Journal of Happiness and Health
2022, Vol. 2, No. 2, 87–97
https://doi.org/10.47602/johah.v2i2.20
https://journalofhappinessandhealth.com

RESEARCH ARTICLE

Relationships between Life Satisfaction, Happiness and Meaning in Life in Pregnancy during COVID-19 Pandemic

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Abstract

While it was established that COVID-19 pandemic had negative consequences on several aspects of mental health, little is known about the role of positive mental health indicators in pregnant women during this period. The purpose of the present study was to examine relationships between meaning in life, life satisfaction and happiness and the extent to which meaning in life predicts life satisfaction and happiness. The sample consisted of 161 pregnant women from Slovakia. Data were collecting using Life Meaningfulness Scale, Satisfaction with Life Scale and Subjective Happiness Scale. As predicted, results showed that meaning in life is a predictor of life satisfaction and happiness. Higher happiness was related to increasing degree of meaning in life and absence of pregnancy-related health problems. 65% of participants reported high level of satisfaction with life and 48% of participants reported higher happiness than average person. These findings provide evidence for associations between meaning in life, life satisfaction and happiness in Slovak pregnant women during the COVID-19 pandemic and indicate that despite negative consequences of the pandemic, positive indicators of mental health in pregnancy play a significant role.

Keywords: Meaning in life, life satisfaction, happiness, pregnancy

Since its start in 2020, COVID-19 pandemic has brought about many significant changes and restrictions to everyday lives of people worldwide. According to Organisation for Economic Cooperation and Development (OECD), pandemic has negatively affected every aspect of wellbeing (OECD, 2021). Research has shown that people have experienced more fear, uncertainty and anxiety during the pandemic, mostly due to fear of getting infected with the virus (Trzebiński et al., 2020). Given the specific life situation of pregnant women for whom good physical health is a precondition for growing a healthy baby, the pandemic introduced additional challenges that have negatively impacted mental health of many pregnant women (Campos-Garzon et al., 2021).

Pregnancy is characterized by a number of physiological, psychological and social changes (Konecna, 2003; Skodova, 2018). The process of adjustment to pregnancy is very individual and depends on several psychosocial factors, such as age, pregnancy planning, psychological readiness for pregnancy, socioeconomic status, relationship status, physical health and others (Skodova, 2018). In terms of psychological changes, pregnancy is divided into three stages. The first stage, from conception to about 18 – 20 weeks when women experience first movements of the fetus, is considered a phase of adaptation and is characterized by internal focus on oneself, emotional lability and acceptance of pregnancy. The second stage (mid second to mid third trimester) is a phase of increased emotional stability and identification with new social role. The third stage (last 6 to 8 weeks prior to birth) is a phase of preparation for birth and motherhood known as nesting. Depending on personal characteristics and circumstances, pregnant women experience an array of positive and negative emotions such as joy, excitement, happiness, however also worry, uncertainty, confusion, anxiety or sadness may be present (Skodova, 2018; Turk et al, 2017).

Research has shown that pregnant women are vulnerable to negative psychological consequences of the COVID-19 pandemic, in particular, this adverse situation exacerbates stress, negative affect and symptoms of psychopathology (Puertas-Gonzales et al., 2021). Lopez-Morales et al. (2021) who longitudinally examined

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psychopathological consequences of the pandemic found that pregnant women reported more significant increases in negative affect, depression and anxiety as well as decreases in positive affect than non-pregnant women. Metaanalysis of 31 studies revealed that fear of infection and its effects on the fetus was the main reason of psychological distress in pregnant women who experienced increased levels of stress, anxiety and depression (Campos-Garzon et al., 2021). Mortazavi et al. (2020) found that predictors of low wellbeing in pregnant women during the pandemic were worry about their heath, worry about the fetus health and fear of COVID-19 infection.

