



Original Article



Understanding the Interplay of Perceived Stress, Perceived Social Support and Quality of Life in Pregnant Females

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ARTICLE INFO

Keywords:

Perceived Stress, Social Support, Quality of Life, Perceived Stress Scale

How to Cite:Mushtaq, R., & Ahmad, A. (2024). Understanding the Interplay of Perceived Stress, Perceived Social Support and Quality of Life in Pregnant Females: Stress, Support and Pregnancy. *Pakistan Journal of Health Sciences*, 5(12), 238-243. <https://doi.org/10.54393/pjhs.v5i12.2486>***Corresponding Author:**Rabia Mushtaq
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ABSTRACT

The journey of pregnancy or motherhood is transformative, offering fulfillment and joy alongside natural concerns. This phase entails both physiological and emotional shifts, impacting quality of life. Social support enhances the quality of life by improving coping abilities to effectively deal with prenatal stress. **Objective:** To assess predictive association of perceived stress, perceived social support, and quality of life of pregnant women; and the mediating role of perceived social support in pregnant women's perceived stress and quality of life. **Methods:** This correlational cross-sectional study was conducted from December-2022 to January-2023 upon 150 pregnant females (\bar{x} -age 26.5 years) selected from gynae OPDs of different hospitals in Karachi, Pakistan through purposive sampling. Urdu versions of Perceived Stress Scale, Multidimensional Scale of Perceived Social Support and the Quality-of-Life questionnaire were used to collect the data. **Results:** The significant predictive association was found between perceived stress and quality of life ($R^2 = .17$, $\beta = -.108$, $p < .001$), and perceived social support and quality of life of pregnant women ($R^2 = .036$, $\beta = -.189$, $p < .001$). Furthermore, Mediation analysis showed that perceived social support partially mediated the association between perceived stress and QoL of pregnant women ($R^2 = .164$, $F = 15.64$, $p < .001$). **Conclusions:** It may be concluded that perceived social support positively predicts QoL, while perceived stress negatively predicts QoL in pregnant females. Moreover, PSS mediate the relationship between PS and QoL in this population. Policy making, targeted intervention and support from family, and health practitioners would help reduce the distress level and enhance QoL of pregnant females.

INTRODUCTION

Pregnancy is acknowledged as a challenging journey in the life of a woman navigating productivity, demanding substantial psychological adjustments [1]. Yet, it is frequently presented as an exciting time along with the distress [2]. Expectant mothers often experience apprehension about the uncertainties surrounding childbirth, parenthood, financial and professional adjustments, emotional challenges, and relationship with their partner [3]. These initial changes render them susceptible, both physically and mentally. Even during an uncomplicated pregnancy, these transformations can hinder a woman's capacity to fulfill her regular responsibilities [4]. QoL is a crucial concept that effectively captures both positive and negative elements contributing to the well-being of a population or individual

at a precise point in time. Perceived quality of life among women is crucial in the realm of perinatal well-being that covers physical, mental health, and societal aspects. PSS pertains to how individuals perceive the presence and sufficiency of their social connections as perception of social support during stressful periods can positively influence health by reshaping insights of risk, reducing anxiety, and enhancing managing skills [5]. Furthermore, the cognitive facets of social support might act as a protective barrier, mitigating the physiological response to stress [6]. The primary foundations of assistance for a pregnant woman, involving her partner, spouse, family, friends, midwife, and doctor, play a pivotal role in delivering essential aid. Numerous pregnant mothers encounter significant stress, often representing one of the most



profound challenges they will ever confront. Perceived stress refers to the emotions or mental perceptions a person experiences concerning the intensity of stress from a particular occasion or condition, either at an exact instant or in a period of time [7]. There is a complex and crucial link between pregnant women's social support and their quality of life throughout pregnancy. Pregnant women find solace in the supportive embrace of social networks, which have an impact on more than just companionship; it permeates the domains of emotional HEALTH, mental wellness, and general happiness. Both the mother's and the unborn child's well-being are impacted by the complex web of variables that is revealed when one examines the relationship between PSS and pregnancy QOL. Studies showed that when pregnant women have more social support, they have a better QOL in terms of their health [8]. Considering the notable prevalence of elevated stress levels reported among surveyed women, it is noteworthy to highlight that pregnancy necessitates a range of adjustments and encounters that contribute to heightened emotional susceptibility to psychosocial factors [7]. Stress manifests in daily life and is observable in regular interpersonal interactions. Numerous studies have individually investigated the connections between PSS, PS, and the QOL among pregnant women. However, this study stresses the position of examining collective impact of these variables within the context of this research. Furthermore, the study exclusively focuses on women experiencing their first pregnancies, as this cohort offers a diverse range of experiences within the interplay of these variables. As the literature on this specific intersection of PS, PSS, and QOL among pregnant women is relatively limited, so this research intends to fill this gap and provide significant new information to what is already known. The study designed to investigate predictive relationship among PSS, PS, and QOL. It was hypothesized that PSS would act as a mediator of PS and QOL.

