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Original Article

Predictors Related to Quality of Life in Pregnant Women

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Abstract

Background: Assessment of quality of life (QoL) during pregnancy can be a starting point for streamlining and promoting the humanization of evidence-based healthcare. We aimed to determine the life quality in pregnant women and its predictors.

Methods: A cross-sectional study was conducted on pregnant women from Slovakia from March 2020 to January 2021. A method of purposive sampling was used. The research sample consisted of 393 women (age 29.11±4.65) with physiological pregnancy. Questionnaire method was used. The first part of the questionnaire consisted of a set of questions focused on identification items, which also represented the investigated predictors. The second part was the standardized questionnaire "Quality Of Life-Gravidity Questionnaire"(QOL-GRAV), with Cronbach's alpha value of 0.74. The received data were analysed using descriptive and inferential statistics.

Results: The average life quality score was 18.79±5.04, which oscillates at the level of very good life quality. The lower life quality was recorded in connection with physical changes, satisfaction with social life, concerns about childbirth management failure and a need for physical activity reduction. Education (P=0.008), course of pregnancy (P=0.001), support from healthcare professionals (P=0.003) and concerns about COVID-19 (P=0.001) were the predictors of life quality.

Conclusion: The proven significant predictors of life quality of pregnant women have shown that healthcare professionals should pay increased attention to the pregnant women with higher education and with problematic pregnancy, positively support and motivate pregnant women and be even more attentivedue to the current COVID-19 pandemic.

Keywords: Quality of life; Predictors; Pregnancy; Public health; Healthcare

Introduction

Although pregnancy is a physiological phenomenon, it is a period of life that requires serious biological and psychosocial adjustment of women to new circumstances. It is a period that can positively or negatively affect the QoL of women (1).

QoL is perceived as a consequence of the interaction of a number of different factors (social, health, economic or environmental) that interact with each other and thus affect the human development of the individual as well as society as a

whole. It reflects the evaluation of the impact of all areas of life on the general well-being and satisfaction of the individual and not only those related to health (2). Pregnancy reduces the QoL of women (3, 4). Assessment of QoL in pregnancy is important due to physiological changes in the female body (physical, hormonal, emotional, psychological) (5, 6), which might endanger the life quality and health of even those women who have pregnancy without complications (3).

The effects of reduced QoL in pregnant women have been found to contribute to higher gestational weight gain (7), body dissatisfaction (8), fatigue, back and pelvic pain (9), stress, anxiety, depression (3, 6), as well as to low QoL in the postnatal period (10). Decreased QoL during pregnancy not only affects the mother herself, but can also have adverse consequences for the child (3), as it is associated withlow birth weight of the newborns (11), affects the quality of a secure attachment, which in turn may affect the child's short-term and long-term psychological well-being and development (12, 3) as well as his social, emotional and cognitive adaptation (13). Low QoL can have a potential impact on both short-term and long-term public health outcomes (14).

We aimed to find out the QoL of women during pregnancy and its predictors.

Methods

A quantitative cross-sectional study was chosen for this study. The research was conducted from March 2020 to January 2021 in three Gynaecological Outpatient clinics of the Slovakia in the region of Žilina Town.

The sample group consisted of 393 respondents (mean age 29.11±4.65) who had fulfilled the following inclusion criteria: a woman with physiological pregnancy, age over 18 years. A method of purposive sampling was used.

The combined method of questionnaire administration was chosen. The questionnaire could be completed in either print or electronic form. Those pregnant women who had agreed to participate in the research study signed an informed consent. The respondents filled in the questionnaires in printed form in writing during their prenatal counselling at the outpatient clinics and placed them into a marked collection box reserved for this purpose. The respondents who decided to complete the questionnaire in electronic form provided an e-mail address to which a survey link to the online questionnaire was subsequently sent. A total of 450 questionnaires were distributed, with a response rate of 89.33%. Out of a total of 402 completed questionnaires, 9 questionnaires were excluded due to their non-compliance with the inclusion criteria.