Although there is empirical evidence on negative effects of the pandemic on mental health of pregnant women (Campos-Garzon et al., 2021; Lopez-Morales et al., 2021; Mortazavi et al., 2020), little attention has been paid to positive indicators of good life such as happiness, wellbeing, life satisfaction and meaning in life in pregnancy during the COVID-19 pandemic. In line with positive psychology, happiness has been conceptualized as consisting of hedonic and eudaimonic wellbeing (Seligman & Csikszentmihalyi, 2000). While eudaimonic wellbeing deals with matters of meaning and purpose in life, hedonic wellbeing or subjective wellbeing, is defined in terms of life satisfaction and disbalance of positive and negative affect. Life satisfaction, as cognitive evaluation of one's life, refers to assessment of discrepancy between the present and ideal situation (Diener et al., 1999). Also, Lyubomirski et al. (2005) viewed happiness as a phenomenon composed of high positive, low negative affect and life satisfaction, in line with Diener's construct of subjective wellbeing (Diener et al., 1999). Happiness and life satisfaction, although related (Diener et al., 1999; Lyubomirski et al., 2005), are considered two distinct constructs. Happiness, a highly subjective phenomenon, is transient and momentary, depending on genetics, life circumstances and intentional activities (Lyubomirski et al., 2005), Life satisfaction is a more stable construct referring to where individual finds himself in life based on individual criteria and individual cognitive judgement. The assessment of life satisfaction may be targeting either overall life satisfaction or specific life domains such as work, family, health, leisure etc. (Pavot & Diener, 2008).

The second wave of positive psychology presented a shift from studying wellbeing in terms of high positive and low negative affect and it acknowledged the role of suffering and negative emotions as important contributors to happiness and wellbeing (Wong, 2019). According to existential positive psychology introduced by Wong (2010) as a blend of positive psychology and existential psychology, good life entails both positives and negatives, and meaning in life is considered an important precondition for maintenance of mental health in challenging times (Wong, 2010, 2019). The COVID-19 pandemic, viewed from the lens of positive existential psychology as an existential crisis, only emphasized the need to „reduce human suffering and transform it into human flourishing" (Wong et al., 2021, p. 2) through understanding of the role of suffering and application of meaning-centered assessments and interventions (Wong et al., 2021).

Over a period of several decades meaning in life has been conceptualized, as the extent to which people comprehend, make sense of, or see significance in their lives, accompanied by the degree to which they perceive themselves to have a purpose, mission, or overarching aim in life" (Steger, 2009, p. 682). In line with this definition, meaning in life has been widely understood as composed of a cognitive (understanding life) and a motivational component (having purpose or mission) (Steger, 2017). Later, new line of research made attempts to add an evaluative component of meaning in life relating to various aspects of significance (Steger, 2017). There has been controversial evidence to support this component, on one hand suggesting that significance has been implicitly included in the cognitive component, on the other hand discussing significance in terms of mattering and value to one's life (Steger, 2017). Reker & Wong (1988) conceptualized meaning in life in their three-component theory, consisting of cognitive component, motivational component and affective component. While the cognitive component refers to individual belief system according to which one makes sense of life, the motivational component encompasses individual value system which serves pursuing purpose and meaning in one's existence. The affective component complements the two with feelings of fulfilment and satisfaction which are present when individual engages in whatever is meaningful in life (Reker & Wong, 1988). Frankl (1963) viewed meaning in life as an innate drive which if unfulfilled, leads to psychological distress. However, if present, it has the capacity to alleviate stress and increase life satisfaction. Thus, individuals who experience negative emotions during adverse circumstances such as pandemic, benefit from having meaning in life (Arslan & Allen, 2022; Karatas et al., 2021).

In positive psychology meaning in life plays a key role in some of the well-known theories of wellbeing (Arslan, 2021; Ryff & Singer, 1998; Seligman, 2002, 2011).