METHODS

The correlational cross-sectional study was carried out from December 2022 to January 2023 upon 150 pregnant females with aged between 18-37 years ($M=26.5$; $SD=4.5$). The sample size was estimated through G*power software, which revealed a mandatory sample size of 150 participants to detect a medium effect size ($f^2 = 0.15$) with 80% power at $\alpha = 0.05$. Participants were approached from obstetric departments of various private and Government hospitals in the city of Karachi by using purposive sampling technique that was used to ensure the inclusion of participants with relevant experiences to address the study's objectives effectively. After getting endorsement from Ethical Review of Research Committee [Letter No: ICP-1(101) 5945] of the Institute of Clinical Psychology,

University of Karachi. Participants involved in the study willingly provided their consent by signing a form indicating their consent to take part in the research and they were given the freedom and right to opt out at any given time without facing any repercussions. Furthermore, it was emphasized that all data gathered during the study would be handled with confidentiality. The inclusion criteria of study focused on first-time expectant mothers and all trimesters to gain a comprehensive understanding of their unique journey. Pregnant women with existing health issues, such as heart problems or anemia and those with known conditions or taking medications were excluded from the research to focus on the impact of pregnancy, on participants that are medically fit specifically selected from this group to explore the unique challenges of first-time pregnancy in this age bracket. This research involved the administration of informed consent form, demographic form, and urdu versions of PSS [9, 10], MSPSS [11, 12], and QOL of Physiological Pregnancy Scale [13]. The Perceived Stress Scale consists of 10 items that was applied in evaluating stress levels present in people. The marking was done on a 5-point Likert questionnaire where the participants can respond on a 0 representing 'Never' to a 4 representing 'Very Frequently'. The cronbach's alpha reliability of scale is 0.89. The sum score ranges from 0-40 and as would be expected, higher scores reflect greater levels of perceived stress. The MSPSS is a brief assessment measure called the Multidimensional Scale of Perceived Social Support and specifically designed for measuring people's appraisal of the adequacy of available social support with reference to the care from family members, friends and significant other. The MSPSS is made up of 12 items and assesses perception of support using the Likert rating that includes Very Strongly Agree (7), Strongly Agree (6) Agree (5), Moderately Agree (4), Neutral (3), Moderately Disagree (2) and Very Strongly Disagree (1). Cronbach's alpha reliability of scale is .78. QOL in pregnant females was assessed using QOL of the Physiological Pregnancy Scale. The 9-items questionnaire aims to capture the physical, psychological, and social experiences that significantly impact the QoL of pregnant women. Cronbach's alpha reliability was .80. SPSS version 25.0 was used to analyze the variables of the study.

RESULTS

Table 1 outlined the demographic information of the participants of the study. It shows that 41.3% of the participants had qualification post Masters, 32% hold Master's degree while 16.7% completed graduation. A significant portion of the data showed that the participants were homemaker (i.e., 76.7%) and belonged to Middle (42%) to lower middle socioeconomic status (40%). 88.7% of the participants were from joint family system, and had no

history of abortions (i.e., 86.7%) and no miscarriages (i.e., 71.3%). 21.3% of the participants had their first trimester, 30.7% had second trimester, while 48% were in their third trimester of their pregnancies at the time of data collection. These demographic details offered a thorough insight into the characteristics of the individuals involved in the study.

