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Original Article

Health-related quality of life (HRQoL) and associated factors among pregnant women attendingthe Maternal and Child Health Clinic at the Government Hospital

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ABSTRACT

Background: Changes during pregnancy occur in physical, mental, spiritual and social dimensions and inall aspects of quality of life. However, less attention has beenpaid to mothers' health. The Short Form 36 Health Survey Questionnaire (SF-36) is used to assess health-related quality of life and associated factors among pregnant women. Although quality of life plays an important role in the health of pregnant women, fewstudies have been conducted in Nepal.

Methods: A cross-sectional quantitative study design was used. The data were collected via an interview schedule with a structured SF-36 questionnaire. Data entry and analysis were performed via a statistical software package for social sciencesversion 16. Descriptive statistics such as frequencies and proportions were used to describe the data. Bivariate analysis and multivariate analysis wereused to assess theassociations between the outcome variable and each independent variable.

Results:The results revealed that the mean age of the women was 24.64±3.8 yearsand 94.5% of the women had high health-related quality of life. According to the bivariate analysis, among the 293 respondents, thelevel of HRQL was significantly associated with ethnicity (p=0.046) in the general health domain, the durations of pregnancy (p=0.014), employment (0.042), and type of family (0.024) were significantly associated with the physical activity domain, respectively. According to the multivariate analysis, religion (0.046), duration of pregnancy (0.019), and education (0.016), and duration of pregnancy (0.009) were associated with vitality and social functioning domains, respectively.Similarly, the duration of pregnancy (0.037) was associated with role-limiting emotional health, and economic status (0.029) and duration of pregnancy (0.023) were significantly associated with mental health. Therefore, the duration of pregnancy is a common factor in all domains.

Conclusion: Pregnant women, who are in their second trimester, had aprimary level education and a higher economic status,and had good HRQoL. Women who achieve primary-level education are associated with mental health, vitality and social functioning. This study will help plan maternal and child care, as well as helppolicymakers and health care providers to understand the necessity of such care and improve the quality of life of pregnant women.

Keywords: Pregnant woman, quality of life, Hospital

INTRODUCTION

TheWorld Health Organization (WHO) defines quality of life as an individual's perception and belief of their status in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns[1].

Pregnancy is one of the most valuable, natural and vital stages of a woman's life, where the woman's body gradually undergoes various physiological and anatomical changes. The hormonal, emotional, psychological, and physical factors specific to pregnancy cause changes in the physical, mental,

social, and overall health dimensions of pregnant women during pregnancy and easily affect and threaten their quality of life.[2-5]Health-related quality of life(HRQOL) during pregnancy leads to adverse pregnancy outcomes for both the mother and the baby. Several studies suggest that QOL in pregnant women depends on socioeconomic, medical, and psychological factors [6].

Although quality of life plays a prominent role in pregnant women's health, minimal research examining quality of life during pregnancy is available throughout the world and quality of life assessment during pregnancy has been reported for specific diseases. Much less is known about the factors associated with greater declines in HRQoL during pregnancy [7,8].

Health-relatedquality of life (HRQOL) during pregnancy leads to adverse pregnancy outcomes for both the mother and the baby. Several studies suggest that QOL in pregnant women depends on socioeconomic, medical, and psychological factors. A previous study revealed that respondents' level of quality of life was highest in thepsychology domain (102,96.2%) and lowest in the physical domain (15,14.2%).HRQOL issignificantly associated with the age of pregnant women [6,9].

The quality of life of pregnant women is not improving in developing countries, and approximately 800 women die each day from preventable causes related to pregnancy and childbirth, where nearly all of these deaths (99%) occur in low-resource countries. To the best of our knowledge, few studies have been conducted in Nepal, since people's understanding of quality of life is under the influence of their beliefs and culture, the present study seems to be essential in our context.Nepal has made Substantial progress has been made in improving maternal health care access and utilization; however, disparities remain according to women's socioeconomic status, education level, and place of residence. Additionally, efforts are needed to improve the quality of maternal health care to prevent maternal deaths [10,11]. The main aim of this study is to identify the health-related quality of life and associated factors among pregnant women in the second and third trimesters.

