

# Stress, Coping, Self-efficacy and Birth Satisfaction among Low-risk Pregnant Women: A Cross-sectional Study

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## ABSTRACT

**Introduction:** Pregnant women worry about their physical changes, child delivery and impending parenthood. Wide range of psychological, biological and social factors influence emotional well-being during pregnancy, which can be described by the extent of birth anxiety, self-efficacy and psychosocial adaptations. The factors like coping and self-efficacy help to overcome the stress and provide better birth satisfaction resulting in good mother and infant bonding.

**Aim:** To know stress levels among low-risk pregnant women and to assess the influence of coping and self-efficacy of these women on birth satisfaction after delivery.

**Materials and Methods:** A prospective, cross-sectional study was conducted in the Department of Obstetrics and Gynaecology, Government Medical College, Thrissur, Kerala, India, from January 2019 to June 2019. Total 188 pregnant women, who reached term and without any known risk factors in the current pregnancy were enrolled. Data was collected using proforma

and questionnaires by conducting semi-structured interview to measure pregnancy specific stress, coping, self-efficacy and birth satisfaction. Data was analysed using Statistical Package for the Social Sciences (SPSS) software version 16.0. Multiple regression analysis was used for analysing the influence of stress, coping and self-efficacy on birth satisfaction.

**Results:** Mean age of the study population was 27.28±4.21 years. Study showed that 14.36% of women had high levels of stress. Antenatal women residing at rural areas had high levels of stress than their urban counterparts (p-value=0.004). Employed women had high levels of self-efficacy (p-value=0.038). Significant negative correlation was seen between the stress and self-efficacy (r-value=-0.479, p-value <0.00001)

**Conclusion:** Stress do exist even among low-risk pregnant women. Abilities like coping and self-efficacy improves birth satisfaction in women. Birth satisfaction is an important factor in ensuring positive birth experience and respectful maternity care.

**Keywords:** Antenatal clinics, Pregnancy specific stress, Prenatal distress questionnaire, Respectful maternity care

## INTRODUCTION

The natural process of pregnancy and childbirth has been considered as a strenuous journey in the life of a woman. Wide range of psychological, biological and social factors influence emotional well-being during pregnancy which can be described by the extent of birth anxiety, self-efficacy and psychosocial adaptations [1]. But the important ways that women cope with stress during pregnancy is less clear. It is important to know, how stress influences the maternity during antenatal period and hence, maternal satisfaction after childbirth.

There is increasing evidence for the role of biopsychosocial factors in pregnancy and its outcome [2,3]. Pregnancy specific stress is a distinct clinical entity characterised by concerns about physical symptoms, childbirth, health of the baby, mothering and relationship change [4]. Its measures are more sensitive than general stress measures in predicting adverse birth outcomes like abnormal foetal development, preterm birth and cognitive development of the child [5]. Pregnancy anxiety and stress have been linked to adverse birth outcomes by alterations in the vascular, neuroendocrine and immune systems [6].

Self-efficacy is the strong sense of confidence in one's own capabilities which protect mothers against stress and promotes more adaptive parenting behaviour [7,8]. Women adopt different coping strategies to overcome the stress, depending up on their self-efficacy, perceived stress, personal attributes and the quality of care received, and these will be reflected in their birth satisfaction. Birth satisfaction is the gratification, over what she experienced

during childbirth like being treated with respect, having comfort and feeling of being in control [9]. Emotional well-being of expectant mothers can be described by the extent of pregnancy specific stress, efficiency in coping and self-efficacy [10]. Respectful maternity care would improve maternal outcomes, in terms, of both psychological and physical well-being [11].

The mental health is very important in pregnancy. Recent confidential inquiry into maternal deaths of Kerala state, also showed an increasing tendency to suicide in young antenatal women. [12] It is important to address the stress issues in pregnancy which influences the maternal behaviour. But unfortunately, the stress aspect is not addressed adequately as the antenatal clinics are too crowded and young women of all social strata have hardly any opportunity to voice their emotional concerns or insecurities and there is no proper screening programme, as yet to find out such vulnerable individuals.

