

# Relationship between Unwanted Pregnancy and Health-Related Quality of Life in Pregnant Women

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## ABSTRACT

**Objective:** To determine the relationship between unwanted pregnancy and health-related quality of life in pregnant women.

**Study Design:** Case-control study.

**Place and Duration of Study:** Department of Community Medicine, Kermanshah University of Medical Sciences, Kermanshah, Iran, from October 2013 to July 2014.

**Methodology:** Of the pregnant women who presented to primary healthcare centers of Kermanshah, Iran to receive prenatal care at 6 - 10 weeks of their pregnancy, those with unwanted pregnancy were selected as cases and those with wanted pregnancy were selected as control group. The selection process was done using multi-stage stratified random sampling. Frequency matching was applied to match the two groups. Quality of life was measured by the SF-36 questionnaire and was compared by the t-test. Relationship power between pregnancy type (wanted or unwanted pregnancy) and impairment of quality of life subscales as the outcome was assessed using odds ratio (OR).

**Results:** Frequency distribution of matched variables was not statistically different between the two studied groups. Mean scores of mental component summary and physical component summary as well as eight subscales (physical functioning, role, bodily pain, general health, vitality, social functioning, role emotional, and mental health) were lower in the unwanted pregnancy group compared to women with wanted pregnancy ( $p < 0.001$ ). The highest high impairment odds ratio was highest for the mental component summary (MCS) (OR = 9.19; 95% CI = 5.17- 16.32) and vitality subscale (OR = 5.2; 95% CI = 2.89- 9.33).

**Conclusion:** Mental health of the pregnant women with unwanted pregnancy is affected more than their physical health. Mental health in women with unwanted pregnancy is 9.19 times more likely to be reduced. Among mental health subscales, vitality (energy/fatigue) showed the highest decrease.

**Key Words:** *Pregnancy. Unwanted pregnancy. Health-related quality of life. Vitality. Mental health.*

## INTRODUCTION

Planned (intended or wanted) pregnancy follows planning and desire of couples. The second group is unplanned pregnancy (unintended) which is not desired by at least one partner of the couple. This lack of desire to pregnancy may be related to time factor (mistimed pregnancy) in which pregnancy has occurred sooner than intended or may be the couple do not intend to pregnancy neither at the moment nor in the future (unwanted pregnancy).<sup>1-3</sup> An estimated 80 million (38%) unintended pregnancies occur annually worldwide. Of this, 4 million (5%) end in spontaneous abortion, 42 million (52.5%) end in induced abortion, and 34 million (42.5%) end in unwanted delivery.<sup>2</sup> The prevalence of unintended pregnancies varies in different countries.<sup>1,4-6</sup> In the US in 2006, the prevalence of unintended pregnancy was reported as 49%.<sup>1</sup> The most recent

systematic reviews and meta-analyses in Iran have reported a prevalence of 30.6% (95% CI = 28.1 - 33.1) for unwanted pregnancy. The prevalence of induced abortion was 8.9 in 1,000 women at age range of 15 - 49 years (95 % CI = 5.46 - 12.3).<sup>7,8</sup>

Unwanted pregnancy has many adverse effects on women's health. Women with unwanted pregnancy are more likely to be abused psychologically, physically, and sexually during their pregnancy period and less likely to seek prenatal care.<sup>9</sup> Lack of access to legitimate abortion in some countries puts severe negative effects on psychological development of children who are the result of unwanted pregnancy.<sup>10</sup> According to the World Health Organization (WHO), healthiness is a multi-aspect structure which includes physical, psychological, and social dimensions. Along with advancements in medical sciences and public health which has ended in better treatments delivered to suffering patients and increase their longevity, it is logical to consider quality of life promotion in such patients. Quality of life is an extensive multi-dimensional concept which includes mental evaluation of positive and negative aspects of life.<sup>11</sup> The concept of health-related quality of life (HRQOL) and its determinant factors was first introduced in the 1980s. This concept represents

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*Received: July 08, 2015; Accepted: April 02, 2016.*

general aspects of quality of life which can be affected by physical and mental health. HRQOL measurement helps determine the burden of preventable diseases, accidents, and disability. It can also represent associations with risk factors. One of the instruments used to measure HRQOL is SF-36 questionnaire. Acceptable validity and reliability have been reported for this questionnaire in different countries.<sup>11-18</sup> Former studies to assess the relationship between unwanted pregnancy and quality of life were of cross-sectional nature.