METHODS

A cross-sectional research design was used among 293 pregnant women in the second and third trimesters of pregnancy in thereproductive age group of 15-49 years with singleton fetuses. The selection of pregnant women was purposeful.The inclusion criteria for womenin the second and third trimesters of pregnancy in the reproductive age group was15-49 years, with singleton fetuses attending the MCH clinic for antenatal visits at Koshi Hospital. The data were collected via an interview with a structured SF-36 questionnaire. The research instrument consisted of two parts: Part I: Questions related to socio-demographic characteristics and theobstetric characteristics of the mother, developed by the researcher herself. Part II: Questions consisted of a 36-Item Short Form Survey (SF-36-item questionnaire composed of a set of generic, coherent, and easily administered quality-of-life measures that rely upon patient self-reports. It taps eight health concepts: physical functioning, bodily pain, role limitations due to physical health problems, role limitations due to personal or emotional problems, emotional well-being, social functioning, energy/fatigue, and general health perceptions. Before data collection, ethical approval was obtained from the Institutional Review Committee, Tribhuvan University, Institute of Medicine, Kathmandu, Maharajgunj (Ref. no407(6-11)E2). Before data collection, permission was obtained from the relevant authority. Prior to data collection, informed consent was obtained from each respondent, and safety precautions were implemented at every stage of the study to protect the rights and well-being of the respondents. The respondents were given the option to withhold the interview at any time if they wished to do so. Confidentiality was maintained by using a code number.The timetaken for theinterview was 20-25 minutes for each respondent. The data collection process occurred in May and June of 2023. The obtained data were edited, coded, and organized before entry into the computer software system. Data entry and analysis were performed via the computer software Statistical Package for Social Sciences (SPSS) version 16. The collected data were analyzed via descriptive statistical methods, such as frequency, percentage, mean, and standard deviation. Additionally, inferential statistics with a p value <0.05 were considered statistically significant.

Demographic (age, educational level, occupational status) and obstetric (gravida, trimester of pregnancy) factors were considered potential independent variables. A nonparametric (chisquare) test was used to assess the associations between variables. All variables that showed significant associations during the bivariate analyses were entered into the multivariable logistic regression.

RESULTS

Table 1: Sociodemographic Characters tics of the PregnantWomen **n =293**

Characteristics	Number	Percentage
Age in completed years		
<20	9	3.1
21-30	263	89.8
>31	21	7.1
Mean age ± (SD)24.64(±3.8)		
Address		
Biratnagar	204	69.6
Out	89	30.4
Literacy status(Mother)		
Illiterate	27	9.2
literate/Primary	73	24.9
Secondary	121	41.3
Higher secondary	46	15.7
Bachelor	8	2.7
Post graduate and above	18	6.1
Family type		
Nuclear	79	27
Joint	214	73
Ethnicity		
Brahmin/chhetri	19	6.5
aadibasi/Janajati	55	18.8
Madhesi	161	54.9
Dalit	23	7.8
Muslim	35	11.9
Religion		
Hinduism	225	76.8
Buddism	24	8.2
Muslim	35	11.9
Chritianity	7	2.4
Others	2	0.7
Parity		
Primi	125	42.7
Multi	168	57.3
Trimester		
Second	122	41.6
Third	171	58.4
Economic Status		
Upper Middle	24	8.2
Lower Middle	50	17.1
Upper Lower	219	74.7

Table 1 shows that most of the respondents (89.8%) wereaged between 20to30 years, and 69.6%were from Biratnagar city. Less than half 41.3% of therespondents and 38.2% of their husbands had secondary-level education. More than half 54.9% werefrom joint families. More than half of the participants (54.9%) were of Madhesi ethnicity, among them76.8% were Hinduistic. With respect to economic status, the majority of the respondents (74.7) were from the upper lower class.