Hence, authors decided to explore pregnancy specific stress and coping in the background of self-efficacy and birth satisfaction in antenatal women to fill up the knowledge gap about the behavioural aspects of mothers. The primary aim of the present study was to estimate the pregnancy specific stress among low-risk pregnant women. The secondary purpose was to explore coping and self-efficacy in the background of stress and to estimate their birth satisfaction after childbirth. Finally, the study also investigated the correlations between the pregnancy specific stress, coping and self-efficacy and the influence of these variables on birth satisfaction. Null hypothesis was kept as there is no significant influence of

stress, coping and self-efficacy of low-risk pregnant women on their birth satisfaction.

## MATERIALS AND METHODS

A prospective, cross-sectional study was conducted in the Department of Obstetrics and Gynaecology, Government Medical College, Thrissur, Kerala, India, from January 1<sup>st</sup> of 2019 to June 30<sup>th</sup> of 2019. Study commenced after approval from the Institutional Ethics Committee of Government Medical College, Thrissur (Letter No: B2-2441/2018/MCTCR dated 29/12/2018). Subjects fulfilling the inclusion criteria were recruited after obtaining a written informed consent. Anonymity and confidentiality were maintained. From the antenatal ward, 188 low risk pregnant women, who had completed 37 weeks of gestation participated in the study.

**Sample size calculation:** The minimum sample size calculated was 176 using the formula,  $n = z^2pq/d^2$

Where,  $p$  = expected proportion in the population which is around 8% [10],  $q = 1 - p$ ,  $d = 0.04$  (within 4% of the true value)  $Z(1 - \alpha/2) = 1.96$  = value of standard normal distribution corresponding to a significance level of  $\alpha$  (1.96 for a 2-sided test at the 0.05 level).

**Inclusion criteria:** Pregnant women of age >18 years and <40 years and inpatient antenatal women with gestational age between 37 weeks and 40 weeks were included in the study.

**Exclusion criteria:** Mothers in extremes of age, with any medical problem (such as hypertensive disorders, diabetes mellitus, anaemia connective tissue disorders, chronic kidney disease and mental illnesses) or with foetal complications (including growth restriction, congenital anomaly and foetal death) were excluded from the study.

From the antenatal ward, 188 low risk pregnant women, who had completed 37 weeks of gestation participated in the study.

### Study Procedure

Data was collected by semi-structured interview using general data sheet and questionnaires. Study participants were given a brief explanation regarding the purpose of the study. Their doubts were cleared. Certain selected maternal, social, and demographic variables like age, socio-economic status, domicile, educational status, occupation and obstetric variables like order of pregnancy and mode of delivery were collected using a general data sheet. The participants completed three sets of questionnaires to assess pregnancy specific stress, pregnancy specific coping and generalised self-efficacy. Within 48-72 hours of delivery, the same participants were approached and data was collected using the questionnaire on birth satisfaction (BSS-R).

**Revised Prenatal Distress Questionnaire (Nu PDQ):** It was administered to assess pregnancy specific stress [13]. It is a 18-question survey using Likert response scale with possible scores ranging from 0 to 34. Participants indicate the extent to which they were feeling bothered, upset or worried about issues in pregnancy. However, question number 7 on preterm birth) was avoided, as study subjects were term (37 weeks completed) antenatal women. Hence, 17 item questionnaire was used. It had three subdivisions:

- Prenatal Distress Questionnaire-1 (PDQ1): Dealt with concerns about childbirth, health of the baby and parenting,
- Prenatal Distress Questionnaire-2 (PDQ2): Dealt with physical symptoms, body changes and medical care during antenatal period and
- Prenatal Distress Questionnaire-3 (PDQ3): Dealt with emotions and relationships.

Responses were on a 3-point scale ranging from 0 (not at all) to 2 (very much). Average scores were calculated. Scores above 1

Standard Deviation (SD) were considered as having high stress levels and scores below 1 SD as low scores.