Meaning in life has been associated with many positive life outcomes such as positive emotions (Arslan et al., 2022; Park et al., 2010; Steger et al., 2008b), self-esteem, self-acceptance (Steger et al., 2008b), hope (Feldman & Snyder, 2005), mental and physical health (Yıldırım et al., 2021; Steger, 2017). Research has also supported the role of meaning in life in life satisfaction (Arslan et al., 2021; Pan et al., 2008; Park et al., 2010; Karatas et al. 2021, Steger et al. 2008a), wellbeing (Alandete et al., 2013; Damasio et al., 2013; Yıldırım, Arslan, & Wong, 2021) and happiness (Nasiri & Bahram, 2008; Park et al., 2010; Shin et al., 2005). Park et al. (2010) found that not only the presence of meaning in life but also search for meaning is positively related to life satisfaction and happiness, and negatively related to depression. Research with women working in educational setting showed that meaning in life is associated with increases in happiness and life satisfaction and decreases in depression (Nasiri & Bahram, 2008). According to Bathyanny & Russo-Netzer (2014) meaning in life and hope related to higher life satisfaction help individuals cope with challenges. Karatas et al. (2021) found that meaning in life was one of the predictors of life satisfaction during challenging time of Covid-19 pandemic.

There are mixed findings regarding life satisfaction and happiness in pregnancy. Some studies provided empirical evidence suggesting that happiness (Battulga et al., 2021; Turk et al, 2017) and life satisfaction increase during pregnancy (Battulga et al., 2021; Dyrdal et al., 2011; Dyrdal & Lucas, 2013). In terms of gestational age, happiness was found to decrease in the third trimester (Battulga et al., 2021). Some controversial results were found for life satisfaction in pregnancy. While Aasheim et al. (2014) reported that life satisfaction is rather stable during pregnancy and declines afterwards, other study reported that life satisfaction declines throughout the pregnancy (Branecka-Wozniak et al., 2020) and another study reported the opposite, i.e. increases in life satisfaction depending on gestational age (Dyrdal et al., 2011). Other studies that examined life satisfaction in pregnant women depending of sociodemographic variables found that maternal age, parity (Aasheim et al., 2014), relationship status and education were related to higher life satisfaction (Skurzak et al., 2019). More specifically, first-time mothers of advanced age reported lower life satisfaction (Aasheim et al, 2014; Battulga et al., 2021), while pregnant women with a spouse and higher education reported higher life satisfaction (Skurzak et al., 2019). Younger women were also happier during pregnancy than older women (Battulga et al., 2021; Turk et al, 2017). Happiness in pregnancy decreases with presence of pregnancy-related health problems (Turk et al, 2017). A systematic review showed that life satisfaction and happiness are associated with social support during pregnancy (Battulga et al., 2021).

Current Study

Given the adverse effects of pandemic on mental health (Campos-Garzon et al., 2021; Lopez-Morales et al., 2021; Mortazavi et al.,2020), limited opportunities to seek social support, previous evidence about the role of meaning in life in life satisfaction and happiness (Karatas et al. 2021; Nasiri & Bahram, 2008; Pan et al., 2008; Park et al., 2010; Steger et al. 2008a) and the absence of research on positive indicators of mental health in pregnancy during the pandemic, the present study examined relationships between meaning in life, life satisfaction and happiness in a sample of pregnant women. The main objective of the study was to investigate the relationships between meaning in life, life satisfaction and happiness. In order to evaluate this relationship, it was hypothesized that (1) meaning in life will be a significant predictor of life satisfaction, (2) meaning in life will be a significant predictor of happiness, (3) age, education, gestational age, health problems and parity will be significant predictors of life satisfaction and happiness. The second objective of the study was to assess overall level of life satisfaction and happiness in pregnant women during the Covid-19 pandemic.

Method

Participants

The sample consisted of 161 pregnant women 18 – 43-year-old (M = 30.23, SD = 4.69). 97.50% (N = 157) of participants were in relationship. 1% (N = 2) of participants completed elementary education, 37% (N = 60) high school education and 62% (N = 99) university education. Gestational age ranged between 12 – 41 weeks (M = 26.29, SD = 7.04). In terms of parity 46% (N = 74) of participants were first-time expectant women. 22.40% (N = 36) of participants reported health problems during pregnancy. Participants were approached through regional maternity centres in Slovakia. Data was collected online during the months of February and March 2021, the second wave of COVID-19 pandemic, which was marked by strict lockdown (i.e. mandatory home office work, closed schools,

stores, cultural and sport facilities, limited travel) with opportunities to engage socially only within close family circle. All participants consented to participation in the study. Ethical approval, including approval of all measures and procedure, was provided by the ethics committee of authors' institution.

