Predictors of happiness among pregnant women: a regression analysis

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Abstract

Background: Happiness can influence on the psychological well-being and physical health of pregnant women. Mood swings during pregnancy affect attachment to the child and negative emotions are associated with increased risk of low birth weight, early delivery, and failure in breastfeeding.

Objective: This study aimed to assess the happiness and its predictor variables among pregnant women.

Methods: This study was conducted on 480 pregnant women referred to AL-Zahra teaching hospital in Rasht (Iran) in 2018. The study employed a questionnaire consisting of socio-demographic characteristics and the Oxford Happiness Questionnaire. Data were analyzed by IBM-SPSS version 21, using descriptive statistics, independent-samples t-test, ANOVA and multiple linear regression.

Results: A total of 88 (18.3%) women had low happiness level, 314 (65.4%) moderate level, and 78 (16.3%) high level of happiness. Their happiness had a significant association with age (p=0.001), education (p=0.041), occupation (p=0.029), marital satisfaction (p=0.001), husband's education (p=0.003), monthly income (p=0.001), order of pregnancy (p=0.001), planned pregnancy (p=0.001), abortion history (p=0.003), comorbid disease (p=0.032), and family support (p=0.001). Out of these factors, marital satisfaction (B=0.205), planned pregnancy (B=0.374), and monthly income (B=0.359) were identified to explain the variance in independent variables in pregnant women.

Conclusion: By identification of the predictors of happiness, obstetricians and midwives can improve the happiness level of pregnant women by providing information and eliminating unnecessary worries.

Keywords: Happiness, Pregnancy, Pregnant women

1. Introduction

Happiness is one of the main indicators of psychological well-being and the main goal of life (1-3(. According to Veenhoven, happiness refers to "the degree to which one evaluates positively one's life as a whole." Different aspects of happiness and its related factors are rooted in genetics and or lifestyle. In other words, happiness includes positive feelings such as life satisfaction, optimism, forgiveness and trust, which scientists express as pleasant living standards (1). Happiness can be an important indicator of social progress with significant effects on physical and

mental health (4, 5). Basically, the human goals that lead to happiness are more valuable than other personal values, such as physical health, wealth and love (2). Happiness is associated with having more friends, better social relationships, health and a longer life span (4-7). Research shows that factors such as literacy, as well as individual, social, and economic characteristics, can directly and indirectly affect the level of happiness (3). Age as an effective factor on happiness has shown different effects. For example, in the study of Shamsy et al. (8), mothers under the age of 20 years had the lowest level of happiness, and those aged over 40 years had the highest happiness level. Malhotra et al. found that older age decreases the level of happiness from 77.3% to 69% (9). Income has little effect on the level of happiness, and wealth is not always associated with happiness (10). Perceived income can have a significant impact on happiness (3). In the study of Malhotra et al. in India, 72.8% of working women and 76.2% of housewives experienced general happiness (9). According to them, pregnant women may rarely feel relaxed because of stresses arising from occupational responsibilities, meeting deadlines, completing tasks and commuting. HashemiAsl et Al. (11) reported that happiness in students and employed women were higher compared to housewives. In 2013, Iran was ranked at 115 in the world's happiness listings (12). The province of Guilan was ranked seventh as the happiest province of Iran after Ilam, along with the provinces of Semnan and Mazandaran (13). In addition to the difference in the level of happiness in different countries and cities, this difference is apparent in both male and female sexes (14). Women are more receptive to negative emotions than men in terms of their social role (15).

During pregnancy, feelings such as pleasure, disgust, anger, anxiety, fear, and depression are observed (16). The physiological and psychological responses that occur during each level of pregnancy may vary. Some research suggests that happiness increases in pregnancy, and this goes back to the sense of self-esteem and the consolidation of women's gender identity in pregnancy (17, 18). In the Jayasvasty study, 57% of mothers had a high level of happiness, and the rest had a moderate level of happiness, and none of the mothers had a low level of happiness. Even in unwanted pregnancies, half of the mothers were somewhat or very happy with their pregnancy (17). In (11), 11.3% of pregnant women had low happiness, 72.3% moderate and 16.3% higher level of happiness. In (9), the happiness rate for pregnant women was reported as 74.1%. According to them, the lowest level of happiness is observed in the first three months of pregnancy due to pregnancy-related problems such as nausea, vomiting and anxiety. Mood swings affect the attachment to the baby not only during pregnancy but also during postpartum and breastfeeding periods, because negative feelings such as depression, disappointment, and anxiety strongly affect maternal and fetal relationships. This condition is associated with adverse effects such as lactation failure, respiratory and skin diseases, and neurological/behavioral problems after birth (11, 14, 19). Pregnant women with a lower level of happiness are more prone to high-risk behaviors such as smoking (26%), alcohol consumption (16%), or feelings of depression (60%) (20).