**Revised Prenatal Coping Inventory (Nu PCI):** This assesses coping and has good internal consistency [13]. Pregnant mothers report how often they used different kinds of coping methods to overcome stress. The Nu PCI consists of 42 items with three reliable subscales, namely, planning-preparation, avoidance and spiritual-positive coping. Scales range from 0 to 4. Questions 21, 29 and 40 were avoided, as they pertained to cultural differences which had relevance only in the west. Scores range from 0 to 156. Those persons with scores above 1 SD were considered as having high coping abilities and scores below 1 SD as low scores.

**General Self-efficacy scale (GSE):** This scale is a self-report measure of self-efficacy [14]. The scale is correlated to emotion, stress and anxiety. It contains 10 items. Total score is calculated by finding the sum of all items. Total score range between 10 and 40. Scores above one standard deviation were considered, as high levels of self-efficacy and one standard deviation below were considered as low levels of self-efficacy.

**Birth Satisfaction Scale Revised (BSS-R):** This scale assesses a woman's birth perceptions and can be easily scored [15]. There are 10 items to be assessed with three overarching themes as subscales. These subscales are stress experienced during labour, personal attributes (childbirth preparation, ability to cope labour and relationship with baby) and service provision (antenatal care, birth environment and support). Each item is scored on a descending rating from strongly agree (score 4) to strongly disagree (score 0). Items 2, 4, 9 and 8 are reverse scored. Scores range from 0 to 40. Scores above 1 SD were considered as high levels of birth satisfaction and 1 SD below were considered as low levels of satisfaction.

### Operational Definitions

**Pregnancy-specific stress:** Pregnancy specific stress is a concept built on the knowledge that pregnant women are concerned about the significance of physical symptoms, changes in appearance, changes in interpersonal relationships, labour and delivery, health of foetus and parenting [13].

**Coping:** Coping is defined as constantly changing cognitive and behavioural efforts aimed at dealing with the demands of specific situations, which are appraised as stressful [13].

**Self-efficacy:** Self efficacy is a dynamic cognitive process that can be described as personal conviction to perform a required behaviour in a given situation successfully [14].

**Birth satisfaction:** Woman satisfaction with intra-partum care can be considered as gratification over what she received during the childbirth like being treated with respect, feeling in control and receiving minimal injuries [15].

**Low-risk pregnancy:** Antenatal mothers devoid of medical complications and no foetal risks like foetal growth restriction, congenital anomalies, etc, operating in current pregnancy.

**Respectful maternity care:** Delivery of appropriate and respectful care to pregnant women [11].

## STATISTICAL ANALYSIS

Categorical variables were expressed as numbers and percentages, while continuous variables were expressed as mean  $\pm$  SD. Computation of t-value to test the significance of difference between the means of two groups of data, One way analysis of variance to test the significance of difference between the means of more than two groups of data. Karl Pearson's product moment coefficient of correlations was used for comparing the relationship between stress, coping and self-efficacy. Multiple regression analysis was

used for analysing the influence of stress, coping and self-efficacy on birth satisfaction. All statistical analysis was done using Statistical Package for the Social Sciences (SPSS) software version 16.0 and a p-value <0.05 was considered as significant.

## RESULTS

A total of 188 subjects were recruited for the study of which primigravidas constituted 44%. Mean age of the study population was 27.28±4.21 years. All were living with spouses, majority had pregnancy which was planned and none of them reported any domestic violence. Majority had achieved education levels beyond high school, but were unemployed (79.78%). [Table/Fig-1] shows the variations of parameters according to their age, education, employment, domicile, economic status, religion, order of pregnancy and mode of delivery.

Low-risk pregnant women residing at rural areas had more levels of stress than urban women (p-value=0.004). Thus, there was significant difference in stress levels of low-risk pregnant women

with respect to domicile. Urban women had high levels of self-efficacy than rural women and the difference was significant as shown in the [Table/Fig-2] (p-value=0.024). Employed women had higher levels of self-efficacy than the unemployed women and the difference was significant (p-value=0.038). Coping ability and birth satisfaction were not affected by these socio-demographic and obstetric variables.