Measures

Life Meaningfulness Scale (LMS; Halama, 2002) was developed to assess the degree of meaning in life. This is an 18-item scale (6 items are reverse-scored) with 3 subscales, each consisting of 6 items: cognitive (e.g. *I consider my life to be valuable and useful*), motivational (e.g. *In my life there are things I'm fully engaged in)* and affective (e.g. *I'm satisfied with my life although it gets hard sometimes*). Responses are measured on a Likert-type scale from 1 to 5 providing subscale scores and overall score, with higher scores indicating increasing level of meaning in life. LMS demonstrated strong internal consistency with Cronbach's alpha coefficient .87 in Slovak sample (Halama, 2002). In the present study the overall score was used to represent the variable of meaning in life.

Satisfaction with Life Scale (SWLS; Diener et al., 1985) was used as a measure of cognitive evaluation of life satisfaction. This is a 7-item scale (e.g. *In most ways my life is close to my ideal*), with items rated on a 7-point Likert scale from 1 strongly disagree to 7 strongly agree. SWLS is a unidimensional scale with higher scores indicating higher life satisfaction. Scoring interpretation was conducted based on cutoff scores by Diener et al. (1985). Internal consistency of the adapted Slovak version of SWLS is .78 (Sedlar, 2014).

Subjective Happiness Scale (SHS; Lyubomirski & Lepper, 1999) is a measure of subjective happiness. It consists of 4 items and is designed in the form of 7-point response scale. Respondents provide both absolute ratings and ratings relative to peers to two items (1 = *less happy*, 7 = *more happy;* e.g. *In general I consider myself …)*. The other two items are formulated as statements about happy or unhappy individuals and respondents rate the degree they approve of the statement (1 = *not al all*, 7 = *a great deal*; e.g. *Some people are generally not very happy. Although they are not depressed, they never seem happy as they might be. To what extent does this characterization describe you?*). SHS has unidimensional structure with higher scores indicating higher level of subjective happiness (Lyubomirski & Lepper, 1999). Research has indicated that the adapted version of SHS has sound psychometric properties in Slovak samples, with good internal consistency ranging between .73 to .81 Cronbach's alpha coefficient and adequate test-retest reliability .62 (Babincak, 2018).

Data Analyses

Descriptive statistics was calculated for sociodemographic variables and for scores of meaning in life, life satisfaction and happiness. Categorical variables are presented in the form of frequency and percentage. Degree and variability of quantitative variables is characterised by mean and standard deviation, or median and interquartile range. Variable distribution was assessed on the basis of histograms, skewness and kurtosis coefficients. Spearman rank-order correlation was used to measure the strength and direction of associations between the study variables. Multivariate analyses were conducted via hierarchical multiple regression analyses. Prior to conducing the analyses, relevant assumptions were tested.

Three-stage hierarchical multiple regression was conducted to determine the extent to which sociodemographic variables and meaning in life predict life satisfaction and happiness. Age and education were entered at stage one in order to control for sociodemographic variables. Pregnancy variables – gestational age, parity, pregnancy-related health problems – were entered at stage two. Psychological variable meaning in life was entered at stage three. Categorical variables were coded according to following dummy-coding schemes: education: 0 – high school, 1 – higher education (two participants with elementary education were excluded from the analysis); parity: 0 – primapara (woman pregnant for the first time), 1 – multipara (woman that has borne more than one child); pregnancy-related health problems: 0 - no, 1 – yes.

Results

Findings on internal reliability estimates ranged between .83 to .94, suggesting good internal consistency of all scales, as presented in Table 1. According to descriptive analysis all variables were relatively normally distributed, except for affective component of meaning in life (*Skw* = - 1.63, *Kurt* = 2.77). 4.30% (*N* = 7) of participants reported low level of life satisfaction, 31.10% (*N* = 50) average level and 64.60% (*N* = 104) high level of life satisfaction. 12.40% (*N* = 20) of participants rated themselves as less happy than an average person,

39.10% (N = 63) were in the average range of happiness and 46.40% (N = 78) reported to be happier than an average person.

