UHTC. After the line list was obtained from ANMs, a unique identification number was given to each household with antenatal women based on which allocated sample size was randomly selected using computer generated random numbers. Selected household were visited and informed consent was obtained from antenatal woman who satisfied the inclusion and exclusion criteria. Data was collected by one-to-one interview about sociodemographic profile, environment characteristics, social/family problems, personal history, obstetrical history, gynecological history, physical health using self-designed questionnaire and perceived stress using Cohen's PSS-10.

On denial of informed consent immediately next household was visited. Same procedure was followed if the house was locked or antenatal woman was not present at house.

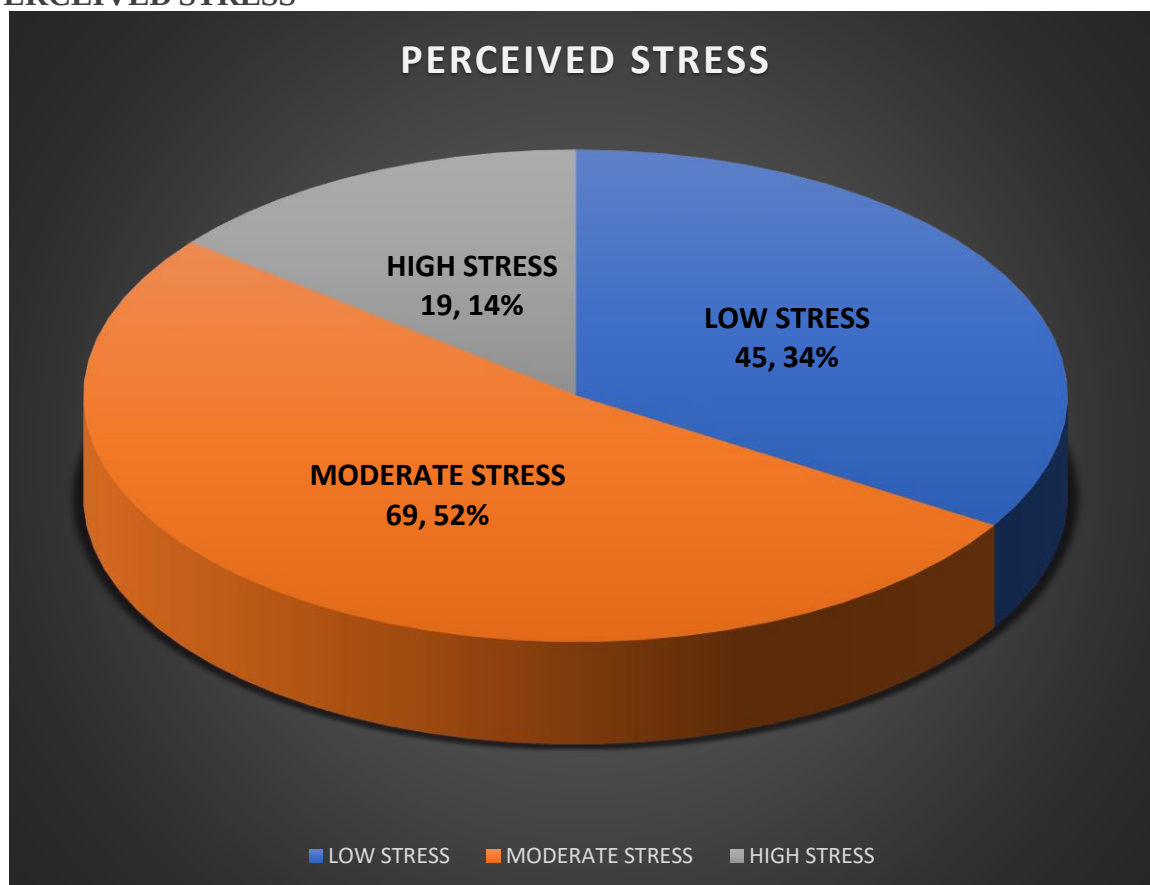
Data analysis

The data collected during the survey was entered in Microsoft Excel and was analyzed by using SPSS software. The descriptive data were presented using frequency, tables, figures. The relationship of perceived stress with socio-demographic and clinical characteristics was evaluated using Chi square and Fischer exact test. Values of $p < 0.05$ were considered significant.

Results**Socio- demographic Factor****Table: 1 Distribution of participants according to Socio-demographic characteristics (n=133)**

Variable	Category	Frequency (n)	Percentage (%)
1. Age (in years)	15 — <25	52	39.1
	≥25-<34	71	53.4
	≥34-45	10	7.5
2. Religion	Hindu	59	44.4
	Sikh	72	54.1
	Muslims	0	0
	Others	2	1.5
3. Education of women	Illiterate	14	10.5
	Primary Education	10	7.5
	Middle Class	27	20.3
	10 th Pass	19	14.2
	12 th Pass	34	25.6
	Graduation and above	29	21.9
4. Education of Husband	Illiterate	12	9.0
	Primary Education	8	6.0
	Middle Class	25	18.8
	10 th Pass	26	19.6
	12 th Pass	38	28.6
	Graduation and above	24	18.0
5. Socio economic Status (MKSS)*	Upper	7	5.3
	Upper Middle	13	9.8
	Lower Middle	16	12.0
	Upper Lower	92	69.2
	Lower	5	3.7
6. Type of family	Joint family	90	67.7
	Nuclear family	43	32.3
7. Family size	1-4	53	39.9
	5-8	70	52.6
	9-12	8	6.0
	13-16	2	1.5
8. No. of children	0	50	37.6
	1	64	48.1
	2	14	10.5
	3	5	3.8

This table shows that more than half 71(53.4%) of study subjects were in the age group of 25-34 years. Majority of participants were Sikh72 (54.1%) and Hindu 59(44.4%) by religion. Concerning education of the participants 34(25.6%) and their husbands 38(28.6%) were qualified upto 12th class. Majority of participants 70(52.6%) family size ranging in between 5-8.

