



Impact of Socio-Demographic and Obstetric Factors on Quality of Life of Pregnant Women

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Name of Author:

¹Dr. Aimen Kaleem, ²Dr. Mariam Ashiq, ³Dr. Habibah Nadeem, ⁴Dr. Shahneela Bhutto, ⁵Dr. Tanzeela Ahmad, ⁶Dr. Bushra Nabi.

Affiliation: ¹MBBS, FCPS (Obstetrics & Gynaecology) SPR, Gynae C Unit Brig. SPR gynae c unit Women and children hospital MTI, Dera Ismail Khan.

Email: kaleemaimen@yahoo.com

²MBBS, FCPS (Gynaecology & Obstetrics) Consultant Gynaecologist

Email: mariamashiq243@gmail.com

³MBBS, Pharmacology and Therapeutics CMH Lahore Medical College

Email: dr.habibahnadeem@gmail.com

⁴MBBS, FCPS Obstetrics & Gynaecology Quetta Institute of Medical Sciences Email: dr.shahneela@yahoo.com

⁵MBBS, FCPS Obstetrics & Gynaecology Iqra Medical Complex, Johar Town Email: drtanzeelaahmad@yahoo.com

⁶MBBS, (Gynaecology & Obstetrics) Assistant Professor, (Obstetrics & Gynaecology) Bannu Medical College Email: nabibushra@yahoo.com

Corresponding Author:

Dr. Bushra Nabi

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Abstract: Background: Pregnancy is associated with major physical, psychological, and social changes that could affect the quality of life (QoL) of a woman. It is important to understand determinants of QoL to enhance comprehensive post-partum care. **Objective:** To determine the effect of the socio-demographic and obstetric variables on the quality of life among pregnant women receiving obstetric care services. **Methods:** The study is an analytical cross-sectional study, carried out within a period of six months (1st May 2025 to 30th September 2025) at brig. SPR gynae c unit Women and children hospital MTI, Dera Ismail Khan. Systematic random sampling was used to select 400 pregnant women. The data were measured by means of structured interviews, including socio-demographic qualities, obstetric history, and QoL measurement with the WHOQOL-BREF questionnaire. SPSS version 25 was used to conduct statistical analysis. The chi-square tests, independent t-tests, ANOVA, and multivariate linear regression were used to determine associations. A p-value ≤ 0.05 was regarded as significant. **Results:** The average total QoL rating was 61.3 ± 9.7 . Women in their third trimester and those whose pregnancies were unplanned had relatively lower QoL scores. Multivariate regression found that the independent predictors were spousal support, socioeconomic class, education, and planned pregnancy, which accounted 42% of the variance in overall QoL. **Conclusion:** Maternal quality of life is greatly affected by socio-demographic and obstetric factors. Adding psychosocial assessment and partner intervention to normal antenatal care could improve maternal well-being and pregnancy outcomes.

Keywords: Quality of life; Pregnancy; Socio-demographic factors; Obstetric factors.

INTRODUCTION

Pregnancy is a physiological and psychosocial experience in the life of a woman that can be marked not only by drastic anatomical and hormonal transformations but also by dramatic emotional and social transformations.[1, 2] Although pregnancy is usually regarded as a normal biological process, it can have a significant impact on the physical, psychological, and social well-being of a woman.[3] Quality of Life (QoL) according to the World Health Organization concept refers to the perception of an individual of where they are in life in relation to the culture, value systems, personal goals, expectations, and concerns.[4] QoL is of special concern during pregnancy when the well-being of the mother has a direct impact on the outcomes of both mother and baby.[3, 5]

The world has a birth rate of an estimated 140 million each year, with most of the births being recorded in the low and middle-income nations.[6] The World Health Organization states that the number of women dying because of pregnancy and childbirth complications is almost 295,000 every year, with South Asia playing a very big role in these fatalities.[7] Nonetheless, beyond mortality and morbidity, there is growing awareness that the health of the mothers will not only be determined by survival but also the quality of physical, emotional, and social functioning of the mothers during pregnancy. Nausea, fatigue, back pain, sleep disorders, and the presence of anxiety are typical, and they can negatively influence the quality of everyday activity and relationships with others, lowering the overall quality of life.[8]