Table 1. Descriptive statistics for study variables

	M	*SD*	*Mdn*	*IQR*	*Range*	*α*
Life satisfaction	26.76	5.37	28.00	6.50	7-35	.85
Happiness	21.56	4.62	22.00	6.00	6-28	.83
Meaning in life	74.81	12.04	78.00	14.00	30-90	.94
Cognitive component	24.76	4.46	26.00	5.00	7-30	.84
Motivational component	23.96	4.39	25.00	5.00	11-30	.82
Affective component	26.09	4.16	27.00	4.50	11-30	.87

Correlation analysis showed that meaning in life positively and largely correlated with happiness (r_s = .70, p < .001) and life satisfaction (r_s = .62, p < .001). Life satisfaction (r_s = .65, p < .001) as well as happiness (r_s = .75, p < .001) had positive and largest correlations with affective component of meaning in life, as shown in Table 2.

Table 2. Bivariate correlation analysis

	1	2	3	4	5	6
1 Life satisfaction	-					
2 Happiness	.71**	-				
3 Meaning in life	.62**	.70**	-			
4 Cognitive component	.52**	.59**	.87**	-		
5 Motivational component	.54**	.60**	.93**	.73**	-	
6 Affective component	.65**	.75**	.85**	.62**	.73**	-

Note. N = 161; **p < .01

As seen in Table 3, results of the first regression analysis conducted with life satisfaction as dependent variable indicated that sociodemographic variables added in step one (F (2,155) = .25, p = .78) as well pregnancy variables added in step two (F (5,152) = .35, p = .88) accounted for insignificant percentage of variation in life satisfaction. Adding meaning in life to the model explained 52.1% of the variation in life satisfaction and this change in R^2 was significant (F *Change* (1,151) = 172.77, p < .001). After addition of all independent variables, meaning in life was a significant predictor of life satisfaction (β = .73, p < .001).

Table 3. Hierarchical regression analysis predicting satisfaction in life

	β	*t*	Sig.	95% CI LL	95% CI UL	*F*	Adjusted R^2 (ΔR^2)
Step 1						.25	-.01
Age	.02	.21	.84	-.18	.22		
Education	.05	.57	.57	-1.32	2.41		
Step 2						.35	-.02 (Δ = .01)
Age	.04	.41	.68	-.17	.25		
Education	.04	.48	.63	-1.42	2.34		
Gestational age	-.00	-.048	.96	-.13	.12		
Parity	-.04	-.48	.63	-2.26	1.37		
Pregnancy-related health problems	-.08	-1.00	.32	-3.11	1.02		
Step 3						29.42***	.52 (Δ = .54)
Age	-.05	-.79	.43	-.20	.09		
Education	.06	1.08	.28	-.58	1.99		
Gestational age	.04	.78	.44	-.05	.12		
Parity	.04	.65	.52	-.84	1.66		
Pregnancy-related health problems	-.04	-.76	.45	-1.96	.87		
Meaning in life	.73	13.14	<.001***	.28	.38		

Note. N = 161; ***p < .001

Results of the second regression analysis with happiness as dependent variable yielded similar results, as shown in Table 4. At stage one, after adding of sociodemographic variables, the model was not statistically significant. After addition of pregnancy-related variables only one significant predictor, pregnancy-related health problems, was found (β = -.16, p = .04). Model was however not significant and explained only insignificant percentage of variation in happiness. Model in stage three after addition of all independent variables, including meaning in life, accounted for 63.8% of the variation in happiness (F (6,151) = 47.16, p < .001). Higher scores in happiness were related to increasing level of meaning in life (β = .79, p < .001) and absence of pregnancy-related health problems (β = -.12, p = .01).

