Original research article

Measuring women's quality of life during pregnancy

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ABSTRACT

The aim of this study was to find out the quality of life of women during pregnancy, which areas of quality of life are the most risky, and to determine the impact of age, parity and period of pregnancy on the quality of life of pregnant women.

The work is a quantitative cross-sectional study. The QOL-GRAV standardized questionnaire was used to assess the quality of life of women during pregnancy. The study consisted of 304 pregnant women (mean age of 27 ± 4.95 years) with a physiological pregnancy. Data were analyzed using descriptive statistics, Pearson's correlation coefficient ($p < 0.005$) and variance analysis (ANOVA) ($p < 0.05$).

The quality of life during pregnancy has proven to be very good and excellent. The most risky areas of quality of life have been expressed in the partner life satisfaction, physical changes causing limitations, physical activity limitations, and the fears of managing labor. There were no statistically significant differences in the quality of life in relation to age, parity and period of pregnancy.

Assessing quality of life is important in terms of timely preventive measures during pregnancy and should lead to an increase in the quality of care for pregnant women and their well-being, with emphasis on the health of pregnant women.

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Introduction

Pregnancy puts great demands on the body of a woman that pose psychic, somatic and often also social burden. A woman's experience is individual and depends on a number of factors and circumstances that affect the health and quality of life of mothers to various degrees. Evaluation of quality of life is currently becoming a relatively separate interdisciplinary area [1]. Quality of life includes various aspects such as health, physical comfort, and mental and social dimension [2]. As the main indicators of quality of life, Sováriová Soósová [3] mentions the demographic predictors such as age and sex; the socio-economic characteristics such as education and social status; cultural influences and values; health factors such as functional status; health care services and personality traits. Quality of life in pregnancy is of great importance. Abbaszadeh et al. [2] report that women's vitality is reduced

during pregnancy, leading to a decrease in quality of life even during normal pregnancy. According to Mogos et al. [4], women's health should be assessed based on the improvement of the quality of life. In recent decades, the concept of quality of life has been used more and more by researchers, particularly in the area of healthcare. At present, the evaluation and measurement of quality of life provides important information on the health status of different populations [5]. Assessing quality of life is important in terms of prevention and treatment programs used during pregnancy [6].

The aim of this study was to find out the quality of life of women during pregnancy, which areas of quality of life are the most risky, and to determine the influence of age, parity and the period of pregnancy on the quality of life of pregnant women.

Materials and methods

For this research, the design of a cross-sectional quantitative study was chosen and carried out on the basis of a questionnaire survey. The standardized QOL-GRAV questionnaire, focused on assessment of quality of life of pregnant women, was used to gather relevant data and to achieve the goals set. Based on the consent given by the author of the questionnaire, Vachková [7], this questionnaire, specified for the use in pregnancy and of a screening character, was used. The original Czech version of the questionnaire was translated into the Slovak language. The questionnaire has not been validated in the Slovak language, but has been validated in the Czech language. The cultural specification in translating a questionnaire from Czech into Slovak was achieved by the method of backward translation in cooperation with several Slovak language experts. Subsequently, a backward translation into the source Czech language was created in cooperation with several Czech language experts, where the translators did not know the original version of the questionnaire in the Czech language. We have produced several versions of the translation (mutually independent) that were mostly the same.

Identification items (age, trimester, parity, problems during pregnancy) needed for the characteristics of the research file were included in the introduction of the questionnaire. The questionnaire consisted of 9 questions rated on the 5-point Likert scale, with the individual answers corresponding to marks given at school. The best rating was 1 and the worst was 5. The results of the QOL-GRAV questionnaire are interpreted in such a way that the lower the score, the higher the quality of life and the absence of problems associated with specific changes in pregnancy. The questionnaire assessed 4 domains: physical health, experience, social relationships and the environment. Based on the total score, the quality of life was assessed as excellent, very good, good, or not good. This is a valid and reliable tool for evaluating the quality of life of women with physiological pregnancy (Cronbach's alpha coefficient $\alpha = 0.87$).