An empirical method of data collection was used. The Quality Of Life-Gravidity (QOL-GRAV) standardized questionnaire was supplemented by the questions of our own design. These supplemented questions, focused mainly on the characteristics of the research group, also represented the investigated predictors in relation to QoL.

The QOL-GRAV used is a specific, screening and valid tool aimed at assessing the QoL in pregnant women (15). QOL-GRAV has been constructed and validated in the Czech Republic and the original Czech version of the questionnaire was translated into the Slovak language under the cooperation of several Slovak language experts. To maintain equivalence of the questionnaire in the Slovak language, the method of back-translation was applied which is considered the gold standard for quality assurance in the process of cross-cultural adaptation of research. The proximity of the Slovak and Czech culture, language similarity, genetic relationship and structural similarity resulting from the long period of the common state, served as a natural prerequisite for the possibility of questionnaire use in the Slovak Republic.

QOL-GRAV, using 9 questions rated on a 5-point Likert scale, provides an opportunity to capture more sensitively and accurately the extent of specific experience during physiological pregnancy (in the domain of physical, psychological and social relationships) that fundamentally affect the QoL of pregnant women. The lower the score, the higher the quality of life. Based on the

total score, the QoL was evaluated as excellent (9–18 points), very good (19–27 points), good (28–36 points), not very good (37–45 points). The Cronbach α QOL-GRAV questionnaire was 0.74.

The data were analysed and processed using SPSS ver. 22 Software (IBM Corp., Armonk, NY, USA). Descriptive statistics were used to describe the basic characteristics and inferential statistics procedures were used to identify QoL predictors. Prior to further analysis, the Kolmogorov-Smirnov normality test was used to test the normal distribution of our data. As the normal distribution was not confirmed, the non-parametric statistical analyses were used using the Kruskal-Wallis test and the Mann-Whitney test, respectively. The p-value of <0.05 was considered statistically significant. For the estimation of reliability we used Cronbach alpha estimates of internal consistency.

Ethical approval

The study was approved by the Ethics Committee of the Žilina, Slovakia (Number EC: 02937/2020/OZ-01). The data collection was anonymous, and all participants expressed their willingness to be included in the study, attaching their informed consent.

Results

Based on the total number of points, high QoL was recorded in 52.93% of women, very good in 41.48%, good in 5.34% and not very good in 0.25% of women.

The average QoL score achieved was 18.79±5.04, which represents a very good quality of life (Table 1).

Table 1: QoL of pregnant women

Quality of life	*N*	*%*
Excellent	208	52.93
Very good	163	41.48
Good	21	5.34
Not very good	1	0,25
Total	393	100

Based on the total score, the QoL was evaluated as excellent (9–18 points), very good (19–27 points), good (28–36 points), not very good (37–45 points)

The highest mean scale scores, which represent a lower quality of life, were found in the following questionnaire items: physical changes (2.47±0.93), satisfaction with social life (2.38±0.99), concerns of childbirth management failure (2.36±1.14) and a necessity for physical activity reduction (2.32±1.14) (Table 2).

Table 2: Descriptive characteristics of individual items of the QOL-GRAVquestionnaire