Socio-demographic indicators, such as age, education, occupation, income level, residence (urban vs. rural), and family structure, are critical determinants of the experience of a pregnant woman.[9] Women with lower socioeconomic status tend to have nutritional deficiencies, reduced access to antenatal care, financial pressures, and social support, which adversely affect QoL.[10] Likewise, pregnancy-specific variables (e.g., parity, gestational age, planned/unplanned pregnancy, miscarriage history, pregnancy complications, e.g., gestational diabetes, hypertension, anemia) are also significant predictors of physical discomfort and psychological distress.[11] Multigravida women may develop cumulative physical stress, whereas primigravida women tend to report higher anxiety levels because of the fear of the unknown.[12]

Maternal experiences are also influenced by cultural norms and gender roles in developing countries.[13] A psychologically stressful pregnancy can be aggravated by limited decision-making power, a preference towards male children, household chores,

and the absence of partner support. Research has also shown that low QoL in pregnancy is linked to negative outcomes like preterm delivery, low birth weight, postpartum depression, and poor mother-infant attachment.[14] Thus, the combination of socio-demographic and obstetric factors must be comprehended in order to develop specific interventions that support comprehensive maternal health instead of prioritizing clinical indicators.

Although the body of literature about the maternal health indicators is increasing globally, there is a relative lack of region-specific data that discuss the overall impact of socio-demographic and obstetric variables on the multidimensional aspects of the QoL among pregnant women. The health care environment in most healthcare facilities mainly focuses on the medical risk factors of the antenatal services and fails to incorporate psychosocial determinants that significantly influence maternal experiences. The determination of modifiable predictors of low QoL can assist clinicians, policymakers, and public health planners in defining combined models of antenatal care, including social support, mental health screening, and individual counseling plans. This evidence is especially important in resource-constrained environments where education, income, and healthcare inequality are still strong. The current research aimed to determine the effect of socio-demographic and obstetric variables on the quality of life of expectant women receiving antenatal care services.

METHODOLOGY

An analytical cross-sectional research design was used to conduct this study to identify the influences of socio-demographic and obstetric factors on the quality of life of pregnant women. The cross-sectional design was deemed suitable since it enabled the simultaneous evaluation of both exposure variables (socio-demographic and obstetric characteristics) and outcome variables (quality of life domains) over a specified period of time.

This was conducted in the Antenatal Care (ANC) clinics of the Department of Obstetrics and Gynecology, brig. SPR gynae c unit Women and children hospital MTI, Dera Ismail Khan. The span of the study was six months, between 1st June 2025 and 30th November 2025. The sample size was determined by using the open Epi Version 3.01 for cross-sectional studies. A prevalence rate of 46% of poor quality of life among pregnant women was utilized on the basis of results of a prior published study that was done in a similar population.[15] At a 95% level of confidence ($Z = 1.96$) and a 5% margin of error, the minimum sample size was obtained as 382 participants. The final

sample of pregnant women was 400 after the addition of 5% to cover potential non-response.

A random sampling method was used systematically. After selecting the ANC clinic first participant was randomly selected using a lottery technique daily; every third eligible pregnant woman was chosen based on the average number of pregnant women attending the clinic daily. The recruitment process was continued until the necessary sample size was obtained. Included in the pregnancy were women who were aged 18 years and above, had a confirmed singleton pregnancy, in any trimester, and were willing to give informed written consent. The women were not eligible in case of severe complications of pregnancy at the time of recruitment (eclampsia or severe pre-eclampsia), fetal congenital anomalies, known psychiatric illness, or chronic systemic conditions like uncontrolled diabetes mellitus, chronic hypertension, renal disease, or cardiac disorders, which could also independently impact quality of life.