Considering that most studies on pregnant women have been devoted to emotions and negative emotions such as stress and depression, there is little evidence of positive emotions such as happiness and its predictive factors. This study aimed to determine the happiness level and its predictive factors in pregnant women in Rasht City, Iran. Considering the importance of happiness in pregnancy and its impact on maternal and fetal health, this research can increase specialists' knowledge. Midwives, as part of a health care team, can raise the happiness of pregnant women by providing information and training about unnecessary concerns, identifying at-risk people, considering more care in different dimensions, and referring to more support if needed..

2. Material and Methods
2.1. Study population and sampling
This analytic cross-sectional study was carried out at AL-Zahra teaching hospital in Rasht (Iran) in May-June 2017. The hospital was selected because of its patient density and regional nature. Sample size was a determined 480 considering 95% confidence level, an error rate of 2%, standard deviation (SD) of 15.2% and according to the Hashemi Asl (11) study (160 women for every trimester of pregnancy).

2.2. Selection criteria
The inclusion criteria were having the ability to read and write, absence the history of mental illness (according to the person's statements), Past traumatic events (e.g. the death of a family member), or desire to divorce. The exclusion criterion was unwillingness to continue the study.

2.3. Measurement tool

The data collection tool was a questionnaire with two sections; The first section surveys socio-demographic characteristics of the pregnant women (age, marriage age, education, occupation, maternal satisfaction, living with husband/parents), their husband's (age, education, occupation, average monthly income), obstetric characteristics (maternal age, order of pregnancy, type of previous delivery, planned/unplanned pregnancy, fetal sex, infertility history, type of infertility, history and number of abortion), any comorbid diseases, and support of family/others. The second section consists of the Oxford Happiness Questionnaire (OHQ). It has 29 items scored based on a 6-point Likert-type scale ranging from 1= strongly disagree to 6= strongly agree. Its scores range from 29 to 174; scores less than 103 indicate a low level; from 103-159 shows moderate level and higher than 159 indicates a high level of happiness.

2.4. Validity and reliability of the instrument

In this research, content validity method was used to determine the reliability of the questionnaire. In this way, the questionnaire was based on the research objectives and using scientific resources, articles and studies of other researchers. After confirmation and correction by the supervisor, five experts received and applied it after the desired changes. Psychometric evaluation of its Persian version was carried out by Najafi in 2012 (21) and its reliability and validity in an Iranian population were assessed by Ali Pour in 2007. They reported Cronbach's α value and coefficient of reliability for the whole samples as 0.90 and 0.79 (22).

2.5. Ethical considerations

The Ethics Committee (IR.GUMS.REC.1397.142) and Vice-Chancellor of Research and Technology of Guilan University of Medical Sciences and Al-Zahra Medical Center approved the study protocol. The study objectives were explained to the participants before data collection, and they were ensured of the confidentiality of the information. Then, written informed consents were obtained from all participants. As another ethical measure, the participants were given the opportunity to withdraw from the study at any time without any question.

2.6. Statistical analysis

The questionnaires were completed by the researcher through interview with the samples. Data were analyzed by IBM© SPSS© Statistics version 21 (IBM© Corp., Armonk, NY, USA), using descriptive statistics, independent-samples t- test, analysis of variance (ANOVA), and multiple linear regression.

3. Results

Demographic characteristics of participants are presented in Table 1. About 56.9% of the pregnant women were aged 26-35 years; 43.8 % had a diploma, and 57.3% earned $200-300 per month. The mean (SD) happiness score of the participants was 131.62 (28.57). Of 480 pregnant women, 88 (18.3%) had low happiness level, 314 (65.4%) moderate level, and 78 (16.3%) a high level of happiness. Happiness had a significant relationship with age (p=0.001), education (p=0.041), occupation (p=0.029), marital satisfaction (p=0.001), husband's education (p=0.003), and monthly income (p=0.001). Table 2 indicates that 41% of the women had second-time pregnancy; 40.6% underwent a Cesarean section; 76.2% had planned pregnancy; 5.2% had infertility; 21.9% experienced abortion, 1.9% experienced fetal death; 24.6% had comorbid diseases; and 93.1% had family support. Happiness had a significant relationship with order of pregnancy (p=0.001), planned pregnancy (p=0.001), abortion (p=0.003), fetal death (p=0.001), comorbid diseases history (p=0.001) and husband/parent's support (p=0.001).