The aim of this study was to determine the relationship between unwanted pregnancy and health-related quality of life in pregnant women.

## METHODOLOGY

The study population consisted of pregnant women aged 15 - 49 years in Kermanshah, Iran, who presented to primary healthcare centers throughout the city from October 2013 to July 2014. They were in 6 - 10 weeks of pregnancy and received prenatal care (according to national guideline for prenatal care in Iran) at those health centers. Using geographical map, Kermanshah city was divided into 5 districts (downtown, northwest, northeast, southwest, and southeast). Each district had 6 primary health centers. One health center was randomly selected in each district. Then, 25 women with wanted pregnancies and 25 women with unwanted pregnancies were selected from each district (totally 125 subjects from 5 districts as case group and 125 subjects from 5 districts as control group). After obtaining informed consent from the subjects, the Persian version of the SF-36 questionnaire was filled out.<sup>13</sup> Those who were literate filled out the questionnaire by themselves. Trained midwives filled out the questionnaire for those who were not literate. The study protocol and questionnaire of this study was approved by the Ethics Committee of Research Deputy of Kermanshah University of Medical Sciences (Reg. No. 91195, code = 200018).

Personal variables included the type of pregnancy (wanted/unwanted), age of the mother at the current pregnancy (in years), educational level of the mother and her spouse (not literate, primary school, junior high school, high school diploma, and higher level), number of live children, time passed from the former pregnancy, household monthly income, mother's occupation (employed or housewife), occupation of spouse, and having personal residential place.

To measure the quality of life, the SF-36 questionnaire was used. SF-36 is a multi-dimensional questionnaire and its short form contains 36 questions. Its structure and concept include 3 levels: first level question is applied to calculate score of one scale. Eight subscales include: physical functioning (PF), role limitations due to

physical health (RP), bodily pain (BP), general health (GH), vitality (energy / fatigue, VT), social functioning (SF), role limitations due to emotional problems (RE), and mental health (emotional well-being, MH). Score of each scale is obtained from summing scores of 2-10 questions. Two summary scales which are yielded from combination of scales include physical component summary (PCS), which includes physical functioning (PF), role physical (RP), bodily pain (BP), and general health (GH). The second is mental component summary (MCS), which includes vitality (VT), social functioning (SF), role emotional (RE), and mental health (MH). The scores obtained in each scale vary from 0 - 100, with 100 representing the best condition and 0 the worst. The scores of 11 questions out of 36 questions needed to be recoded in a reciprocal way.<sup>15-18</sup> The reliability of the Persian version of SF-36 questionnaire has been reported as 0.77-0.9, and validity as 0.68-0.95.<sup>12,13</sup>

Cases were: pregnant women with unwanted pregnancy; and control group was pregnant women with wanted pregnancy. Exclusion criteria included those with pre-existing chronic diseases, gestational age above 10 weeks, mistimed pregnancy, and those who had not desired to participate at the study were not included. Unwanted pregnancy was determined by asking the mother about her decision on pregnancy before getting pregnant as per definitions in introduction.<sup>1-3</sup>

Potentially confounding variables based on the results of previous studies were considered in this study.<sup>5,19,20</sup> Frequency matching was used to match the two groups regarding maternal age, gestational age, parity, mean household income, having personal residential place, time passed from current pregnancy and the previous one, mother's educational level, and number of children.