[Table/Fig-2] shows the distribution of scores obtained for stress, coping, self-efficacy and birth satisfaction. Pregnancy specific stress levels were higher in 14.36% of the women indicating pregnancy specific stress existed, even among low-risk pregnant mothers. About 13.83%, 13.57% of women respectively had low scores for pregnancy specific coping and general self-efficacy scores. Significant positive correlation was found between stress and coping in pregnant women (r-value=0.380, p-value <0.00001). Whereas, significant negative correlation was found between stress and self-efficacy (r-value=-0.479, p-value <0.00001) [Table/Fig-3].

Characteristics	n (%)	Specific stress scores	Coping scores	Self-efficacy scores	Birth satisfaction scores
<b>Age</b>					
≤30 years	148 (78.72)	7.91	59.07	21.72	23.57
>30 years	40 (21.27)	7.37	58.98	22.83	24.80
p-value		0.192	0.488	0.989	0.110
<b>Education</b>					
<10 years	22 (11.70)	7.77	55.94	22.02	24.45
10-12 years	95 (50.53)	7.87	57.54	21.89	22.39
>12 years	71 (37.76)	7.75	62.7	21.95	24.57
p-value		0.996	0.895	0.999	0.150
<b>Occupation</b>					
Employee	20 (10.63)	7.05	59.20	24.3	24.85
Worker	2 (1.06)	7.50	66.0	20.50	19.50
Self-employed	16 (8.51)	7.20	54.33	19.67	21.00
Unemployed	150 (79.78)	7.97	59.4	21.89	24.03
p-value		0.635	0.471	0.038*	0.121
<b>Place of living</b>					
Rural	157 (83.51)	8.03	59.66	21.64	23.55
Urban	31 (16.48)	6.65	55.97	23.52	25.23
p-value		0.004*	0.145	0.024*	0.066
<b>Income</b>					
Below poverty line	148 (78.72)	7.91	59.07	21.72	23.57
Above poverty line	40 (21.27)	7.37	58.98	22.83	24.80
p-value		0.192	0.488	0.989	0.110
<b>Religion</b>					
Hindu	129 (68.61)	8.15	58.65	21.53	23.50
Muslim	44 (23.40)	7.02	57.89	23.05	24.95
Christian	15 (7.97)	7.13	65.87	22.40	23.33
p-value		0.138	0.214	0.171	0.322
<b>Parity</b>					
Primi	82 (43.61)	8.11	59.4	22.44	23.00
Multipara	106 (56.38)	8.10	53.9	21.80	24.41
p-value		0.432	0.162	0.693	0.366
<b>Mode of delivery</b>					
Vaginal	155 (82.44)	7.75	58.46	21.99	23.97
Instrumental	9 (4.78)	8.17	62.96	21.58	22.83
Caesarean	24 (12.76)	7.78	58.67	22.22	24.00
p-value		0.860	0.515	0.914	0.653

[Table/Fig-1]: The variations of stress, coping, self-efficacy and birth satisfaction levels according to socio-demographic and obstetric variables.

\*p-value <0.05 was considered statistically significant

\*\*t-test used for age, place of living, income and order of pregnancy and ANOVA for education, occupation, religion and mode of delivery

Measures	Nu PDQ	Nu PCI	GSE	BSS-R
Mean±SD	7.80±3.51	59.05±17.77	21.95±4.82	23.83±5.64
Minimum	0	19.00	14.00	10.00
Maximum	20.00	106.00	32.00	37.00
High scores (>1 SD)	n=27 (14.36%)	n=33 (17.55%)	n=34 (18.23%)	n=35 (18.62%)
Low scores (<1 SD)	n=28 (14.86%)	n=26 (13.83%)	n=25 (13.57%)	n=27 (14.36%)

**[Table/Fig-2]:** Descriptive statistics of pregnancy specific stress, coping, generalised self-efficacy and birth satisfaction.  
 Nu PDQ: Revised prenatal distress questionnaire; Nu PCI: Revised prenatal coping inventory; GSE: Generalised self-efficacy; BSS-R: Birth satisfaction revised scale