Data were analyzed using descriptive statistics, the Pearson's (r) correlation coefficient ($p < 0.005$) and ANOVA (F) ($p < 0.05$).

The clarity of the questionnaire was verified by a pilot study of 5 pregnant women who were contacted based on personal contacts. Based on the pilot study, with the aim of modifying the unclear formulations of possible items, the text has been changed only in two questions, i.e. in terms of technical modifications (word order and punctuation). The consent for implementing the research was obtained from the Ethical Committee of the Žilina Self-Governing Region. A combined method of administering the questionnaires was chosen in three gynecological clinics. Pregnant women were contacted personally during their prenatal counseling at the clinics. They signed the informed consent to be included in the study and were subsequently instructed on how to complete the questionnaire. The questionnaire was filled in by hand on the printed form, or electronically (if the respondents voluntarily provided their e-mail address), and they were forwarded a link to the questionnaire. The printed questionnaires and those in electronic were identical. The return rate of the personally distributed questionnaires was 87.50% ($n = 70$) and the return rate of the electronically distributed questionnaires was 95.38% ($n = 248$). From the total of 318 questionnaires, 2 were excluded due to incorrect or incomplete completion. 12 were excluded due to exclusion criteria (more serious women's problems during pregnancy). As the questionnaire was aimed at women with a physiological pregnancy, respondents who reported more serious problems that assumed a pathological pregnancy were excluded from the study.

A total of 304 questionnaires were used for the study. Research data collection took place between November 2015 and January 2017.

The research file

The survey consisted of 304 respondents with a mean age of 27 years (SD ± 4.95). The choice of respondents was deliberate. Inclusion criteria were predetermined for the research file: current and physiological pregnancy and informed consent of the respondent to be included in the study. The exclusion criteria included problems during pregnancy that predict a pathological pregnancy. Serious problems were considered to be: imminent abortion, vaginal bleeding, premature birth, early cervical shortening, opening of the cervix, Rh incompatibility, preeclampsia, hypertension, gestational diabetes, multiple pregnancy, insufficient placental fetal nutrition, fetal defects, diseases of the mother affecting organs such as the heart, lungs, kidneys, liver, brain, genetic diseases, and infectious disease of the mother.

From the research file, 63.16% of the women were primiparas, 22.37% secundiparas and 14.47% were multiparas. In terms of trimesters, 14.14% of women were in the first trimester, 37.17% in the second trimester and 49.34% were in the third trimester. 62.50% of the respondents had a pregnancy with no problems and 37.50% with minor problems (frequent urination, headaches, back pain, morning sickness, lower limb cramps, etc.).

Results

Most women (55.60%) stated a very good quality of life, 33.89% stated excellent, 9.86% stated good, and 0.65% a not very good quality of life during pregnancy (Table 1).

Table 1 – Quality of life of pregnant women.		
	N	%
Excellent	103	33.89
Very good	169	55.60
Good	30	9.86
Not very good	2	0.65
Total	304	100

Legend: Based on the total score, the quality of life was evaluated as excellent (9–18 points), very good (19–27 points), good (28–36 points), not very good (37–45 points).

In all questions, most of the respondents chose options 1 (not at all) and 2 (moderate), which expresses a positive response to their quality of life. The average response scale was highest in partner life satisfaction (3.37 ± 1.41), in the item regarding the perception that body-related changes in pregnancy do not allow them to do what they need (2.49 ± 1.01), in physical activity limitations (2.41 ± 1.12), and in the item related to labor (2.37 ± 1.19) (Table 2).

The average score on the quality of life scale was best for younger women (17.29 ± 3.36), then for middle age (17.30 ± 5.01) and worst for older women (25.66 ± 6.03). The influence of age was tested with the Pearson's correlation coefficient. There was no statistical significance ($r = 0.04$, $p = 0.46$) between age and quality of life of pregnant women at the significance level $p < 0.005$.

The average scores in the quality of life was best for multiparas (19.73 ± 5.53), then for secundiparas (20.75 ± 4.85) and lastly for primiparas (20.89 ± 5.11). Based on the analysis of variance (ANOVA) between individual groups according to parity, there were no statistically significant differences in the quality of life of pregnant women ($F = 0.93$; $p = 0.396$) at the statistical level $p < 0.05$.