Table 4. Hierarchical regression analysis predicting happiness

	β	t	Sig.	95% CI		F	*Adjusted* R^2 (ΔR^2)
				LL	UL		
Step 1						.16	-.01
Age	.05	.56	.58	-.12	.21		
Education	-.01	-.08	.94	-1.63	1.51		
Step 2						1.34	.01 (Δ = .02)
Age	.09	.99	.32	-.09	.26		
Education	-.02	-.26	.80	-1.76	1.35		
Gestational age	-.10	-1.23	.22	-.17	.04		
Parity	-.08	-.93	.35	-2.21	.79		
Pregnancy-related health problems	-.16	-2.02	.04	-3.46	-.045		
Step 3						47.16***	.64 (Δ = .63)
Age	-.01	-.09	.93	-.11	.10		
Education	.00	.045	.96	-.92	.96		
Gestational week	-.05	-.98	.33	-.09	.03		
Parity	.01	.14	.89	-.85	.98		
Pregnancy-related health problems	-.12	-2.48	.01*	-2.33	-.27		
Meaning in life	.79	16.27	. <.001***	.26	.34		

Note. N = 161; *p < .05, ***p < .001

Discussion

Over the past years COVID-19 drastically changed the social environment and resulted in increases in mental health problems in population (OECD, 2021). Pregnant women for whom physical health is a top priority were particularly vulnerable to threats imposed by the pandemic (Lopez-Morales et al., 2021; Mortazavi et al., 2020). Although research has extensively examined negative aspects of mental health in pregnancy (Campos-Garzon et al., 2021; Puertas-Gonzales et al., 2021), little attention has been paid to positive mental health indicators such as meaning in life, life satisfaction and happiness. The present study addressed this gap in research and investigated relationships between meaning in life, life satisfaction and happiness in pregnant women during COVID-19 pandemic and the extent to which life satisfaction and happiness are predicted by meaning in life. Sociodemographic variables, age, education, gestational age and pregnancy-related health problems were also examined as potential predictors of life satisfaction and happiness. Another study objective was to assess overall level of life satisfaction and happiness in pregnant women.

Results demonstrated that meaning in life was positively associated with life satisfaction and happiness and also that meaning in life was a significant predictor of life satisfaction and happiness. These findings are in line with previous research on associations between meaning in life and life satisfaction (Karatas et al. 2021; Pan et al., 2008; Park et al., 2010; Steger et al. 2008a) and happiness (Nasiri & Bahram, 2008; Park et al., 2010; Shin et al., 2005), however they also advance this line of research on findings specific to pregnant women during the COVID-19 pandemic. It appears that pregnancy is a time when meaning in life is an important contributor to positive mental health indicators such as life satisfaction and happiness and that these relationships are not diminished by environmental threats of COVID-19.

Sociodemographic variables, age, education and gestational age, did not significantly predict life satisfaction and happiness. Although previous research found that younger women were happier and experienced higher life satisfaction during pregnancy than older women (Aasheim, et. al., 2014; Battulga et al., 2021; Turk et al, 2017), our results failed to support these findings. Moreover, level of education was related neither to life satisfaction nor to happiness in our sample, on the contrary to Skurzak et al. (2019), who found that pregnant women with higher education were more satisfied in life. While studies on gestational age and level of life satisfaction in pregnancy reported mixed findings in line of decreasing, stable to increasing life satisfaction (Aasheim et al., 2014; Branecka-Wozniak et al., 2020; Dyrdal et al., 2011), gestational age was not a predictor of life satisfaction and happiness in current study. These insignificant findings may be accounted for by low variability of sociodemographic variables in the sample. More specifically, according to Turk et al. (2017) becoming pregnant by the age of 35 increases level of happiness and 88% of participants in the present study were women up to 35 years old. In terms of education, 62% of participants were women with university education and only 1% of participants completed elementary education. The study also indicated that absence of pregnancy health-related problems predicted higher levels of happiness. With physical health being the most significant precondition for growing a healthy baby, this finding is in line with previous research according to which happiness in pregnancy decreases with presence of pregnancy-related health problems (Turk et al, 2017).