Table 1. Comparison mean score of socio demographic characteristics among pregnant women

Variables		n	%	Mean ± SD	p-value
Maternal age	<18	2	0.4	112.5±53	0.001*
	18-25	101	21	136.1±23.5	
	26-35	273	56.9	134.1±28.6	
	>35	104	21.7	121±30	
Marriage age	<18	52	10.8	130±26.7	0.761*
	18-35	420	87.5	131.6±28.9	
	>35	8	1.7	138±21.4	
Education	Illiterate	7	1.5	135±32.7	0.041*
	Elementary	53	11	127.9±27.2	
	High school	150	31.2	127.2±28.41	
	Diploma	210	43.8	133.2±28.98	
	Academic	60	12.5	139.75±26.64	

Occupation	Housewives Employed	462 18	96.3 3.7	131±28.7 146±20.4	**0.029
Marital satisfaction	Yes No	472 8	98.3 1.7	132.2±28.31 95.7±20.7	**0.001
Living with	Husband Parents	457 23	95.2 4.8	131.9±28.6 124.69±26.7	** 0.234
Husband's age	18-25 26-35 >35	40 266 174	8.3 55.4 36.3	131.8±27.2 134±27.2 127.7±30.5	0.078**
Husband-education	Illiterate Elementary High school Diploma Academic	5 69 139 193 74	1 14.4 29 40.2 15.4	112.8±32 123.8±27.4 131.3±28.2 131.5±27.9 140.9±29.3	0.004*
Husband- Occupation	Unemployed Worker Farmer Employed Business	3 81 20 18 358	0.6 16.6 4.4 3.8 74.6	109.3±24.5 121±27.6 132.6±19.5 135.2±30 133.9±28.6	0.003*
Income($)	< 200 200-300 > 300	193 275 12	40.2 57.3 2.5	125±28.3 135.3±28.1 151±17.7	0.001*

* ANOVA; ** Independent-samples t-test

Table 2. Comparison mean score of obstetric characteristics among pregnant women

Variables		n	%	Mean ± SD	p-value
Order of pregnancy	1 2 3-5	162 197 121	33.8 41 25.2	138.4±24.4 132.2±27.4 121.3±32.4	0.001*
Previous delivery type	Vaginal delivery Cesarean Section	101 195	21 40.6	126.7±31.4 128.5±29.7	0.624*
Planned pregnancy	Yes No	366 114	76.2 23.8	138.8±23.8 108.3±30	0.001**
Fetal sex	Girl Boy Unknown	462148 161 168	30.9 33.7 35.4	136.9±29.2 130.0±25.5 130.63±28.4	**0.030
Infertility history	Yes No	105 375	21.9 78.1	131.2±33.6 131.6±28.3	**0.951
Infertility type	Primitive Secondary	20 5	21.9 78.1	124.2±29.2 133.6±28	**0.996
Abortion	Yes No	457 23	95.2 4.8	124.2±29.2 133.6±28	** 0.003
Abortion number	11 2 3	77 24 2	16 5 0.4	122.9 ±29.6 131.2 ±28.4 92.5 ± 6.3	0.147*
Fetal death	Yes No	118 362	24.6 75.4	121.9± 30.1 134.7± 27.3	0.001**
Comorbid diseases history	Yes No	118 362	24.6 75.4	121.9± 30.1 134.7± 27.3	0.001**
Comorbid disease	Diabetes Hypertension Thyroid Other	42 12 23 41	8.8 2.5 4.8 8.5	114.8± 29.5 141.4± 17.4 128.5± 31 119.3± 30.8	0.032*
Husband/parent's support	Yes No	447 33	93.1 6.9	133.7± 27 103.3± 33.9	*0.001

* ANOVA; ** Independent-samples t-test

According to the results of multiple regression analysis presented in Table 3, having planned pregnancy (B=-0.374), marital satisfaction (B= -0.205), and monthly income (B= -0.359) could predict the happiness of the pregnant women. Therefore, marital dissatisfaction, unplanned pregnancy, and low monthly income (less than $300) are associated with low level of happiness in pregnant women.

Table 3. The predictors of happiness among pregnant women based on multiple regression analysis

Variable	Unstandardized Coefficients		Standardized Coefficients	t	p-value
	B	Std. Error	Beta		
Constant	227.74	18.49	-	12.31	0.0001
Planned pregnancy	-24.70	3.33	-.374	-7.41	0.0001
Marital satisfaction	-40.90	10.08	-.205	-4.05	0.0001
Mother occupation	4.31	8.30	.026	.520	0.604
Monthly income (< $ 300)	-19.95	10.28	-.359	-1.93	0.053

4. Discussion

This study finds that happiness is associated with age, high education, occupation, marital satisfaction, husband's education, monthly income, the order of pregnancy, planned pregnancy, abortion, fetal death, comorbid diseases history, and husband/parent's support. Also, Predictor factors of happiness were planned pregnancy, marital satisfaction, and monthly income. A planned pregnancy was shown to be more important than other predictors such as marital satisfaction (β= -.0.205; p=0.001) and monthly income (β=-0.359; p=0.053). In addition, the planned pregnancy was a stronger predictor of happiness than marital satisfaction and monthly income. Finally, 65.4% of participants had a moderate level of happiness.