The data was gathered using a structured and pre-tested questionnaire that was gathered through face-to-face interviewing by trained women data collectors. Written informed consent was signed by all participants after they were informed about the aim of the study and that confidentiality would be guaranteed. The questionnaire was divided into three parts. The initial category contained more specific socio-demographic variables that included the maternal age, educational level, occupation, and work status, monthly household income, and socioeconomic type (classified based on income brackets). Data concerning the residence location (urban or rural), marital status, degree of spousal support (emotional and financial), and kind of family structure (nuclear and joint/extended family) were documented. Also, the education and occupation of the husband were recorded to determine the general household socio-economic status. Information about the housing conditions, ownership, the number of rooms, sanitation facilities, access to clean drinking water, and electricity supply was collected. The availability of basic health services, such as distance to the nearest healthcare facility and the availability of antenatal services, was also evaluated.

The second part dealt with obstetric features, such as gravidity, parity, gestational age (last menstrual period or early ultrasound), history of miscarriage or stillbirth, whether pregnancy was planned or unplanned, and the number of antenatal visits, and any minor pregnancy-related complaints such as nausea, back pain, or sleep disturbances. The third part measured quality of life based on the WHOQOL-BREF questionnaire, which was created by the World Health Organization.[16] The tool measured four variables, namely, physical health, psychological well-

being, social relationships, and environmental health. The questionnaire was translated into Urdu and then translated into English to facilitate accuracy and consistency. The clarity and reliability of the tool were tested on 20 pregnant women who did not form part of the main study sample, and required changes were made to the same.

The data were input into and analyzed using SPSS version 25. Means and standard deviations of continuous variables (maternal age and QoL scores) and frequencies and percentages of categorical variables (education level, occupation, residence, and family system) were computed using descriptive statistics. The scores of the domain of quality of life were computed as per the WHOQOL-BREF scoring system, with a higher score showing an improved quality of life. To conduct inferential analysis, the chi-square test was used to establish relationships between categorical socio-demographic/obstetric variables and categorized QoL levels. The comparison of mean QoL scores of different groups was performed with the help of independent t-tests and one-way ANOVA. Variables found to be statistically significant during a bivariate analysis were included in multivariate linear regression models to establish independent predictors of quality of life. A p-value of below 0.05 was taken to have statistical significance.

RESULTS

The study involved 400 pregnant women. The average age of mothers was 27.8 ± 4.9 years old, and over half of the sample (52.5%) fell within the 25-34 years old range. The majority of women had at least a secondary education (38.7%), and 15% did not have any formal education. Most of them were housewives (73.8%), and 42.5% of them were in the middle socioeconomic group. A sample was composed of urban residents (57.5%). Almost all of the participants were married (98%), and 77.5% indicated sufficient spousal support. There was a nuclear family structure among 60% of women. About the nature of husbands, 42.5% were with secondary education, and 40% worked in private jobs. Housing conditions were found to be adequate in 68.8% of households, and good access to basic health services was found in 73.8%. (Table 1).

Regarding obstetric profile, multigravida women formed 62.5 percent of the sample, and the mean gravidity was 2.6 ± 1.4 . The proportion of those with one to two living children was 43.8 percent, with three or more children being 18.7%. The majority of the participants were in the second trimester (40%) and the third trimester (37.5%). Most women (70%) reported planned pregnancies, but a history of miscarriage (23.8%) was present. In 66.3% of the

participants, minor pregnancy-related claims of nausea, back pain, and sleep disturbances were present (Table 2).

The evaluation of quality of life with the help of WHOQOL-BREF showed that the overall QoL has a mean of 61.3 ± 9.7 . The best mean score was found in the social relationships domain (65.7 ± 13.4), then the psychological domain (61.2 ± 11.8), the environmental domain (59.9 ± 10.9), and the physical health domain (58.4 ± 12.6), and it is shown that perceived social well-being was better during pregnancy (Table 3).

Bivariate analysis showed that there were significant associations between overall QoL and other socio-demographic variables. Educated women (secondary or higher education) showed a much better QoL than women with lower educational status ($p = 0.001$). There was also a significant association between employment status, higher socioeconomic class, urban living, and sufficient spousal support and improved QoL outcomes ($p < 0.05$). Nevertheless, the family system was not significantly statistically related to QoL ($p = 0.120$) (Table 4).