Variable	PDQ	PCI	GSE
PDQ	r-value=1	r-value=0.380; p-value <0.00001*	r-value=-0.479; p-value <0.00001*
PCI	-	r-value=1	r-value=-0.099; p-value= 0.176
GSE	-	-	r-value=1

**[Table/Fig-3]:** Coefficient of correlation between total stress, coping and total self-efficacy of low-risk pregnant women.  
 PDQ: Prenatal distress questionnaire; PCI: Prenatal coping inventory; GSE: Generalised self-efficacy; \*p-value <0.05 was considered statistically significant

[Table/Fig-4] shows stepwise regression model for analysing the influence of pregnancy specific stress, coping, self-efficacy on birth satisfaction of mothers. All the three models of analysis were significant. However, the first model was the most appropriate model which predicted birth satisfaction as the F value for that model was 51.00, which was highly significant. Self-efficacy scores could predict the birth satisfaction better. The results revealed high levels self-efficacy scores predicted the birth satisfaction better than others.

Model d	Source of variation	Sum of squares	df	Mean square	F value	p-value
1a	Regression	1282.29	1	1282.29	51.00	<0.00001*
	Residual	4676.26	186	25.14		
	Total	5958.55	187			
2b	Regression	1649.71	2	824.86	35.42	<0.00001*
	Residual	4308.84	185	23.29		
	Total	5958.55	187			
3c	Regression	1765.42	3	588.47	25.82	<0.00001*
	Residual	4193.13	184	22.79		
	Total	5958.55	187			

**[Table/Fig-4]:** Summary of ANOVA of step-wise regression models showing the influence of stress, coping and self-efficacy on birth satisfaction.  
 a Predictors: (Constant), GSE  
 b Predictors: (Constant), GSE, PCI total  
 c Predictors: (Constant), GSE, PCI total, PDQ total  
 d Dependent Variable: BSS total  
 ANOVA: Analysis of variance; GSE: Generalised self-efficacy; PCI: Prenatal coping inventory; PDQ: Prenatal distress questionnaire; BSS-R: Birth satisfaction scale; \*p-value <0.05 was considered statistically significant

## DISCUSSION

The results revealed the existence of stress even among low-risk pregnant women. In present study pregnancy specific stress was not influenced by any of the socio-demographic and obstetric variables except the domicile of women. The women residing in rural areas had more levels of stress than urban women. Schoch-Ruppen J et al., in their study revealed that stress levels were higher among study participants who were younger, nulliparous, lacked college education, unmarried or having an unplanned pregnancy compared to their counterparts [16]. Nu PDQ scores were higher among women experiencing stress from interpersonal relationships, including those undergoing separation or divorce [17]. Studies administering Nu PDQ from Iran also report high levels of stress

among antenatal women [6, 18]. Similar results came from USA and UK also [19,20]. But lower levels of stress were reported in a few studies from UK giving the impression that the stress levels vary in different parts of the world [21,22].

Mothers participated showed good amount of pregnancy specific coping skills. Hamilton JG and Lobel M concluded that all of the coping strategies were correlated with greater distress [23]. Similar results were noted by Koletzko SH et al., [24]. Lack of coping skills were associated with many adverse mental outcomes including lower general psychological well-being, increased distress, more anxiety and greater child abuse potential [25].

Low-risk pregnant women from urban location showed more self-efficacy than their rural counterparts. This may be due to increased awareness and exposure the urban women get during their life. Rural women seem more dependent and get fewer chances to do things on their own. Employees showed more self-efficacy than workers, self-employed and unemployed women. This may be related to the independence the employees enjoy when compared to others and also to better life orientation. Findings showed that self-efficacy was negatively associated with stress. Ginja S et al., have reported positive correlation between self-efficacy, mental well-being and social support [26]. Self-efficacy of women empower them, to cope with stressful events. Mothers with high self-efficacy, experience a lower level of stress and have high social relationship and support and experience high levels of birth satisfaction [27]. Antenatal self-efficacy was strongly associated with coping, which ultimately led to greater levels of birth satisfaction. Salomonsson B et al., reported that high levels of perceived self-efficacy contribute to a sustained behaviour that women consider useful to coping with labour [28]. A substantial positive change with regards to self-efficacy helps mothers to keep control during labour and also adds to their confidence. Consistent with Bandura's Self-efficacy theory, increasing individual self-efficacy promotes individual's belief in her own capacity to deal with stress [7].