Questions (QOL-GRAV)	*1*	*2*	*3*	*4*	*5*	*x*	*SD*	*Med*
	N	*N*	*N*	*N*	*N*			
	%	*%*	*%*	*%*	*%*			
Restrictions related to physical changes	56	154	134	42	7			
	14.25	39.19	34.10	10.69	1.78	2.47	0.93	2
Restrictions related to psychical changes	166	145	66	12	4			
	42.24	36.90	16.79	3.05	1.02	1.84	0.88	2
Concerns about household care failure	190	126	51	24	2			
	48.35	32.06	12.98	6.11	0.51	1.78	0.93	2
Concerns about failure to deliver the foetus successfully	167	130	44	36	13			
	42.49	33.84	11.20	9.16	3.31	1.97	1.10	2
Concerns about birth giving failure	103	130	95	45	20			
	26.21	33.08	24.17	11.45	5.09	2.36	1.14	2
Necessity to restrict physical activity	110	131	89	44	19			
	27.99	33.33	26.65	11.20	4.83	2.32	1.14	2
Satisfaction with partnership	198	139	46	6	4			
	50.38	35.37	11.70	1.53	1.02	1.67	0.82	2
Satisfaction with social life	69	179	77	63	5			
	17.56	45.55	19.59	16.03	1.27	2.38	0.99	2
Satisfaction with adaptation to pregnancy	103	213	53	20	4			
	26.21	54.20	13.49	5.09	1.02	2.01	0.83	2

1 – not at all; 2 – moderate; 3 – average; 4 – very; 5 – to a great extent

Statistically significant differences in the QoL of pregnant women were demonstrated according to education (*P*=0.008), course of pregnancy (*P*=0.001), support from healthcare professionals (*P*=0.003) and concerns about COVID-19 (*P*=0.001).

Statistically significant differences in the QoL of pregnant women were not demonstrated according to age (*P*=0.494), trimester (*P*=0.390), parity (*P*=0.177) and child planning (*P*=0.143) (Table 3).

Table 3: Predictors of QoL

Age (yr)	***N***	***%***	***Mean (SD)***	***Median***	***P***
18-20	12	3.05	16.67 (±5,82)	15.50	
21-30	236	60.05	18.75 (±4,91)	18.00	
31-40	141	35.88	19.09 (±5,18)	18.00	
41-50	4	1.02	17.00 (±4,90)	17.00	0.494[a]
Education					
Primary	5	1.3	16.00 (±4,06)	18.00	
Secondary	166	42.2	18.02 (±5,10)	17.50	
University	222	56.5	19.43 (±4,93)	19.00	0.008[a]
Trimester					
1st	45	11.45	19.42 (±5.05)	19.00	
2nd	69	17.56	19.41 (±5.06)	18.00	
3rd	279	70.99	18.54 (±5.02)	18.00	0.390[a]
Parity					
Primiparas	120	30.54	18.19 (±4.88)	18.00	
Multiparas	273	69.46	19.05 (±5.09)	18.00	0.177[b]
Child planning					
Yes	315	80.15	18.59 (±4.92)	18.00	
No	78	19.85	19.60 (±5.45)	19.50	0.143[b]
Course of pregnancy					
Without problems	313	79.64	18.00 (±4.57)	18.00	
With problems	80	20.36	21.89 (±5.59)	21.50	0.000[b]
Partnership					
Yes	385	97.96	18.74 (±5.02)	18.00	
No	8	2.04	21.38 (±5.53)	21.50	0.163[b]
Support from health professionals					
Yes	237	60.31	18.01 (±4.38)	18.00	
No	156	39.69	19.97 (±5.71)	19.00	0.003[b]
Concerns about COVID-19					
Not at all, moderate	220	55.98	17.72 (±467)	17.00	
Average	122	31.04	19.30(±4.89)	19.00	
Very, to a great extent	51	12.98	22.18 (±5,28)	22	0.000[a]

[a]Kruskal-Wallis test; [b]Mann-Whitney U test

Discussion

According to the studies that examined the QoL of women with physiological pregnancies using QOL-GRAV (16-18), the QoL was at a very good level, which correlates with the findings of our study (Table 1). We assume that knowledge of how a particular pregnant woman evaluates

the quality of her life during physiological pregnancy could lead to a significant increase in the effectiveness of pregnant women care and their subjective well-being provided by healthcare professionals.