The statistical analyses were done using the SPSS software (ver. 20.0). Responses to items were computed into an eight-domain profile of scores. Additionally, physical and mental component summary scores were generated. The content-based interpretation approach was applied for interpretation of data from the SF-36v2 Health Survey.<sup>21</sup> In this approach, responses to one item from each of the 8 SF-36v2 scales were dichotomized into high-impairment and low-impairment categories. The eight scales of the SF-36 and two summary scales were converted to dichotomous variables (high-impairment = 0, low-impairment = 1). The relationship between these dichotomous variables with pregnancy (unwanted = 0, wanted = 1) was evaluated by the chi-squared test. To assess the power of relationship between pregnancy type and level of subscale of the SF-36 as the outcome of unwanted pregnancy, odds ratio (OR) was applied. To compare mean of each of the eight subscales and two summary scales of the SF-36 between wanted and unwanted pregnancies, the t-test was applied. P-values less than 0.05 were considered statistically significant.

## RESULTS

Table I presents frequency distribution of matched variables in wanted (n = 125) and unwanted (n= 125) pregnancy groups. The chi-square test (n = 250) showed that the frequency distribution of age, parity, gestational age, time passed from the previous pregnancy, live children, maternal educational level, mean household income, and having personal residential place, were not statistically different between wanted and unwanted pregnancy groups (Table I). The studied women in both groups had the highest percentage regarding personal variables in age group of 31 - 35 years, were third gravida, had a gestational age of 8 weeks, a duration of 36 - 60 months from the previous delivery, educational level at high school diploma, mean household income of 10 - 20 million Riyals (Iranian) monthly, and not having personal residential place (Table I).

T-test was used for comparing the mean score of the 8 subscales and the 2 summary scales of the SF-36 questionnaire between the two groups. Mean scores of PCS and MCS and the 8 subscales were significantly lower in the unwanted pregnancy group in comparison to wanted pregnancy group (Table II). Of the 8 subscales, the highest level of mean difference was detected in role limitations due to physical health (14.6), and role limitations due to emotional problems (13.6, Table II). Regarding PCS and MCS, the mean difference was higher for MCS than for PCS (Table II, Figure1). Odds ratio was calculated to determine power of the relationship between pregnancy type (wanted/unwanted) and level of the SF-36 questionnaire scales (high-impairment / low-impairment). Table III presents the frequency distribution of high-impairment subscales and summary scales of the SF-36 questionnaire and its

**Table I:** Percentage frequency distribution of matched variables in wanted and unwanted pregnancy groups.

Variable	Current pregnancy		X <sup>2</sup> (df, n)	p-value
	Wanted (n=125)	Unwanted (125)		
Age				
18- 25	21 (16.8%)	21 (16.8%)	0.08 (3, 250)	0.99
26 - 30	29 (23.2%)	28 (22.4%)		
31 - 35	48 (38.4%)	50 (40%)		
36 - 45	27 (21.6%)	26 (20.8%)		
Gravida				
1	11 (8.8%)	17 (13.6%)	4.88 (4, 250)	0.3
2	39 (31.2%)	40 (32%)		
3	42 (33.6%)	42 (33.6%)		
4	20 (16%)	21 (16.8%)		
5	13 (10.4%)	5 (4%)		
Gestational age				
6	26 (20.8%)	31 (24.8%)	2.8 (4, 250)	0.59
7	17 (13.6%)	18 (14.4%)		
8	35 (28%)	25 (20%)		
9	10 (8%)	14 (11.2%)		
10	37 (29.6%)	37 (29.6%)		
Previous birth interval (month)				
< 36	23 (18.4%)	25 (20%)	0.21 (2, 250)	0.84
36 - 60	78 (62.4%)	76 (60.8%)		
> 60	24 (19.2%)	24 (19.2%)		
Number of living children				
0	23 (18.4%)	24 (19.2%)	0.47 (3, 250)	0.93
1	56 (44.8%)	57 (45.6%)		
2	38 (30.4%)	36 (28.8%)		
≥ 3	8 (6.4%)	8 (6.4%)		
Mother's education				
Not illiterate	7 (5.6%)	10 (8%)	4.11 (4, 250)	0.77
Primary school	29 (23.2%)	35 (28%)		
Middle school	22 (17.6%)	18 (14.4%)		
High school	48 (38.4%)	48 (38.4%)		
College	10 (8%)	10 (8%)		
Average monthly income of the household (million Riyals)				
< 10	16 (12.8%)	15 (12%)	0.63 (2, 250)	0.99
10 - 20	90 (72%)	91 (72.8%)		
> 20	19 (15.2%)	19 (15.2%)		
Having private housing				
No	76 (60.8%)	70 (56%)	0.59 (1,250)	0.26
Yes	49 (39.2%)	55 (44%)		