The average score of the quality of life was best in women in the first trimester of pregnancy (20.02 ± 4.16), then in the third trimester (20.47 ± 5.14) and least in the second pregnancy trimester (21.24 ± 5.41). Based on the analysis of variance (ANOVA) between the groups according to period of pregnancy, there were no statistically significant differences in experiencing anxiety ($F = 1.16$, $p = 0.316$) at the statistical level $p < 0.05$.

Discussion

Most women declared a very good or excellent quality of life during pregnancy (Table 1). According to other studies, most women also had above average quality of life [8,9]. In the study of Shishehgar et al. [10], it has been proven that social support (indirectly) and quality of life (directly) affect the course of pregnancy, which implies the need for healthcare professionals to pay attention to measures to strengthen social support, quality of life, and reduce stress and its consequences during pregnancy. Despite the positive results, it is necessary to address the quality of life of pregnant women and to pay special attention and special care especially to pregnant women who have a lower quality of life. Measuring the quality of life of pregnant women is important in planning individual and specific care for the mother and the child. The average response rate in the current study was the highest, representing the worst partner life satisfaction (Table 2). Also, according to the study by Balíková and Bužgová [8], a statistically significant difference was found in the quality of life of single women and married women, with a surprisingly lower quality of life in married women. The area of satisfaction with the partner cannot be affected by the midwives, but it is important to know that this area also affects the quality of life of pregnant women. Other areas that were more significant on the average scale values were those related to feelings that their body-related changes in pregnancy do not allow them to do what they need to and limit their physical activity (Table 2). According to Bahadoran and Mohamadirizi [11], the impact

Table 2 – Descriptive characteristics of each item of quality of life.								
Questions (QOL-GRAV)	1	2	3	4	5	X	SD	Med.
N = 304 (100%)	n_i	n_i	n_i	n_i	n_i			
	f_i (%)	f_i (%)	f_i (%)	f_i (%)	f_i (%)			
To what extent do you feel that the psychological changes associated with this pregnancy do not allow you to do what you need?	139 (45.72)	110 (36.18)	45 (14.80)	6 (1.98)	4 (1.31)	1.93	0.87	2
How much do you fear you are not able to handle the household?	135 (44.40)	101 (33.22)	45 (14.80)	17 (5.59)	6 (1.98)	1.88	0.99	2
How much do you worry about failing to carrying the pregnancy to a viable stage?	116 (38.16)	95 (31.25)	50 (16.44)	34 (11.18)	9 (2.96)	2.09	1.12	2
How much do you fear that you will not manage labor?	82 (26.97)	101 (33.22)	63 (20.72)	40 (13.16)	18 (5.92)	2.37	1.19	2
Have you been forced to restrict your physical activity in this pregnancy?	69 (22.70)	111 (36.51)	68 (22.37)	39 (12.82)	17 (5.60)	2.41	1.12	2
How satisfied are you with your partner life now?	110 (36.18)	45 (14.80)	139 (45.72)	6 (1.97)	4 (1.31)	3.37	1.41	4
How satisfied are you with your social life now?	68 (22.37)	134 (44.08)	51 (16.78)	40 (13.16)	11 (3.62)	2.29	1.05	2
How satisfied are you with how you can adapt to this pregnancy?	72 (23.68)	161 (52.96)	56 (18.42)	13 (4.28)	2 (0.66)	2.05	0.81	2

Legend: N – number of respondents; n_i – absolute number; f_i – relative number; 1 – not at all; 2 – moderate; 3 – average; 4 – very; 5 – to a great extent; X – the average scaled response value; SD – standard deviation; Med. – median. The last three questions that were reversed were recoded as (value 5 = value 1).