PERCEIVED STRESS**Fig 5: Severity of Perceived Stress among study subjects**

On applying Perceived stress scale-10 it was observed that more than half of study subjects 69(52%) experienced moderate, 45(34%) had low while 19 (14%) experienced high perceived stress.

Table: 5 Epidemiological correlates of perceived stress among antenatal women

Variable	Category	Perceived Stress			P-Value
		Low	moderate	High	
1. Age (in years)	15-<25	18	25	9	0.407
	≥25-<34	24	40	7	
	≥34-45	3	4	3	
2. Type of family	Nuclear	12	21	10	0.113
	Joint	33	48	9	
3. Socio-economic status	Upper	4	3	0	0.359
	Upper Middle	8	4	1	
	Lower Middle	6	8	2	
	Upper Lower	26	50	16	
	Lower	1	4	0	
4. Overcrowding	Present	13	24	12	0.027
	Absent	32	45	7	
5. Do you have good relationship with your husband	Yes	44	67	14	0.003
	No	1	2	5	

6. Husband verbal Abuse	Yes	0	11	13	0.000
	No	45	58	6	
7. Husband physical abuse	Yes	1	3	6	0.001
	No	44	66	13	
8. Do you have good relationship with your in-laws	Yes	40	58	7	0.000
	No	5	11	12	
9. Any Addiction in the family	Yes	3	8	5	0.091
	No	42	61	14	
10. Do you keep money aside for yourself	Yes	16	17	1	0.032
	No	29	52	18	
11. History of infertility	Present	9	9	1	0.335
	Absent	36	60	18	
12. Gestational age (in weeks)	0-12	9	11	5	0.840
	13-27	21	33	9	
	28-40	15	25	5	
13. Vaginal Discharge	Yes	7	15	5	0.552
	No	38	54	14	
14. Dysuria	Yes	4	7	4	0.376
	No	41	62	15	
15. Pain in abdomen	Yes	3	21	7	0.002
	No	42	48	12	

On applying Chi square test and Fischer exact test to find out various associated epidemiological correlates of perceived stress among antenatal women. The factors which came out to be statistically significant were if relationship with husband is good or not($p=0.003$), verbal abuse ($p=0.00$) and physical abuse($p=0.01$) by their husband, if relationship with in-laws is good or not($p=0.000$), if they keep money aside for themselves($p=0.032$), presence of overcrowding in the house($p=0.027$), pain in abdomen($p=0.02$). However, factors such as age ($p= 0.407$), type of family ($p=0.113$), socioeconomic status($p=0.359$), history of infertility($p=0.335$), gestational age($p=0.840$) were found to be statistically insignificant.

Discussion

In the current study, majority of women, 69(52%) had moderate perceived stress. Low perceived stress was experienced by 45(34%) of study subjects and 19(14%) participants had high perceived stress. Similar study conducted in Aurangabad by Roy P and Andurkar S observed that majority of participants had 122(43.5%) had severe stress 87 (31.1%) had moderate stress and 71(25.4%) had low stress (10). However, in study conducted by Yarube I et al. in Kano, Nigeria majority of subjects (53.3%) had low perceived stress and rest of the subjects (46.7%) had moderate perceived stress while none of the participants experienced moderate stress (11). The difference in the result might be because of socio-cultural, geographical difference. It was observed in current study, that statistically significant relationship does exist between perceived stress and husband verbal abuse($p=0.000$) and physical abuse($p=0.001$). This was in accordance with study conducted by Yarube I et al. in Kano, Nigeria also observed statistically significant association between perceived stress and husband verbal abuse and husband physical abuse ($p=0.001$) (11). However, Study conducted by Daro Kable W et al. in Ethiopia no such statistically significant ($p=0.09$) relationship was found between perceived stress and husband's abuse (12). In the present study no

statistically, significant relationship was found between age of study subjects and perceived stress ($p=0.407$). However, in study conducted by Lauc Y et al. in Macao, China younger women had high level of stress ($p=0.002$) (13). This could be because in current study most of study subjects were in age group of ≥ 25 -<34 years. Statistically insignificant relationship was found between perceived stress and socioeconomic status ($p=0.359$). This finding was in consistent with study conducted by Roy P and Andurkar S at Aurangabad as statistically insignificant relationship with socioeconomic status was observed (0.803). Statistically insignificant association was observed between perceived stress and any addiction (alcohol, tobacco and any other) in the family ($p=0.091$), in present study. Study conducted by Roy P and Andurkar S at Aurangabad did establish statistically significant relation of stress with consumption of alcohol by husband ($p=0.001$) (10). This might be because in other study they had taken only alcohol consumption into consideration.

Conclusion

It was concluded from present study that majority of antenatal women included in this study experienced moderate perceived stress (52%). Family problems are the major factors which influenced the level of perceived stress such as verbal and physical abuse by husband, relationship with husband and in-laws. Environmental characteristic which was found to be statistically significant associated was overcrowding in the house. This shows absence of privacy in the house can also cause perceived stress among antenatal women. Obstetrical factors such as gestational age (in weeks), history of infertility and history of abortions were statistically insignificant in relation perceived stress. As perceived stress in antenatal period can lead to adverse outcome of pregnancy therefore it is necessary that antenatal women must be screened for the perceived stress, it can be included in the routine antenatal care. Counselling must be provided to the woman and her family members so that they can get to know that their behaviours during the time of pregnancy can cause stress in mother which can adversely both mother and foetus.

Limitation: As the study design was cross-sectional, so the effect -cause relationship can not be established.

Conflict of interest: Nil

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