odds ratio for scales in wanted and unwanted pregnancy groups. Percentages of all scales were significantly lower in unwanted pregnancy compared to wanted pregnancy group except for general health ( $p = 0.12$ ).

MCS was 9.19 times lower in women with unwanted pregnancy compared to those with wanted pregnancy. Vitality was 5.2 times lower in the unwanted pregnancy group.

## DISCUSSION

Recognition and statement of complications in unwanted pregnancy can help in facilitating policy making processes and also help managers in designing specific programs and services to prevent unwanted pregnancy. Hereby, the author examined relationship between unwanted pregnancy and physical as well as mental health of women with a case control study. Since quality

**Table II:** Compare mean of eight subscales and two summary scales between the two groups.

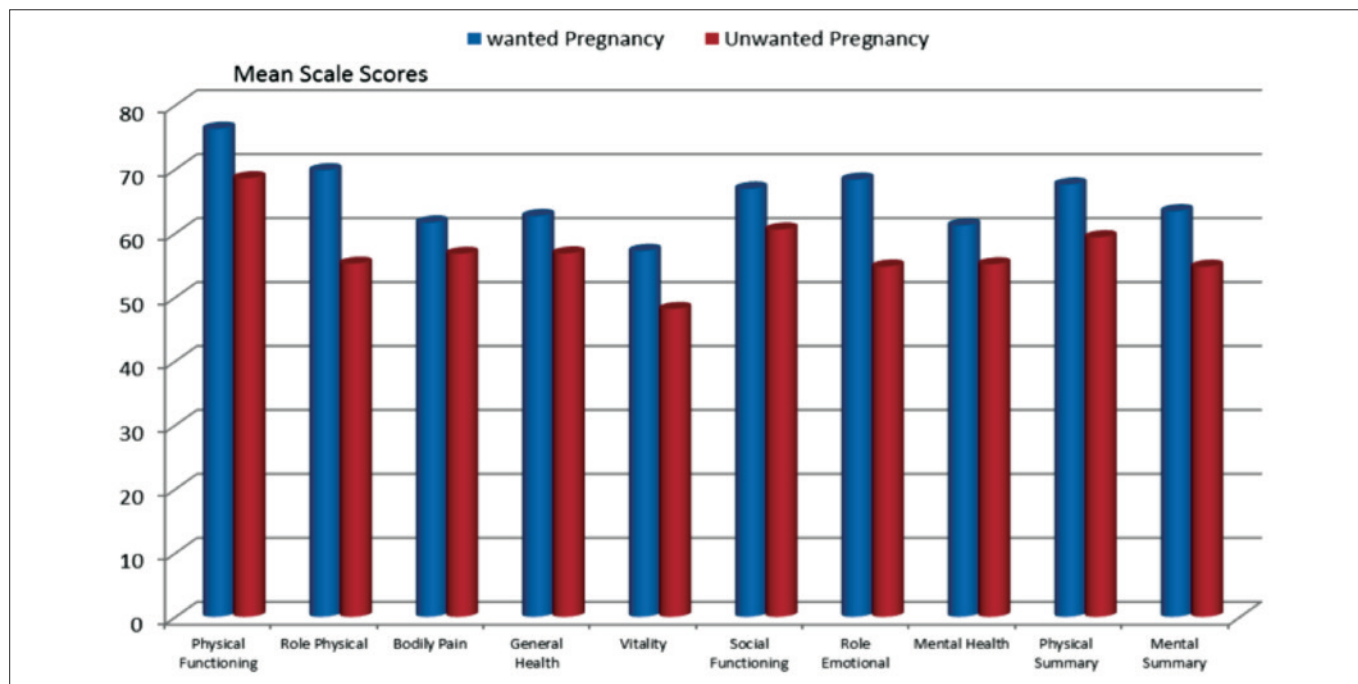
Subscales of the SF-36	Mean $\pm$ SD		Mean difference	t-test	p-value
	Wanted pregnancy (n=125)	Unwanted pregnancy (n=125)			
Physical functioning (PF)	76.28 $\pm$ 16.2	68.56 $\pm$ 16.02	7.72	3.78	<0.001
Role Physical (RP) <sup>1</sup>	69.8 $\pm$ 20.4	55.2 $\pm$ 22.74	14.6	5.34	<0.001
Bodily Pain (BP)	61.62 $\pm$ 10.8	56.74 $\pm$ 10.89	4.88	3.55	<0.001
General Health (GH)	62.64 $\pm$ 14.35	56.8 $\pm$ 15.27	5.84	3.12	<0.001
Vitality (VT) <sup>2</sup>	57.18 $\pm$ 10.99	48.1 $\pm$ 9.73	9.08	6.92	0.007
Social Functioning (SF)	58.91 $\pm$ 9.8	51.53 $\pm$ 9.26	7.38	6.12	<0.001
Role Emotional (RE) <sup>3</sup>	68.33 $\pm$ 11.54	54.73 $\pm$ 17.52	13.6	7.24	<0.001
Mental Health (MH) <sup>4</sup>	57.18 $\pm$ 10.98	48.1 $\pm$ 9.73	9.08	6.93	<0.001
Physical Component Summary (PCS)	67.58 $\pm$ 8.87	59.32 $\pm$ 8.29	8.26	7.6	<0.001
Mental Component Summary (MCS)	63.39 $\pm$ 5.53	54.71 $\pm$ 5.94	8.68	11.95	0.01