of physical activity limitations during pregnancy on quality of life has also been shown, so we feel it is important to pay more attention to this problem. Proper and adequate physical activity during pregnancy has a major impact on the health of the mother and the growth of the fetus. Shakeri et al. [12] demonstrated that a suitable mild intensity exercise in women with normal pregnancy had an effect on improving the health of the mother without harming the developing fetus. Pregnant women usually choose a sedentary lifestyle. The restriction of physical activity in pregnant women may also result from not having all the necessary information, which then results in unnecessary concerns. Information on the importance of physical activity during pregnancy, the positive effects of physical activity and its corresponding intensity is needed. Physical activity during pregnancy contributes to a feeling of well-being, increased self-esteem, better body image, reduced anxiety and depression, and rapid and simple adaptation to changes in pregnancy [12]. Even Guszkowska et al. [13] suggest that regular physical exercise during pregnancy may be a factor in preventing mental disorders in pregnant women. The midwives are asked to organize activities to promote health, physical activity and quality of life. Midwives, as one of the major health practitioners, play an important role in achieving the objective of health for all, especially pregnant women [11]. When evaluating the quality of life of the surveyed respondents, the item regarding the concern surrounding labor has shown to be more risky (Table 2). According to some studies [14,15], fear of labor is proven to be one of the most frequently experienced fears in pregnancy. The worries about coping with labor affects women in different ways, they start to doubt themselves and they feel uncertain, which can affect their quality of life. Pregnant women with a fear of labor need a lot of help throughout the pregnancy and during the labor from the midwives [16]. In the context of experiencing fear of labor, pregnant women are affected by healthcare professionals (midwives, nurses, gynecologists) and their interactions with them [17]. As a result, midwives are recommended to focus not only on the physical factors, but also on the psychosocial factors during the care for pregnant women in order to encourage the pregnant women to successfully manage the changes and maintain overall health. The current study looked at differences in the quality of life in terms of age. Based on the average score achieved in the quality of life scale, there were no significant differences in age averages. The best quality of life was shown in younger women, then in the middle aged and the worst was in women of older age. However, statistically significant differences in the influence of age on the quality of life of pregnant women were not demonstrated (Table 3). According to the study of Balíková and Bužgová [8], who evaluated the quality of life of pregnant women with the SF-12 questionnaire, a statistically significant difference was found in terms of age ($p = 0.020$). Women over the age of 29 reported a lower quality of life than younger women. According to these findings, we can say that it is important that the midwives focus more attention on older pregnant women when accompanying them throughout the pregnancy. The current study also analyzed the differences in the quality of life according to the parity. The average score achieved in the quality of life scale was best in the multiparas, then in secundiparas and least in primiparas (Table 3). Based on the

Table 3 – Influence of age, parity and period of pregnancy on quality of life.

	N (%)	Mean (SD)	r^*	p
Younger age	7 (2.30)	17.29 (3.36)		
Middle age	222 (73.02)	17.30 (5.01)		
Older age	75 (24.68)	25.66 (6.03)		
			0.04	0.46
			F^*	p
Primipara	192 (63.16)	20.89 (5.11)		
Secundipara	68 (22.37)	20.75 (4.85)		
Multipara	44 (14.47)	19.73 (5.53)		
			0.93	0.396
1st trimester	43 (14.14)	20.02 (4.16)		
2nd trimester	113 (37.17)	21.24 (5.41)		
3rd trimester	148 (48.68)	20.47 (5.14)		
			1.16	0.316

Legend: r^* – Pearson's correlation coefficient; p – significance level at $p < 0.005$; F^* – ANOVA; p – significance level at $p < 0.05$.