The physical area is the most affected QoL domain during pregnancy (19,20), which is comparable to our results. The highest mean scale values were recorded in the questionnaire items of pregnancy-related physical changes that limited most women (Table 2). It is important to comprehend and adapt to the normal physiological changes that occur during pregnancy. Practicing physical activity during pregnancy is also related to physical area. Several studies (21, 22) have shown insufficient physical activity in pregnant women, which is also confirmed by our results, according to which most women reduced their physical activity during pregnancy. Regular physical activity during pregnancy is not only safe for the mother and foetus, but also improves key pregnancy outcomes. A positive relationship between physical activity and the QoL of pregnant women has been demonstrated (23). In the light of these findings, it is essential to inform and motivate pregnant women to exercise regularly as this might enable them to improve their physical and mental well-being.

Another research item with the recorded higher average scale values was the item related to satisfaction with social life. It must be emphasized that a woman, though being pregnant, still constitutes an integral part of a community. It would be appropriate to create a comprehensive model of care for pregnant women, which would also foster their social life interactions. Also, the higher average scale values were in the item on concerns about the childbirth management failure, which were expressed by the majority of respondents. The fear of childbirth seems to be related to the emotional well-being of women, stress, and impact on daily life (24).

The connection between education and the QoL of pregnant women has been demonstrated (6, 11). Education as a significant predictor of QoL has also been shown in our study. An interesting finding is the lower QoL for women with university education, then for women with secondary education and the highest for women with basic education, which may be influenced by the perception of lower self-concept during pregnancy in women with a higher education (Table 3). This has been confirmed by a study (25), showing that pregnant women with higher education were more affected by low self-esteem. On the contrary, another study (17) has concluded that the more educated women were, the more satisfied they were with their quality of life.

Problems during pregnancy such as nausea, fatigue, pelvic / back pain have been shown to be related to the lower QoL of pregnant women (9, 26). The course of pregnancy has been proved to be another significant predictor of QoL in our study (Table 3). Those women who showed problematic pregnancies in our research reported the following most common problems: fatigue, nausea, low back pain. More severe nausea can affect the daily social lives of pregnant women, as well as their relationships and QoL (27).

Support from healthcare professionals has been shown to be another important predictor of the QoL of pregnant women (Table 3). Every woman has the right to dignified and respectful health care during pregnancy. It is possible to identify vulnerable women in the prenatal period and subsequently implement supportive or educational interventions that would lead to better health outcomes as well as better QoL in the short-term period (14). When providing care for pregnant women, it is important to focus not only on physical but also psychosocial factors in terms of supporting pregnant women to successfully manage the changes, to maintain overall health and mental well-being. Healthcare professionals can play a significant role in improving the QoL of pregnant women through their professional approach, awareness and positive support for pregnant women. Individual and holistic support for a pregnant woman and her relatives provides a basis for planning and implementing measures to improve the health-related QoL (28).

Concerns and fears related to the pandemic have been shown to be negatively related to the QoL of pregnant women (29). Concerns about

COVID-19 have been identified in our study as another significant predictor of the QoL of pregnant women (Table 3). The change in lifestyle due to COVID-19 infection has put a psychological burden on pregnant women because they have been more exposed to anxiety and uncertainty during pregnancy than ever before. Ravaldi et al. (30) examined the psychological effects of a pandemic on pregnant women and found a significant change in their expectations regarding pregnancy and childbirth, as well as an increase in their fears and anxieties, especially if they had psychological difficulties in the past. In another study (31), women were particularly concerned about the risk of COVID-19 infection and the subsequent complications involving themselves as well as the foetus, and were more likely to complain of insufficient prenatal support. In connection with pandemic as well as other socially risky periods, it is important for healthcare professionals to place emphasis on prenatal support, effective communication and specially to strengthen interventions to support the mental health of pregnant women.

Other predictors such as age, trimester, parity, pregnancy planning (17, 26), partnership (3) have also been found to be related to quality of life. These, however, were not statistically significant in our study.