Table 2: Health-Related Quality of Life Scores of Pregnant Women n=293

Domains	High N(%)	Low N(%)	Mean±SD
General Health	276(94.2)	17(5.8)	83.02±1.63
Physical Activities	232(79.2)	61(20.8)	58.17±9.28
Role limitation Physical health	263(89.8)	30(10.2)	84.98±2.40
Role limitation emotional health	271(92.5)	22(7.5)	85.43±2.12
Vitality	112(38.2)	181(61.8)	51.38±1.12
Social Functioning	209(71.3)	84(28.7)	72.06±2.90
Bodily Pain	255(87.)	38(13.)	87.37±2.12
Mental Health	279(95.2)	14(4.8)	81.35±1.33
Total HQOL	277(94.5)	16(5.5)	75.47±1.03

Table 2 shows that 95.2% of the participants had high quality mental health, where as 38.2% had high quality in health. Similarly, women hadlow quality of life in terms of vitality and energy. Similarly, with the respect to general health 94.2% of women had high quality of life.

Table 3:Association between the level of Health-related Quality of Life of Pregnant Women and Selected Variables n=293

Variables	Level of HRQL		chi-square	*p value*
	Low F(%)	High F(%)		
	General Health			
Age Group				
≤ 25	9(5.8)	145(94.2)	0.001	0.974
>25	8(5.8)	131(94.2)		
Ethnicity				
TeraiMadhesi	6(3.7)	155(96.3)		
Aadibasi/Janajati	7(12.7)	48(87.3)	6.147	0.046*
Others	5(5.6)	72(94.4)		
Parity				
Primi	11(8.8)	114(91.2)	3.58	0.058
Multi	6(3.6)	162(96.4)		
Duration of Pregnancy				
2nd trimester	4(3.3)	118(96.7)	2.435	0.119
3rd trimester	13(7.6)	158(92.4)		

		Physical Activities		
Age Group				
≤ 25	34(22.1)	120(77.9)	0.312	0.576
>25	27(19.4)	112(80.6)		
Parity				
Primi	25(20)	100(80)	0.089	0.786
Multi	36(21.4)	132(78.6)		
Duration of Pregnancy				
2nd trimester	17(13.9)	105(86.1)	6.011	0.014*
3rd trimester	44(25.7)	127(74.3)		
		Role lmt Physical health		
Age Group				
≤ 25	17(11)	137(89)	0.226	0.634
>25	13(9.4)	126(90.6)		
Parity				
Primi	16(12.8)	109(87.2)		
Multi	14(8.3)	154(91.7)		
Duration of Pregnancy				
2nd trimester	7(5.7)	115(94.3)	0.944	0.331
3rd trimester	15(8.8)	156(91.2)		
Occupation				
Employment	22(8.8)	229(91.2)	4.15	0.042*
Unemployment	8(19)	34(81)		
		Bodily Pain		
Age Group				
≤ 25	24(15.6)	130(84.4)	1.967	0.161
>25	14(10.1)	125(89.9)		
Type of family				
Nuclear	16(20.9)	63(79.7)	5.084	0.024*
Joint	22(10.3)	192(89.7)		
Duration of Pregnancy				
2nd trimester	11(9)	111(91)	2.894	0.089
3rd trimester	27(15.8)	144(84.2)		

p value significant at *<0.05,***Other brahmin, muslim, dalit

Table 3 shows the associations between the level of health-related quality of life of pregnant women and the selected variables. Among the 293 respondents, the level of HROL in the general health domain was significantly associated with ethnicity (p=0.046). Similarly, the physical activity domainwas significantly related to duration of pregnancy (χ2=6.011, p=0.014), whereas age group (2=0.312 p=0.576) and parity (2=0.089 p=0.786)were not statistically significant. In terms of the level of HROL/role limitation in the physical health domain, the occupation status of the pregnant women was statistically significant (χ2=4.15, p=0.042). Among the 293 respondents' the healthrelated quality of life related to the bodily pain domain was significantly related to their type of family (χ2=5.084, p=0.024).