Comparison of mean QoL scores among obstetric variables showed that the mean QoL scores were significantly greater among women with planned pregnancies than those with unplanned pregnancies ($p < 0.001$). Primigravida women reported slightly higher QoL than multigravida women ($p = 0.035$). Moreover, the scores of QoL varied significantly between trimesters, with the lowest scores being recorded during the third trimester ($p = 0.022$) (Table 5).

The multivariate linear regression model revealed that age at motherhood, education, socioeconomic status, spousal support, intended pregnancy, and availability of basic health services are independent predictors of overall QoL. There were positive correlations between spousal support and planned pregnancy, and the strongest positive correlations with QoL scores and maternal age, with a slight negative relationship with QoL. The last regression result derived 42% in the total QoL (Adjusted $R^2 = 0.39$), representing a moderately good predictive association (Table 6).

Table 1. Socio-Demographic Characteristics of Pregnant Women (n = 400)

Variable	n(%) / Mean $\pm$ SD	
Maternal Age (years)	27.8 $\pm$ 4.9	
18–24 years	120	30.0
25–34 years	210	52.5
≥ 35 years	70	17.5
Educational Status		
No formal education	60	15.0
Primary	95	23.8
Secondary	155	38.7
Graduate & above	90	22.5
Maternal Employment Status		
Housewife	295	73.8
Employed	105	26.2
Monthly Household Income		
< 30,000 PKR	140	35.0
30,000–60,000 PKR	170	42.5
> 60,000 PKR	90	22.5
Socioeconomic Class		
Lower	150	37.5
Middle	175	43.8
Upper	75	18.7
Place of Residence		
Urban	230	57.5
Rural	170	42.5
Marital Status		
Married	392	98.0
Separated/Widowed	8	2.0
Spousal Support		
Adequate	310	77.5
Inadequate	90	22.5
Family System		
Nuclear	240	60.0

Joint/Extended	160	40.0
Husband's Education		
No formal education	40	10.0
Primary	80	20.0
Secondary	170	42.5
Graduate & above	110	27.5
Husband's Occupation		
Laborer	120	30.0
Private job	160	40.0
Government job	70	17.5
Business	50	12.5
Housing Conditions (Adequate)	275	68.8
Access to Basic Health Services (Good)	295	73.8

Table 2. Obstetric Characteristics of Participants (n = 400)

Variable	n(%) / Mean $\pm$ SD	
Gravidity	2.6 $\pm$ 1.4	
Primigravida	150	37.5
Multigravida	250	62.5
Parity		
Nulliparous	150	37.5
1-2 children	175	43.8
≥ 3 children	75	18.7
Trimester		
First	90	22.5
Second	160	40.0
Third	150	37.5
Planned Pregnancy		
Yes	280	70.0
No	120	30.0
History of Miscarriage	95	23.8
Minor Pregnancy Complaints Present	265	66.3

Table 3. Mean WHOQOL-BREF Domain Scores (n = 400)

QoL Domain	Mean $\pm$ SD	Minimum	Maximum
Physical Health	58.4 $\pm$ 12.6	28	89
Psychological	61.2 $\pm$ 11.8	30	88
Social Relationships	65.7 $\pm$ 13.4	25	92
Environmental	59.9 $\pm$ 10.9	35	86
Overall QoL Score	61.3 $\pm$ 9.7	34	85

Table 4. Association Between Selected Socio-Demographic Variables and Overall QoL

Variable	Good QoL n (%)	Poor QoL n (%)	χ^2	p-value
Education (Secondary & above)	190 (67.6)	91 (32.4)	18.42	0.001*
Employment (Employed)	75 (71.4)	30 (28.6)	6.78	0.009*
Socioeconomic Class (Upper/Middle)	210 (70.0)	90 (30.0)	22.15	<0.001*
Residence (Urban)	165 (71.7)	65 (28.3)	9.54	0.002*
Spousal Support (Adequate)	225 (72.6)	85 (27.4)	26.88	<0.001*
Family System (Nuclear)	155 (64.6)	85 (35.4)	2.41	0.120
*Statistically significant				

Table 5. Comparison of Mean Overall QoL Score Across Obstetric Variables

Variable	Mean QoL $\pm$ SD	Test Value	p-value
Pregnancy			
Planned	63.5 $\pm$ 8.8	t = 4.92	<0.001*