Table 1: Demographic Characteristics of Participants (n=150)

Demographic Characteristics	N (%)
Education	
Middle	1(0.7%)
Matric	4(2.7%)
Intermediate	10(6.7%)
Graduation	25(16.7%)
Masters	48(32.0%)
Post-Masters	62(41.3%)
Occupation	
Student	9(6.0%)
Govt-Employees	3(2.0%)
Private job	20(13.3%)
Homemaker	115(76.7%)
Other	3(2.0%)
Socio-Economic Status	
Poor	11(7.3%)
Lower middle	60(40.0%)
Middle	63(42.0%)
Upper Middle	16(10.7%)
Family System	
Joint	133(88.7%)
Nuclear	17(11.3%)
Gestation Period	
First Trimester	32(21.3%)
Second Trimester	46(30.7%)
Third Trimester	72(48.0%)
Planning	
Yes	94(62.7%)
No	56(37.3%)
Abortion Times	
No	130(86.7)
Natural way	15(10.0%)
Medical way	5(3.3%)
Miscarriage Times	
No	107(71.3%)
Naturally	31(20.7%)
Medical way	12(8.0%)

Table 2 showed perceived social support with data that indicates the mean score of the sample of study and good internal consistency of the scale.

Table 2: Descriptive Statistics and Reliability Analysis of Perceived Stress Scale (PSS)(n=150)

Variable	Minimum	Maximum	Mean ± SD	Cronbach's Alpha
PSS	16	95	64.09 ± 15.22	0.914

*PSS(Perceived Stress Scale)

Table 3 showed perceived stress with data that indicates the mean score of the sample of study and good internal consistency of the scale.

Table 3: Descriptive Statistics and Reliability Analysis of Pain Scale(PS)(n=150)

Variable	Minimum	Maximum	Mean ± SD	Cronbach's Alpha
PS	0	69	18.47 ± 9.96	0.677

*PS(Pain Scale)

Table 4 showed quality of life with the data that indicates the mean score of the sample of study and good internal consistency of the scale.

Table 4: Descriptive Statistics and Reliability Analysis of Quality of Life(QOL)(n=150)

Variable	Minimum	Maximum	Mean ± SD	Cronbach's Alpha
QOL	17	44	33.67 ± 5.94	0.872

*QOL(Quality of Life)

Table 5 resulted showed that PSS has been found a statistically significant predictor of perceived QOL of the research participants. PSS accounts for 36% of the variance in outcome variable i.e., quality of life, and model demonstrates significance as ($R^2 = 0.036$, $\beta = 0.189$) ** $p < 0.001$.

Table 5: Linear Regression Analysis with the PSS as a Predictor of QOL of Pregnant Women(n=150)

Variable	Beta	SE	95% CI		B	p-Value
			LL	UL		
Constant	25.15	2.27	20.65	29.64	-	-
PSS	0.132	0.034	0.064	0.201	0.334	0.000**

** $p < 0.001$

* PSS(Perceived Stress Scale)

Table 6 resulted suggested that Perceived Stress (PS) has been found to be a statistically significant predictor of perceived QOL of the research participants. Perceived stress accounts for 17% of variance in outcome variable i.e., QOL, and the model demonstrates significance as ($R^2 = 0.017$, $\beta = 0.108$)** $p < 0.001$.

Table 6: Regression Analysis with the Perceived Stress as a predictor of Quality of Life of Pregnant Women(n=150)

Variable	Beta	SE	95% CI		B	p-Value
			LL	UL		
Constant	36.59	1.174	34.26	38.91	-	-
PSS	-0.146	0.054	-0.249	-0.042	-0.248	0.006*

* $p < 0.001$

* PS(Pain Scale)

Mediation analysis has been done with the Mediation Model (Model 4) using Hayes Process Macro to see mediation effect of PSS on association among PS and QOL. The indirect effect of PSS on QOL is significant; effect = -0.026, bootstrapped SE = 0.246, 95% CI [-0.0747 to -0.0024]. A direct effect of PS on QOL is also significant. This model

says that PSS mediates partially the association among PS and QOL (Table 7).

Table 7: Summary of Mediation affects PSS on the Relationship between PS and QOL (n=150)

Path	Coefficient	SE	CI	p-Value
Path a (PS-PSS)	-0.2210	0.1242	-0.466 to -0.024	0.024
Path b (PSS-QOL)	0.121	0.031	-0.059 to 0.182	0.007
Total Effect (c: PS → QOL)	-0.1894	0.049	-0.286 to -0.092	0.000
Direct Effect, c (PS → QOL)	-0.162	0.048	-0.257 to -0.068	0.000
Indirect Effect: a*b (PS → QOL)	-0.026	0.019	-0.075 to -0.002	-

* $p < 0.001$. Bootstrap Sample = 5000

* QOL (Quality of Life)