The given results and findings are to be interpreted with respect to thecertain limitations inherent to the nature of our research. In our case, it was a purposive sampling of participants, as a result of which it is possible to interpret and generalize the conclusions only to the research sample group. Further study limitations can be seen in the uneven distribution of the research sample when comparing quality of life, which could have distorted the results. Some other factors (e.g. socio-economic) may have played a more important role in assessing QoL than those which we have examined. Despite these limitations, we believethat the study has come to challenging and compelling results for our socio-cultural space. The results of this study may be inspiring for healthcare professionals in prenatal care as well as for policy makers as a basis for proposing appropriate interventions in order to improve the QoL of pregnant women and their children, whose health should be considered one of the health services' priorities.

Conclusion

Despite the proven positive results found in the QoL of pregnant women, it is desirable to stimulate the healthcare professionals to further explore the QoL also in the group of women with physiological pregnancy, which is important in planning individual and specific mother and child care aimed at improving health-related quality of life. Given the proven predictors, it is important to focus on women with higher education, with problems during pregnancy, to emphasize support from healthcare professionals, and to pay an increased attention to women in connection with the COVID-19 pandemic. Assessing the QoL of pregnant women and implementing innovative practices can streamline and support evidence-based humanised care.

Journalism Ethics considerations

Ethical issues (Including plagiarism, informed consent, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc.) have been completely observed by the authors.

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Conflict of interest

The authors have no conflicts of interest to declare.

References

1. Wilhelmova R, Hruba D, Vesela, L (2014). Key Determinants Influencing the Health Literacy of Pregnant Women in the Czech Republic. *Zdr Varst*, 54(1):27-36.
2. Calou C, Pinheiro A, Castro R, et al (2014). Health Related Quality of Life of Pregnant Women and Associated Factors: An Integrative Review. *Health*, 6(18):2375-387.
3. Lagadec N, Steinecker M, Kapassi A, et al (2018). Factors influencing the quality of life of pregnant women: a systematic review. *BMC Pregnancy Childbirth,* 18(1):455.
4. Daglar G, Bilgic D, Ozkan SA (2020). Determinants of quality of life among pregnant women in the city centre of the Central Anatolia region of Turkey. *Niger J Clin Pract,* 23(3):416-424.
5. Morin M, Vayssiere C, Claris O, et al (2017). Evaluation of the quality of life of pregnant women from 2005 to 2015. *Eur J Obstet Gynecol Reprod Biol,* 214:115-130.
6. Estebsari F, Kandi ZR, Bahabadi FJ, et al (2020). Health-related quality of life and related factors among pregnant women. *J Educ Health Promot,* 9:299.
7. Altazan AD, Redman LM, Burton JH, et al (2019). Mood and quality of life changes in pregnancy and postpartum and the effect of a behavioral intervention targeting excess gestational weight gain in women with overweight and obesity: a parallel-arm randomized controlled pilot trial. *BMC Pregnancy Childbirth,* 19(1):50.
8. Riquin E, Lamas C, Nicolas I, et al (2019). A key for perinatal depression early diagnosis: The body dissatisfaction. *J Affect Disord*, 245: 340–7.
9. Bai G, Raat H, Jaddoe VWV, et al (2018) Trajectories and predictors of women's health-related quality of life during pregnancy: A large longitudinal cohort study. *PLoS One,* 13(4):e0194999.
10. Fobelets M, Beeckman K, Buyl R, et al (2018). Mode of birth and postnatal health-related quality of life after one previous cesarean in three European countries. *Birth*, 45(2):137-47.
11. Wang P, Liou SR, Cheng CY (2013). Prediction of maternal quality of life on preterm birth and low birthweight: a longitudinal study. *BMC Pregnancy Childbirth*, 13:124.
12. De Falco S, Emer A, Martini L, et al (2014). Predictors of mother-child interaction quality and child attachment security in at-risk families. *Front Psychol*, 5:898.
13. Dexter CA, Wong K, Stacks A, et al (2013). Parenting and attachment among low-income African American and Caucasian preschoolers. J Fam Psychol**,** 27(4):629-38.
14. McNeil DA, Vekved M, Dolan SM, et al (2012) Getting more than they realized they needed: a qualitative study of women's experience of group prenatal care. *BMC Pregnancy Childbirth*, 12:17.
15. Vachkova E, Jezek S, Mares J, et al (2013). The evaluation of the psychometric properties of a specific quality of life questionnaire for physiological pregnancy. *Health Qual Life Outcomes*, 11:214.
16. Dotlic J, Terzic M, Janosevic S, et al (2012). Health related quality of life during pregnancy. *Healthmed J,* 6:990–6.
17. Ishaq R, Shoaib M, Baloch NS,et al (2022). Profile and Predictors of Maternal Quality of Life During Physiological Pregnancy: A Cross-Sectional Analysis. *Front Public Health*, 9:801035.
18. Paudel R, Deuja A (2021). Health Related Quality of Life of Pregnant Women Attending Antenatal Clinic of a Tertiary Level Hospital. *Europasian J Med Sci*, 3(1):47-2.
19. Tendais I, Figueiredo B, Mota J, et al (2011). Physical activity, health-related quality of life and depression during pregnancy. *Cad Saude Publica*, 27(2):219-28.
20. MoghaddamHosseini V, Gyuró M, Makai A, et al (2021). Prenatal health-related quality of life assessment among Hungarian pregnant women using PROMIS-43. Clin *Epidemiol* Glob Health, 9:237-244
21. Ruifrok AE, Althuizen E, Oostdam N, et al (2014). The relationship of objectively measured physical activity and sedentary