Unplanned	56.8 ± 9.5		
Gravida			
Primigravida	62.8 ± 9.2	t = 2.11	0.035*
Multigravida	60.3 ± 9.9		
Trimester		F = 3.87	0.022*
First	63.4 ± 8.5		
Second	61.7 ± 9.4		
Third	59.2 ± 10.1		
*Statistically significant			

Table 6. Multivariate Linear Regression Analysis for Predictors of Overall QoL

Variable	β Coefficient	Standard Error	p-value	95% CI
Maternal Age	-0.18	0.07	0.010*	-0.32 to -0.04
Secondary Education & above	3.45	1.02	0.001*	1.45 to 5.45
Upper Socioeconomic Class	4.12	1.28	0.002*	1.60 to 6.64
Adequate Spousal Support	5.36	1.10	<0.001*	3.20 to 7.52
Planned Pregnancy	4.01	0.95	<0.001*	2.15 to 5.87
Good Access to Health Services	2.88	1.05	0.006*	0.83 to 4.93
<i>Model R² = 0.42</i>				
<i>Adjusted R² = 0.39</i>				
<i>p < 0.05 considered significant</i>				

DISCUSSION

The current research revealed that independent predictors of maternal quality of life (QoL) during pregnancy were education, employment, socioeconomic status, spousal support, planned pregnancy, and access to health services. The present findings are consistent with the state of international research stating the multidimensional effects of socio-demographic and obstetric determinants on maternal QoL.

In line with our observation that higher education was linked to improved QoL, a study in Romania in 2025 indicated that better scores on physical and psychological dimensions of QoL by the use of the WHOQOL-BREF instrument were significantly higher among women who were more educated and employed. This highlights the safeguarding effect of education level and jobs in improving well-being during pregnancy.[17] Equally, a more recent study conducted in Turkey in 2023 indicated that planned pregnancy and increased income had a positive effect on QoL, especially in physical and psychological domains, which once again indicates the value of economic stability and pregnancy intentionality in maternal well-being.[18]

Our results on spousal support as an effective positive predictor of QoL resonate with the new findings, suggesting that positive relationships with partners are key to psychological coping and lessening stress during pregnancy. The importance of perceived

spousal support during pregnancy, as emphasised in a 2025 BMC Pregnancy and Childbirth study, is that it positively influences stress-coping levels in pregnant women and, by implication, emotional support mechanisms positively influence well-being outcomes.[19] This is in line with our findings that indicated that women who received sufficient spousal support had higher QoL scores than those who received insufficient support.

The correlation between planned pregnancy and enhanced QoL in our cohort relates to the results of other Latin American groups in which the women with planned pregnancies had higher scores on the psychological QoL. A study of WHOQOL-BREF in Colombia found that the intended pregnancy had a significant correlation with higher scores in the psychological domain, whereas frequent symptoms and morbidities were also associated with lower QoL.[20] This association is stable in a wide range of settings, which highlights the psychosocial universal benefits of pregnancy intentionality.

Our study regarding trimester and QoL has shown that lower QoL was seen in third-trimester women, especially in physical domains, which is consistent with a study done in Poland in 2024, where trimester progression was strongly associated with lower QoL, especially since it increases physical discomfort, such as back pain and movement problems.[8] This helps to support the idea that the physiological strains of

later pregnancy can be detrimental to physical and wellbeing in general.

The fact that we found that urban residence was associated with improved QoL is consistent with other literature in which maternal well-being is found to be improved by access to services, supporting environments, and health resources in urban areas. A study has already revealed that rural residence was linked to worse QoL and increased the likelihood of environmental and social health degradation in pregnant women, especially with the amplification of financial stressors.[20]

Even though our analysis did not directly address the issue of health literacy, the 2025 Turkish study of determinants of well-being identified maternal health literacy and perceptions of income adequacy as strong predictors of well-being, and this finding resonates with the multidimensional interaction of socio-economic, cognitive, and obstetric factors that influence the determination of QoL in pregnant women.[21]