The age at which a woman conceives plays an important role in happiness levels. With an increase in age, the happiness level decreases from 91.1% to 70.2%. Higher age is related to obstetric and hormonal secretion changes, reduced physical activity as well as increasing health risks and adverse maternal and neonatal outcomes. However, Türk et al. reported that when pregnant women passed the age of 35, their happiness increased (16).

In this study, education, work status, and monthly income were the other effective factors on happiness. The results of this study showed that high education, employee and high income were associated with a higher level of happiness. Malhotra et al. showed that working women were happy (72.8%) while housewives felt happy (76.2%) of the time (9). Pishgar et al. reported that there is no significant relationship between happiness and women's occupation (19). Shamsy et al. revealed that there is no association between happiness and income (8). It seems that higher education is associated with higher employment rate and income, which results in more happiness. With a higher income level, increased health-promoting behavior and favorable economic conditions lead to more happiness.

Marital satisfaction was the next variable to be studied. The results of this study indicate that the average score of happiness in those who had marital satisfaction is more than that of other participants. Neshat-Doost et al. also showed that marital satisfaction is associated with happiness during pregnancy (14). Also, Malhotra et al. reported that pregnant women living in extended families and were supported by them had higher levels of happiness (9). Relationship between couples intimacy seems to get increasing marital satisfaction. Support from the husband or parents helps the pregnant spouse to feel less lonely, share their feelings and reduce anxiety.

The order of pregnancy affects the level of happiness. In the present study, women with first-time pregnancy were found to be happiest 90.1 %. Also, the study of Malhotra et al. showed that the happiness level reduced from 76.4% in women with first time pregnancy to 70.1% in the third time (9). Perhaps the drop in the level of happiness relates to concerns about childcare, feelings of anxiety, distress, and commitment to the other children. The connection between happiness and planned pregnancy could be due to the adaptation to changes in their bodies and the tolerance of new conditions. In this study, those participants with planed pregnancy had a higher mean happiness score than those with unwanted pregnancies. Furthermore, the mental and emotional states of participants were affected by comorbid diseases. The happiness level dropped from 85.1% in healthy women to 71.2% in those with a history of comorbid diseases such as high blood pressure, diabetes and thyroid disease. In the study by Malhotra et al., about 14% of pregnant women also suffered from past complications such as abortion, sudden pains, anemia, high blood pressure, poor immunity, and calcium deficiency. However, this group suffered from higher level of

stress and reduced happiness (9). The reduced amount of happiness in these women may be due to concerns about birth, fear of losing the baby and medical issues.

In this study, the highest level of happiness was reported in the second trimester (83.7%). Also, in the study of Malhotra et al., the women in the second trimester had a higher level of happiness (9). In the study by Turk et al., the highest mean happiness was reported in the 25th gestational week and above (16). The first trimester of pregnancy is associated with physiological and psychological changes followed by hormonal changes, digestive problems, changes in the body, and the likelihood of abortion. In the second trimester, the pregnant woman adjusts to the biological changes associated with pregnancy and increases the chance of a healthy pregnancy. While during the third trimester of pregnancy, many women encounter sleep problems, fatigue and the fear of childbirth which can affect their level of happiness. In this study, marriage age, infertility, type of delivery and living with husband/parents had no association with happiness in participants. Pishgar et al. showed there was not any relationship between marriage age and happiness (19), but Turk et al. found the highest score of happiness in women with a marriage age of 26 years and with no fetal death (16).

5. Study limitations
Individual differences and the psychological state of participants were limitations of the study during completing the questionnaires, which influenced how they responded to the questionnaire and was beyond the control of the researcher. The previous limitations do not warrant overlooking the study's strengths. This is one of the first studies to find predictors of happiness in Rasht pregnant women.

6. Conclusions
Based on the results of this study, the mean score of happiness among women was moderate, and shows a necessity to increase the happiness level of pregnant women. Planned pregnancy was a predictor factor, therefore, there is a need to raise awareness and reduce false concerns, anxiety and fear. Midwives and obstetricians /gynecologist caring for pregnant women during pregnancy could help in raising the level of happiness of pregnant women.

Conflict of Interest:
There is no conflict of interest to be declared.

Authors' contributions:
All authors contributed to this project and article equally. All authors read and approved the final manuscript.

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