behaviour with gestational weight gain and birth weight. *J Pregnancy*, 2014:567379.
22. Sallis JF, Bull F, Guthold R, Heath GW, et al (2016). Progress in physical activity over the Olympic quadrennium. *Lancet,* 388(10051):1325-336.
23. Boguszewski D, Adamczyk JG, Tomaszewski W, et al (2017). Evaluation of the Health-related Behaviour of Pregnant Women from Warsaw, Poland. *Iran J Public Health*, 47(1):57-63.
24. Klabbers GA, Javbh H, Mavdh M, et al (2016). Severe fear of childbirth: Its features, assesment, prevalence, determinants, consequences and possible treatments. *Psychological Topics,* 25(1):107–27.
25. Rodrigues BC, Mazza VA, Higarash BC (2014). Social support network of nurses for the care of their own children. *Texto&ContextoEnfermagem,* 23(2):460-468.
26. Chang SR, Chen KH, Lin MI, et al (2014). A repeatedmeasures study of changes in health-relatedquality of lifeduringpregnancy and therelationshipwithobstetricfactors. *J Adv Nurs,* 70(10):2245-56.
27. Calou CGP, de Oliveira MF, Carvalho FHC, et al (2018). Maternal predictors related to quality of life in pregnant women in the Northeast of Brazil. *Health Qual Life Outcomes*, 16(1):109.
28. Dorazilová R (2020) Komunitní a primárni péče v porodníasistenci. (Community and primarycare in midwifery). *Porodníasistence (Midwifery),* Ed, M Procházka Maxdorfs.r.o., Praha, 2020. [in Czech].
29. Dule A, Hajure M, Mohammedhussein M, et al (2021). Health-related quality of life among Ethiopian pregnant women during COVID-19 pandemic. *Brain Behav*, 11(4):e02045.
30. Ravaldi C, Wilson A, Ricca V, et al (2021). Pregnant women voice their concerns and birth expectations during the COVID-19 pandemic in Italy. *Women Birth,* 34(4):335-343.
31. Haruna M, Nishi D (2020). Perinatal mental health and COVID-19 in Japan. *Psychiatry Clin Neurosci,* 74(9):502-503.