Table 4: Association between theLevel ofHealth-related Quality of Life of Pregnant Women and Selected Variables n=293

Variables	Level of HRQL		chi-square	*p value*
	Low	High		
	F(%)	F(%)		
		Vitality/Energy		
Age Group				
≤25	92(59.7)	62(40.3)	0.569	0.451
>25	89(64)	50(36)		
Religion				
Hindusim	132(58.7)	93(41.3)	3.966	0.046*
Non-Hindusim	49(72.1)	19(27.9)		
Education				
Iliiterate	21(77.8)	6(22.2)		
Primary	110(56.7)	84(43.3)	7.302	0.026
Higher secondary and above	50(70.4)	21(29.6)		
Duration of Pregnancy				
2nd trimester	85(69.7)	37(30.3)	5.521	0.019*
3rd trimester	96(56.1)	75(43.9)		
		Social functioning		
Age Group				
≤25	51(33.1)	103(66.9)	3.141	0.076
>25	33(23.7)	106(76.3)		
Parity				
Primi	40(32)	85(68)	1.183	0.277
Multi	44(26.2)	124(73.8)		
Education				
Iliiterate	8(29.6)	19(70.4)		
Primary	65(33.5)	129(66.5)	8.240	0.016*
Higher secondary and above	11(15.5)	60(84.5)		
Duration of Pregnancy				
2nd trimester	25(20.5)	97(79.5)	6.835	0.009*
3rd trimester	59(34.5)	112(65.5)		
	Role lmt Emotional health			
Age Group				
≤25	10(6.5)	144(93.5)	0.482	0.488
>25	12(8.6)	127(91.4)		
Duration of Pregnancy				
2nd trimester	12(9.8)	110(90.2)	0.848	0.037
3rd trimester	18(10.5)	153(89.5)		
Parity				
Primi	16(12.8)	109(87.2)	1.556	0.212
Multi	14(8.3)	154(91.7)		
		Mental Health		
Age Group				
≤25	9(5.8)	145(94.2)	0.811	0.368
>25	5(3.6)	134(96.4)		
Economic status				
Upper middle	7(9.5)	87(90.5)	4.769	0.029
Upper lower	7(3.2)	212(96.8)		
Duration of Pregnancy				
2nd trimester	2(1.8)	120(98.4)	3.422	0.023**
3rd trimester	12(7)	159(93)		

*p value issignificant at *<0.05, Fisher;s**exact test, Higher ***secondary and above: Bachelor ‘s and post graduate*

Table 4 illustrates the findings on associations between the respondents' level of health-related quality of life and the selected variables. HRQOL of vitality/ energy was significantly associated with duration of pregnancy ($\chi2$= 5.521, p= 0.019), whereas age ($\chi2$=3.141, p=0.076) and education status ($\chi2$=7.302, p=0.026) were not statistically significant. In terms of social functioning of the health-related quality of life (HRQOL), duration of pregnancy ($\chi2$=6.835, p=0.009) and education status ($\chi2$=8.240, p=0.016) were highly significantly associated with HRQoL. Similarly, role limitations in the emotional health domain/HRQOL were significantly associated with the duration of pregnancy ($\chi2$=0.848, p=0.037). Pregnant women withupper-middle economic status were found to be associated withthe mental health domain of HRQOL ($\chi2$=4.769, p=0.029). Similarly, the duration of pregnancy during the second trimester was significantly associated with thelevel of HRQOL in thememtal health domain ($\chi2$=3.422, p=0.023).