There were no significant differences in the birth satisfaction of women with respect to obstetric or socio-demographic variables. The impact of the mode of delivery remains controversial. Historically, vaginal delivery has been represented as the mode that has the best chance of being positively experienced and some studies suggest a positive experience with spontaneous vaginal delivery because it is associated with a high perceived control level compared to instrumental vaginal delivery or caesarean section, and a higher feeling of accomplishment [29,30]. But a later study reported exactly opposite results [31]. These conflicting results highlight the complexity when studying the delivery experience. In the light of increasing awareness on the risks of caesarean sections and the supplementary costs involved, the impact of mode of delivery on the construction of birth satisfaction is important. However, present study results showed no significant difference in birth satisfaction according to the mode of delivery.

In the present study, regression analysis showed that the high levels of self-efficacy scores predicted the birth satisfaction. Sinclair M and O'Boyle C reported that high levels of perceived self-efficacy contribute to increased motivation to sustain a behaviour that women consider useful for coping with labour [32]. Substantial positive changes during pregnancy with regards to self-efficacy for facing labour and childbirth help mothers to keep control during labour. This improves the quality of preparation for labour and delivery and also, adds the confidence of the mother [33]. Findings emphasised that coping makes them more efficient in facing the challenging role of motherhood. Self-efficacy is a psychological factor that can be modified through various efficacy enhancing interventions and can be enhanced through structured maternal education as reported by

Maimburg RD et al., and Brixval CS et al., [34,35]. Self-efficacy is an important construct which is related to effective coping. Women's satisfaction with childbirth is also an important measure of quality of maternal healthcare. Currently, it is generally agreed that, satisfaction refers to a level of correspondence between health services and patient need, desire and expectation. Respectful maternity care is very important in creating a positive birth experience for women. Evaluating birth satisfaction allows positive changes in the quality of healthcare delivery and identifies problem areas [36]. Self-efficacy and coping are two important determinants of birth satisfaction. Birth satisfaction ensures maternal well-being and influences future obstetric career of women. Hence, focus on these behavioural aspects of mothers, will help find vulnerable individuals, so that special attention can be provided to them.

Present study supported the need for improving self-efficacy and coping behaviours during antenatal period to improve the birth satisfaction and to alleviate stress, hence, rejecting the null hypothesis. Recently the government has launched a project 'AMMA MANASU' in association with the National Mental Health Programme (NMHP) in August 2019, which is intended to address psychiatric illnesses like depression in expectant and postpartum mothers at the earliest [37]. Screening for behavioural skills among antenatal mothers, will help to find out the vulnerable individuals.

### Limitation(s)

Cross-sectional nature of the study is a limitation; more beneficial results would have emerged, if it was longitudinal in nature. The main limitation was time. It would have been more beneficial, if subjects were followed-up for the entire puerperium and problems like postpartum blues, were also assessed .

### CONCLUSION(S)

Present study was conducted to assess the pregnancy specific stress, coping skills, and self-efficacy and to find out the influence of these variables on birth satisfaction. Results revealed the existence of stress even among the low-risk mothers and rural women had more levels of stress. Self-efficacy beliefs were strongly correlated with the use of coping behaviours. Urban and employed women had significant levels of self-efficacy, which indicate the need for ensuring the accessibility and affordability of pregnancy care. Birth satisfaction is significantly influenced by self-efficacy. Screening for behavioural skills will help the overcrowded antenatal clinics, to find out the vulnerable individuals. If these issues are not addressed in right time, the care provided to the mother is incomplete and there won't be a desirable outcome of pregnancy. Future research would benefit from longitudinal studies through pregnancy and into postnatal period to assess behaviour in post-partum period. Such studies could explore the different paths to pregnancy specific stress and other characteristics of mothers.

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