<sup>1</sup>Role limitations due to physical health, <sup>2</sup>Energy/fatigue, <sup>3</sup>Role limitations due to emotional problems, <sup>4</sup>Emotional well-being

**Table III:** Percentage frequency distribution and odds ratio of "low level" subscales and summary scales between the two groups.

Subscales of the SF-36	Unwanted pregnancy (n=125)	Wanted pregnancy (n=125)	OR (95% CI)	p-value ( $\chi^2$ )
Physical functioning (PF)				
High impairment	43 (34.4%)	72 (57.6%)	2.59 (1.55 - 4.33)	<0.001
Low impairment	82 (65.6%)	53 (42.4%)		
Role Physical (RP) <sup>1</sup>				
High impairment	43 (34.4%)	82 (65.6%)	3.64 (2.16 - 6.13)	<0.001
Low impairment	82 (65.6%)	43 (34.4%)		
Bodily Pain (BP)				
High impairment	46 (36.8%)	69 (55.2%)	2.11 (1.27 - 3.51)	0.003
Low impairment	79 (63.2%)	56 (44.8%)		
General Health (GH)				
High impairment	54 (43.2%)	64 (51.2%)	1.38 (.84 - 2.3)	0.12
Low impairment	71 (56.8%)	61 (48.8%)		
Vitality (VT) <sup>2</sup>				
High impairment	21 (16.8%)	64 (51.2%)	5.2 (2.89 - 9.33)	<0.001
Low impairment	104 (83.2%)	61 (48.8%)		
Social Functioning (SF)				
High impairment	37 (29.6%)	64 (51.2%)	2.49 (1.48 - 4.19)	<0.001
Low impairment	88 (70.4%)	61 (48.8%)		
Role Emotional (RE) <sup>3</sup>				
High impairment	29 (23.2%)	71 (56.8%)	4.35 (2.52 - 7.5)	<0.001
Low impairment	96 (76.8%)	54 (43.2%)		
Mental Health (MH) <sup>4</sup>				
High impairment	25 (20%)	56 (44.8%)	3.25 (1.85 - 5.6)	<0.001
Low impairment	100 (80%)	69 (55.2%)		
Physical Component Summary (PCS)				
High impairment	40 (32%)	87 (69.6%)	4.85 (2.85 - 8.31)	<0.001
Low impairment	85 (68%)	38 (30.4%)		
Mental Component Summary (MCS)				
High impairment	31 (24.8%)	94 (75.2%)	9.19 (5.17 - 16.32)	<0.001
Low impairment	94 (75.2%)	31 (24.8%)		