analysis of variance (ANOVA) there were no statistically significant differences in the quality of life of pregnant women between the groups. In the study of Balíková and Bužgová [8], statistically significant differences in the quality of life of primiparas and multiparas ($p < 0.001$) were reported in the comparison of mean values of quality of life according to parity. The primiparas report a higher quality of life than the multiparas. In their study, Mousavi et al. [18] report similar results, where the primiparas report a higher quality of life than the multiparas. It is interesting that in the current study, multiparas report a lower quality of life. Perhaps they experienced the new, unknown feelings more intensively, which could result in various uncertainties and concerns that could affect the quality of life. The current study also tried to determine the differences in the quality of life according to the period of pregnancy. It was found that the average score achieved in the quality of life scale was best for women in the first trimester of pregnancy, then in the third trimester and least in the second trimester of pregnancy. Based on the analysis of variance (ANOVA), there were no statistically significant differences in the quality of life in terms of trimesters (Table 3). In their study, Fernandes and Vido [19] also did not confirm any significant differences in quality of life in relation to trimesters. Our findings are interesting given that the best period of pregnancy in this aspect is expected to be the second trimester, while the first trimester and especially the third trimester are more demanding. We believe that the respondents in their second trimester were affected by the ongoing prenatal examinations and screenings that could have raised concerns. In the assessment of quality of life during pregnancy, the respondents probably did not evaluate it in relation to the trimester, but in general, which could also have affected the results. Fernandes and Vido [19] found that pregnant women in their first trimester had a higher quality of life than pregnant women in the second trimester. According to a study by Vachková et al. [20], the quality of life was best evaluated in the second trimester. The study of Bai et al. [21] showed that symptoms such as frequent nausea, vomiting and fatigue in women at the beginning of pregnancy, i.e. in the first trimester, have a negative impact on quality of life. In the

third trimester we may assume a worsening of the quality of life compared to the previous trimesters, for example due to increased weight, sleep disorders, and reduced sexuality. It was found that being overweight in the third trimester of pregnancy is associated with poor quality of life [22]. Regarding sleep disorders, it was found that compared to the first trimester of pregnancy, the risk of low sleep quality increases $2.11\times$ in the second trimester ($p = 0.048$) and $1.86\times$ in the third trimester ($p = 0.054$) [23]. Sexuality can also affect the quality of life. It has been found that sexual dysfunction is greatest in the third trimester of pregnancy [24,25].

The results of this study point to the fact that the quality of life during pregnancy has been proven to be very good and excellent in most of the respondents. The most risky areas of the quality of life have been reported in partner life satisfaction, physical changes causing limitations, physical activity limitations and fears of managing labor. There were no statistically significant differences in the quality of life in relation to age, parity and period of pregnancy. The use of screening tools to assess the quality of life of pregnant women can help the midwives in clinical practice to identify the problems and their development over time and to detect changes in quality of life. These are important anamnestic data that can assist the midwives in establishing communication and resolving identified problems.

These results and findings should be seen in the light of the research limitations. The limitations of the research are in adapting the research tool that has not undergone linguistic validation. The validity and reliability of the translated questionnaire has not been verified in our socio-cultural environment. Therefore, it is not known whether the instrument actually measured what was the intention of the author of the questionnaire in the Czech language and whether it was sufficiently accurate and reliable in Slovakia as well. The revised version of the questionnaire was used only for the purposes of this study. Another limitation of the study is the deliberate choice of respondents, which allows the conclusions to be interpreted and generalized only to the selected research sample. Further study limitations can be seen in the uneven distribution of the file when comparing the quality of life by age, parity, and the period of pregnancy, which could have greatly distorted the results. Also, in evaluating the quality of life in terms of comparison between the trimesters, it would be ideal to carry out a prospective study. This would entail handing out the questionnaire to the same women repeatedly $3\times$ in the first, second and third trimester of pregnancy. That way we could compare the same sample of women in each pregnancy period and the results would be more trustworthy. Other factors (e.g. personality, social support, education, pregnancy awareness, wanted/unwanted pregnancy) may have played a more important role in evaluating the quality of life than those which we have evaluated. We can consider our study as partial, but despite the mentioned limitations we believe that the study has brought compelling results.

Conclusion

Pregnancy is a time when a woman should take special care of her health and when she should be given increased attention

and care by the midwives. Despite the positive result, it is necessary to address the quality of life with an emphasis on screening the quality of life of pregnant women and also to pay special attention and special care (especially to pregnant women who have a lower quality of life). Evaluating quality of life is important in terms of early preventive measures during pregnancy. It should lead to an increase in the quality of care for pregnant women and their well-being, with an emphasis on improving their quality of life.

Conflict of interests

The authors declare that they are not aware of any conflict of interest regarding this contribution.

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