* PSS (Perceived Stress Scale)

* PS (Pain Scale)

Mediation analysis indicated the PSS is indirectly related to quality of life by its relationship with PS. As can be seen in Figure 1, perceived social support reported a high association with PS ($a = -0.2210$, $p = 0.024$) as compared to a lower relationship among PS and QOL ($b = 0.121$, $p = 0.007$). Based on 5000 bootstrap samples, a 95% bias-corrected confidence interval presented that the indirect effect ($c' = -0.162$) was entirely more than zero (-0.075 to -0.002). Moreover, perceived social support reported a higher quality of life even after considering the indirect effect of PS ($ab = -0.026$, $p = 0.000$) (Figure 1).

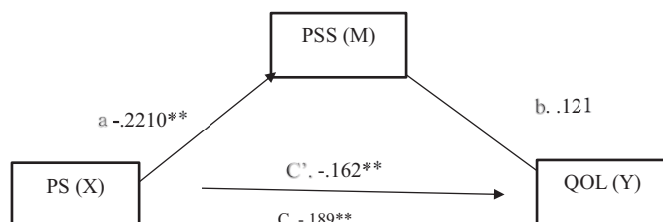


Figure 1: Mediation Model of PSS (M) on the Association between PS (X) and QOL (Y)

DISCUSSION

This study found predictive relationship of PSS and PS, on QOL and mediating effect of PSS on PS and QOL. The results revealed that PSS positively predicted QOL whereas perceived stress negatively predicted QOL. This indicated that pregnant ladies with high PSS will be able to reduce PS and have a better quality of physical, emotional, social, and functional life. The findings of this study is currently one of the few validations of this relationship as supported by the findings that pregnant women's PSS and QOL was measured and concluded that high social support enhances the health-related quality of life of women with pregnancy [8]. It further explored that pregnant women's observations of social support is found to be associated with lower levels of anxiety and other negative emotions while measuring life quality and satisfaction [14]. The

research findings are aligned with the study in which they investigated the immediate impact of social support on Health-Related QOL and explore mediating role of social support in correlation between PS and health related QoL throughout pregnancy [15]. The study unveils significant findings with implications for understanding these interconnections in their correlational study found that stress was contrariwise and significantly connected with social support and QOL [16]. Also, social support had a direct and significant correlation with the QOL. The study of revealed a notable negative relationship among the level of PSS and the extent of PS as well as positive relationship with enhancement of QOL of pregnant women [17, 18]. PSS throughout pregnancy enhanced women's overall evaluation of their experiences, as found that the ratio of difficulties to improvements in one's quality of life on a daily basis is inversely correlated with substantial social support [15]. Uplifts and good experiences in QOL occurred more often in groups with high levels of social support, but hassles occurred less frequently in groups with low levels of support [15]. The results of study also align to the study of in which they investigate the immediate impact of social support on Health-Related Quality of Life and found mediating role of social support in correlation between PS and QoL throughout pregnancy [15]. The study unveils significant findings with implications for understanding these interconnections. Moreover, studies have also revealed that pregnant women who get sufficient social support are more likely to be attentive to pregnancy-related changes, motivating them to adopt beneficial maternity care behaviors [19]. Studies also revealed that provision of support from health care providers significantly reduce anxiety regarding child care after delivery [20]. The study's limitations include the cross-sectional design, which captures data at a single point, hindering the assessment of evolving relationships among variables. Cultural influences and purposive sampling may limit the generalizability of findings, as the results may not apply to diverse cultural contexts. Additionally, shifts in perceived support, stress, coping mechanisms, and quality of life throughout pregnancy remain unexplored, highlighting the need for longitudinal research.

CONCLUSIONS

To sum up, this study showed that expectant women experienced different QOL depending on their psychological well-being that PSS was a positive predictor of QOL, and PS was a negative predictor of QOL. Moreover, perceived social support played a mediating role between PS and QOL in females with pregnancy. The findings suggest that improving perceived social support and reducing stress perceptions can further enhance the QOL of pregnant women.

Authors Contribution

Conceptualization: RM

Methodology: RM, AA

Formal Analysis: RM, AA

Writing, review and editing: RM, AA

All authors have read and agreed to the published version of the manuscript

Conflicts of Interest

The authors declare no conflict of interest.

Source of Funding

The author received no financial support for the research, authorship and/or publication of this article.

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