<sup>1</sup>Role limitations due to physical health, <sup>2</sup>Energy/fatigue, <sup>3</sup>Role limitations due to emotional problems, <sup>4</sup>Emotional well-being



**Figure 1:** Compare mean rank of Physical Component Summary (PCS) between the two groups.

Physical Functioning (PF), Role Physical (RP), Bodily Pain (BP), General Health (GH), Vitality (VT), Social Functioning (SF), Role Emotional (RE), and Mental Health (MH), Physical Component Summary (PCS), Mental Component Summary (MCS).

of life is influenced by many factors, important factors which affect quality of life in pregnant women which were determined by the literature review were matched between the two groups.

The results of this study show that women with unwanted pregnancy mean score of all subscales related to physical component summary (PCS) in the SF-36 questionnaire were lower than in women with wanted pregnancy. This is compatible with the studies by Najafian *et al.* and Khajepour *et al.*<sup>22,23</sup> studies.<sup>19,22</sup> However, it is in contrast in some other studies which reported no difference in physical health between wanted and unwanted pregnancies. This could be due to the difference in the study design or sample size or study location.<sup>24</sup>

These results show that mean score of all subscales related to mental component summary (MCS) including vitality, social functioning, emotional role, and mental health were lower in women with unwanted pregnancy compared to wanted pregnancy group which is in agreement with other studies.<sup>22,23,25</sup> Among the 8 subscales of the SF-36 questionnaire, vitality and mental health were the most affected by unwanted pregnancy. In other words, unwanted pregnancy had the most significant relationships with feeling of weakness, tiredness, nervousness, sadness, not being happy, and not feeling secure in women with unwanted pregnancy.

In this study, mental component summary (MCS) was more affected by unwanted pregnancy than physical component summary (PCS). Women with unwanted

pregnancy regarding their mental health have additional findings such as disturbance in social activities in relation to family, neighbours and citizens, reduction in the time spent doing chores and not doing things accurately than in the past. Disturbance in the above factors was more prominent than disturbances of physical activities like heavy and moderate physical activities (such as running, lifting heavy and medium objects, participation in strenuous exercises, moving a table or vacuum cleaner, etc.). Other studies also reported general psychological problems, depression, and anxiety in women with unwanted pregnancy.<sup>26</sup>

In this study, the examination of the power of relationship between unwanted pregnancy and the questionnaire's scales showed that the most powerful relationship existed between unwanted pregnancy and high-impairment score of MCS (OR = 9.19; 95 % CI = 5.17-16.32). In other words, level of MCS was nine-fold lower than that of women with unwanted pregnancy. Following MCS, the level of vitality was five-fold lower in the unwanted pregnancy than in the intended pregnancy.

## CONCLUSION

Mental health of the pregnant women with unwanted pregnancy was affected more than their physical health. Women with unwanted pregnancy were 9.19 times more likely to be at risk of impairment in mental health and 4.85 times at risk of impairment in physical health compared to those with wanted pregnancy. Among mental health subscales, vitality (feeling of weakness and tiredness) showed the highest-impairment.

**Acknowledgement:** The author thanks the financial support of Kermanshah University of Medical Sciences, Iran.

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