Table 5: Association between the level of health-related quality of life of Pregnant Women and demographic variables(multivariate analysis) n=293

Variables	Unadjusted OR	Adjusted OR	CI	*p value*
		Energy/Vitality		
Education				
Iliiterate	0.680	0.714	0.248-2.057	*0.533*
Primary	1.818	1.970	1.084-3.580	*0.026**
Higher secondary and above	Ref	Ref		
Religion				
Hindusim	1.817	1.972	1.082-3.661	*0.032**
Non-Hindusim	Ref	Ref		
Duration of pregnancy				
2nd trimester	0.557	0.538	0.325-0.891	*0.016**
3rd trimester	Ref	Ref		
		Social Functiong		
Education				
Iliiterate	0.435	0.444	0.154-1.279	*0.133*
Primary	0.364	0.357	0.175-0.731	*0.005**
Higher secondary and above	Ref	Ref		
Duration of pregnancy				
2nd trimester	2.044	0.486	2.057-1.188	*0.010**
3rd trimester	Ref	Ref		
		Mental Health		
Economy status				
Upper lower	0.316	0.308	0.103-0.920	*0.035**
Upper middle	Ref	Ref		
Duration of pregnancy				
2nd trimester	4.528	4.640	1.012-21.212	*0.048**
3rd trimester	Ref	Ref		

**Significant p value <0.05, OR=odds ratio, CI= confidence interval*

Table 5 shows the multivariate analysis of associationsbetween different domains of health-related quality of life of pregnant women with selected variables. In terms of the quality of life of pregnant women thosewith aprimary education have a greater quality of life (CI 1.084--3.580, p=0.0026) than women with ahigher level of education; likewise, women in the second trimester have a 0.5-fold greater quality of life (CI0.321--0.891, p=0.016) thanwomen in the third trimester. The number of women who are belongs to Hinduism religion is 1.9 times greater (CI 1.082--3.661, p=0.032) thanothers religious.Similarly, women's education and duration of pregnancy are significantly associated with the social functioning domain withwomen who have primary education in the second trimester 0.3, 0.4 times greater in quality of life (CI0.175--0.731, p=0.005, 2.057--1.188, p=0.010) than others.

Similarly, women'seconomic status and duration of pregnancyare associated with the mental health of women,have high quality of life where as women in the upper lower classandin the second trimester have 0.3- and 4.6-timesgreater quality of life (CI 0.103-0.420, p=0.035 and CI.012- 21-21-211, p=0.048) than women in other classes and during other trimesters.

DISCUSSION

The study findings show that most of the respondents (89.8%) were agedbetween 20 to30 years,mean age of the women was 24.64±3.8 whereas 69.6% werefrom Biratnagar city. A descriptive cross-sectional study conducted among 106 pregnant women revealed that the respondent's level of health-related quality of life was highest in the psychological domain 102 (96.2%), which is similar to the findings of the present study i.e., 95.2% had high-quality mental health, and the lowest level 15 (14.2%) was found in the physical domain[7].Similarly, in contrast to the present study, the quality of life of the pregnant women was low at 38.2% which contradicts the findings of the present study, where the participants reported higher scores in the vitality domain (56±11), followed by mental health (51±10) and general health (50±11)[12].

In a study conducted in Ghana among antenatal women, the prevalence of psychological symptoms was 37% and 59% (low QoL) [1] for the 2nd and 3rd trimesters, respectively[14], which is similar to the findings of this study, as HRQoL is better in the second trimester than in the third trimester[14].

This cross tabulation study revealed an association between health-related quality of life and selected variables. In this study, an association was sought between the level of general health quality of life and selected variables, such as age, ethnicity, parity and duration of pregnancy. Ethnicity was these ethnicity is significantly associated with quality of life (χ2= 6.147, p=0.046). The other variableswere age group (χ2=0.001, p=0.974), parity (χ2=3.58, p=0.058), and duration of pregnancy (χ2=2.435, p=0.119) which were not significantly associatedwith quality of life.An association was sought between the level of physical activity quality of life and selected variables, such as age group, parity and duration of pregnancy. Among these factors,a significant association was found with the duration of pregnancy (χ2=6.011, p=0.014). The findings of this study contradict those ofthe study conducted in Kathmandu, where the duration of pregnancy was not significantly associated with QOL (p=0.999).[9] Other variables, such as age group (χ2=0.312, p=0.576) were not significantly associated with quality of life. This finding was contrasts with that of a study conducted in Kathmandu, Nepal which revealed that age was a statistically significantly associated with the physical domain of HRQOL(p=0.003)[7]. The present study revealed that parity (χ2=0.089p=0.786) had no significant effecton the HRQOL during pregnancy. The findings of this study is contradict those of astudy conducted in Kathmandu, Nepal, where only parity (p=0.585) had a significant effect on HRQOL.[9]