The present study also aimed to examine level of life satisfaction and happiness in pregnant women during COVID-19 pandemic. Pregnancy, which is for most women time of positive life changes, is in sharp contrast to the pandemic period marked by declines in mental health (Campos-Garzon et al., 2021; Lopez-Morales et al., 2021; Mortazavi et al.,2020). In the present study 65% of participants reported high, 31% average and 4% low life satisfaction. In terms of happiness, 48% of participants reported to be happier than an average person, 39% reported average feelings of happiness and 12,4% of participants reported to be less happy than an average person. In line with previously reported findings on health-related problems and happiness (Turk et al., 2017), lower happiness in 12,4% and life satisfaction in 4% of pregnant women may have been accounted for by various extraneous variables such as health-related problems, partnership problems, lack of social support and others. Overall, findings of the present study suggest that positive pregnancy experience has not been overshadowed by negative circumstances of the pandemic and that many pregnant women are able to enjoy this unique time of their lives despite of environmental threats. According to Wong (2010, 2019) having meaning life is an important precondition for maintenance of mental health in challenging times. The current study provided some evidence supporting these findings by establishing associations between meaning in life, life satisfaction and happiness in a sample of Slovak pregnant women during the COVID-19 pandemic.

Implications and Limitations

The contribution of the present study is the understanding that meaning in life predicts life satisfaction and happiness in pregnancy, and that levels of life satisfaction and happiness are relatively high. However given the results of previous research on declining mental health of pregnant women during the pandemic (Campos-Garzon et al., 2021; Lopez-Morales et al., 2021; Mortazavi et al., 2020) and results of the present study on some lower levels of happiness and life satisfaction, e.g. in women with health problems, expectant mothers could certainly benefit from community-based psychological services. Online support groups for expectant mothers could be a form of psychological care available in times of lockdowns and social isolation restrictions. Themes of online support groups could target positive indicators of mental health and introduce practical tools designed to enhance meaning, life satisfaction and happiness with the aim to promote mental health in pregnancy (Battulga et al., 2021). There is a rich pool of evidence-based positive psychology interventions targeting themes such as positive emotions, positive relationships, mindfulness, resilience, flow, values, etc.which are associated with positive mental health (Boniwell & Tunariu, 2019). Modified version of the meaning-centered positive group intervention (Wong, 2016) also appears to have a potential of a group intervention for pregnant women. In Slovakia there is certainly room for ongoing psychological support of pregnant women also once lockdowns and social isolation restrictions are withdrawn. Generally, existing pregnancy support groups deal with pregnancy-related problems and preparation for birth and pregnancy groups targeting positive growth are rather an exception. Providing opportunities to interact, discuss and share with an emphasis on positive aspects of wellbeing could be a welcomed shift in prenatal care services.

Although finding of the present study contributed to understanding of relationships between meaning in life, life satisfaction and happiness in pregnant women, there are several limitations to be addressed. First, the research was designed as a cross-sectional study which does not allow for causal associations to be drawn. Use of longitudinal design in future research could help gain better understanding of potential changes in the strength and direction of associations between the variables over time. Second, due to convenience sampling the sample showed low variability in terms of sociodemographic characteristics. Third, potential overlap of items in the affective subscale of meaning in life measure and life satisfaction measure needs to be considered. While the affective subscale of meaning in life measure assesses affective evaluations of satisfaction, and the life satisfaction measure provides cognitive assessment of life satisfaction, both assess the degree of individual satisfaction from a different perspective. In particular, the affective subscale of LMS measures life satisfaction from the perspective of meaningfulness, while SWLS provides overall cognitive evaluation of life satisfaction. Future research could advance findings of the present study by using multiple data collection techniques in a longitudinal design, considering more diverse samples with varied sociodemographic and pregnancy-related variables (e.g. partnership status, pregnancy planning, form of conception, etc.) and examining moderation or mediation effects of other potentially interacting variables such as hope, optimism or social support.

Compliance with Ethical Standards

Ethical Standards

All study procedures involving human participants followed institutional and/or national research committee ethical standards and the 1964 Helsinki declaration and its later amendments or comparable ethical standards. Informed consent was obtained from all participants included in the study. Ethical approval was provided by the ethics committee of authors' institution.

Declaration of Conflicting Interests

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

Funding

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

Data Availability

The datasets generated during and/or analyzed during the current study are available from the corresponding author on reasonable request.

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Received: March 12, 2022
Accepted: May 4, 2022
Published Online: May 19, 2022

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