Although our regression model was able to explain 42% of the variance in overall QoL, other studies indicate that other factors like physical activity, pain, and psychosocial stressors are also important contributors to QoL, but were beyond the scope of this analysis. As an example, a study based on causal models revealed that sufficient physical activity enhances QoL, especially physical and psychological ones, which could be considered an intervention point.[22]

Lastly, some studies have concentrated on particular medical conditions, such as gestational diabetes, and their adverse effect on QoL, but a 2024 systematic review found that health complications, such as GDM, have significantly lower QoL scores, both in the mental and social health domains. The findings indicate that clinical conditions need to be involved in holistic care models in addition to socio-demographic factors.[23]

In general, the existing evidence of our findings with the recent years supports the perception that maternal education, economic resources, partner support, intentionality of pregnancy, and urban access to health services are uniform determinants of QoL in various cultural and healthcare contexts. Socio-demographic and obstetric determinants are holistically addressed, and this potential can be used to improve maternal well-being throughout the pregnancy and maternal and neonatal outcomes worldwide.

The results of the present research indicate that the level of quality of life in the course of pregnancy is affected not only by medical but also by socio-demographic and psychosocial variables. The correlation between the educational status,

socioeconomic class, spousal support, intended pregnancy, and availability of health services is so strong that antenatal care should be more holistic and multidisciplinary. Screening of psychosocial risk factors such as poor partner support, financial strain, and unplanned pregnancy should be conducted as routine antenatal tests. Early detection of women who would develop a poor QoL during pregnancy would enable timely counseling, mental health, and referrals to social services.

Since spousal support proved one of the most significant predictors of QoL, the couple-based antenatal education and partner involvement intervention strategies could be of great benefit to maternal well-being. The emotional and practical support systems can be reinforced by encouraging husbands to visit during the antenatal visits and attend birth preparedness counseling. Moreover, the provision of specific programs to women belonging to lower socioeconomic status, including health education, nutrition advice, and easier access to governmental maternal health programs, could minimize inequality in QoL outcomes.

LIMITATIONS

This study was limited in many ways, in spite of the strengths. To begin with, the cross-sectional design restricted the possibility of making causal associations between the socio-demographic/ obstetric factors and quality of life. Second, longitudinal studies would be preferable to investigate variations in QoL between various trimesters and postpartum periods, as the data were collected at one tertiary care hospital, which might not be representative of other regions, especially remote rural communities or private medical institutions. Despite the systematic sampling, selection bias cannot be completely ruled out, as quality of life was measured by a self-reported questionnaire, which could have caused response bias such as social desirability bias. Some cultural aspects may also have shaped the perceptions and reporting of the well-being among the women, especially in psychological and social aspects.

Moreover, some potentially significant variables, including detailed mental health assessment (e.g., clinical depression or anxiety scale), intimate partner violence, nutritional status, and physical activity levels, were not measured, which could have been a reason of unexplained variance of QoL scores. Lastly, when the results are interpreted, multivariate regression was used to explain a moderate percentage of variance in QoL; however, other unmeasured psychosocial and environmental factors might have

affected maternal well-being. It is suggested that future studies based on longitudinal, multicenter designs that include a wider psychosocial measurement instrument would help in clarifying the multifactorial determinants of quality of life in pregnancy.

CONCLUSION

The interaction of socio-demographic and obstetric factors, but not clinical ones, affects the quality of life of pregnant women in a dynamic way. Better maternal well-being depended on higher levels of education, better socioeconomic status, sufficient spousal support, planned pregnancy, and access to health services. In contrast, progression of maternal age and third-trimester development were found to be relatively lower in quality of life, especially in the physical and psychological aspects.

These results support the necessity to reconsider antenatal care beyond regular check-ups of medical services and implement a woman-centered, holistic approach that incorporates psychosocial screening, participation of a partner, and social support systems. The possibility to address modifiable social determinants in the course of pregnancy can not only improve the quality of life of the mother but also have a positive effect on pregnancy outcomes and future family health. Enhancing holistic antenatal care that focuses on physical and emotional health is critical in generating sustainable gains in maternal health care delivery.

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