In the present study, an association was sought between the level of role limiting physical health and selected variables, such as age group, occupation, parity and duration of pregnancy. Among these variables, a significant association was found between the occupation status of mothers (χ2=4.15, p=042) and other variables, such as age group (χ2=0.226, and duration of pregnancy (χ2=0--944, p=0.331), but no significant associations were detected. An association was sought between the level of bodily pain and quality of life with variables such as age, type of family and duration of pregnancy. Among these variables, a significant association was found with the type of family (χ2=0.526, p=0.024), whereas other variables, such as age, marital status (χ2=1.967, p=0.161), and the nature of the job (χ2=2.894, p=0.089)weresignificantly associated. An association was sought between the level of quality of life and selected variables,such as age, education level and duration of pregnancy. Among these variables, a significant association was found with duration of pregnancy (χ2=5.521, p=0.019) and education (χ2=7.302, p=0.026), whereas other variables, such as age group (χ2=0.569, p=0.451) andreligion (χ2=0.569, p=0.451) were significantly associated.

In the present study, an association was sought between the level of social functioning and quality of life with selected variables such as age, parity, education and duration of pregnancy. Among these factors,a significant association was found with educational level (χ2=8.240, p=0.016). Similarly,

duration of pregnancy ($\chi2$=6.835 p=0.009) was also significantly associated with quality of life, whereas findings contradict those of Poudel and Deuja, who reportedthat duration of pregnancy (p=0.999) was not significantly associated with quality of life[9]. Other variables, such as age group ($\chi2$=3.141, p=0.076) andparity ($\chi2$=1.183, p=0.277) were not significantly associated with quality of life. This finding was similar to that of a study performedin Nepal, which revealed that age (p=0.581) and parity (p=0.079) were notsignificantly associated with quality of life.[9]

When an association was sought between the level of role-limiting emotional health and quality of life, with selected variables such as age, parity and duration of pregnancy.Among these factors, a significant association was found with duration of pregnancy ($\chi2$=0.848, p=0.037). In the present study, an association was sought between the level of mental health quality of life and selected variables, such as age, economic status and duration of pregnancy. Among these variables, economic status ($\chi2$=4.769, p=0.029) and duration of pregnancy ($\chi2$=3.422, p=0.023)were significantly associated, whereas other variables, such as age group ($\chi2$=0.811, p=0.368) were significantly associated. These findings are similar to those of astudy conducted in Colombia where the most consistent dimensions were socioeconomic level and marital status indicating that having a higher household socioeconomic level was significantly correlated with higher scores for physical role, general health, social functioning, emotional role, and mental health [12].

It was difficult to compare the association between the level of HRQOL and selected variables by using the findings of earlier studies, as they used different study tools and did not find sufficient studies. The main factors associated with better QoL were maternal age, primi parity, early gestational age, the absence of social and problems, having family and friends, doing physical exercise, feeling happyat pregnancyand being optimistic. The main factors associated with poorer QoL are medically assisted reproduction, complications before or during pregnancy, obesity, nausea and vomiting, andback pain[13.]

CONCLUSION

The findings of the study revealed that pregnant women have good health-related quality of life. Pregnant women who are in the second trimester have a better quality of life than those in the third trimester. Similarly, pregnant women who achieve the primary level of education have a better quality of life, which is associated with the domains of mental health, vitality and social functioning. Similarly, pregnant women with a low economic status have a lower quality of life than do those with a higher economic status. It is essential that increasing the economic status of pregnant women can improve their quality of life.

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