



Evaluation of Quality of Life in Women with Abortion Experience in Tehran 2015 - 2016

Narjes Feizollahi ¹ , Fatemeh Nahidi ^{2,*} , Manije Sereshti ³ , Maliheh Nasiri ⁴ , Asieh Azadpour Motlagh ⁵

¹ PhD Student of Reproductive Biology, School of Medicine, Tehran University of Medical Sciences, Tehran, Iran

² Associate Professor, Midwifery and Reproductive Health Research Center, Department of Midwifery and Reproductive Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran

³ Department of Maternal, Child and Reproductive Health, Community-Oriented Nursing Midwifery Research Center, Shahrkord University of Medical Sciences, Shahrkord, Iran

⁴ PhD of Biostatistics, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

⁵ Department of Midwifery and Reproductive Health, School of Nursing and Midwifery, Shahid Beheshti University of Medical Sciences, Tehran, Iran

*Corresponding author: Fatemeh Nahidi, Midwifery and Reproductive Health Research Center, Department of Midwifery and Reproductive Health, Shahid Beheshti University of Medical Sciences, Tehran, Iran. E-mail: nahidi@sbmu.ac.ir

DOI: [10.29252/anm.27765](https://doi.org/10.29252/anm.27765)

Submitted: 09-09-2019

Accepted: 28-11-2019

Published: 15-01-2020

Keywords:

Quality of Life
Abortion
Health Centers
Questionnaire

© 2020. Advances in Nursing and Midwifery

How to cite:

Feizollahi N. Evaluation of Quality of Life in Women with Abortion Experience in Tehran 2015 - 2016. *Adv Nurs Midwifery*. 2020;29(1):8-15. doi: 10.29252/anm.27765

Abstract

Introduction: Abortion as a traumatic event in life can have consequences on women's Individual-social quality of life. This study aimed to determine the quality of life of women with an abortion experience.

Methods: In this descriptive cross-sectional study in 2016, Convenience sampling was applied to select 165 women with a history of abortion from health centers affiliated to Shahid Beheshti University. A demographic, fertility, and the World Health Organization Quality of Life Questionnaire were used to collect data. Descriptive statistics (mean, standard deviation) and Pearson's correlation tests were administered to analyze the data by SPSS 20.

Results: The mean score of quality of life in research units was 78.43, mean score of quality of life dimensions, physical restraint 75.23, emotional limit 77.40, vitality 70.90, emotional health 49.38, Social score 72.03, pain 73.08 and health was 79.61, the mean score of each dimension was above average, respectively. There was a Significant relationship between age ($P = 0.003$), women's education ($P = 0.001$), family income ($P = 0.001$), number of abortion/previous absences ($P = 0.002$), gestational age at the time of abortion ($P = 0.005$), visualization of the fetus in sonography ($P = 0.000$), pregnancy request ($P = 0.003$), history of infertility ($P = 0.001$), abortion method ($P = 0.002$) and fetus heart hearing ($P = 0.005$) with quality of life.

Conclusions: Given the impact of abortion on women's quality of life and the importance of family and community health, reproductive health policy should be aimed at reducing the consequences of abortion and improving the quality of life.

INTRODUCTION

Over the last two or three decades, quality of life has been the hotbed of debates as it has been analyzed and criticized in different fields (1). Quality of life is a multidimensional and relative concept, influenced by time and individual and social values (2). Many variables affect individuals' perceptions of their health and status in life, which encompasses physical and psychological aspects, independence, beliefs and emotions, social relations, and environment (3). Some

experts define quality of life as a set of factors including health, physical environment, natural resources, personal development, and safety. On the other hand, some scholars refer to the economic dimension as one of the three pillars of the quality of life. The other researchers do not consider the quality of life as a quantitative and objective concept and introduce it as a subjective one. Some defined quality of life as life satisfaction and others defined it as the extent or level at

which one enjoys the facilities in his life (4). The lives of married persons and families are influenced by the quality of life, which contains their understanding of their status in life with regard to their culture, value system, goals, expectations, standards, and priorities (5).

The World Health Organization (WHO) defines abortion as the termination of pregnancy before 20 weeks of gestation or the termination of pregnancy with a fetus weighing < 500 g (6). More than one million pregnant women annually lose their baby, more than 85% of which get pregnant within the next 18 months (7). Many cases of abortion can occur unexpectedly, and this type of loss can be assumed as a devastating event leading to severe mental diseases in women (8). In their study, Mevorach - Zussman et al. (2011) reported that women with abortions experience various side effects such as sadness, depression, anxiety (9), and emotional disorders, including anger (10, 11). Losing a child is recognized as an extremely catastrophic experience of life, which often leads to complex mourning reactions, adversely affecting the parent's mental and physical health (12). The findings of previous studies suggest that the prevalence of grief in women who lose their baby is much higher than in other types of loss. Broen's (2005) study showed that 10% of women suffer from psychological distress six months after an abortion, which is possibly due to the attachment between mother and fetus during pregnancy (13).

Furthermore, women with a history of pregnancy loss may be concerned with their next pregnancy, and this feeling may persist until the next pregnancy (14). Fertl et al. (2009) also found that women with a history of pregnancy loss experienced more fears and anxiety during the first trimester than women without such a background (15). In this regard, Gravensteen et al. (2012) claim that early treatment after intrauterine fetal death may have long-term effects on women's mental health (16). Another study examined the impact of abortion after repeated pregnancies and high levels of anxiety in these women. Moreover, the main symptom of abortion-related anxiety was found to be a loss of hope and fear (17). In Brazil, Couto et al. (2009) also proposed that pregnancy loss was associated with a higher prevalence of depression and anxiety and lower quality of life (QoL) (18).

According to the theory of maternal and fetal attachment, the fetus is characterized by a pregnant woman and is assumed as a child; therefore, it seems reasonable for mothers to look after, grieve, and mourn for the lost fetus. In this case, 50% of women who have experienced spontaneous miscarriage suffer from psychological complications within weeks or months after losing their fetus and keep mourning (19). In contrast to a common belief implying that the mothers forget their hard feelings immediately after the death of the fetus, the researchers have shown that severe

psychological symptoms in mothers may persist up to 12 months. That is why some physicians recommend no pregnancy 6 to 12 months after an abortion. The consequences of this loss could last for years and even decades (20, 21).

Studies have revealed that the death of a child leads to long-term impairments in parents' health and well-being. Compared to other parents, these mourning parents experience more mental stress (22), remarkable distress in their marital life and higher frequency of divorce (23), contacts and conflict (24), higher incidence of hospitalization for mental diseases, some types of cancer (25), and higher frequency of mortality (26). Besides, severe emotional stress (27), suicide attempts (28, 29), obsessive-compulsive disorder, and substance use (28) are also more common among these parents. The findings of some research conducted in industrialized countries have also shown that quality of life and physical-emotional and social performance in women with abortion experience is lower than women without such an experience (30). Women with a history of abortion experience an increase in depression symptoms and might be at enhanced risk of adverse psychological effects such as pregnancy-related anxiety, depression, irritability, exhaustion, fear, sleep disorders, and lack of concentration. The studies have also documented the increased prevalence of abortion-induced mental illness among women (31). Research has shown that abortion might be associated with adverse psychological side effects, including depression, suicide, regret, decreased self-esteem, substance abuse, and deliberate self-harm (32), sleep disorder (33), and injuries (34). Abortion is a traumatic and stressful factor that leads to mental complications (35). In this regard, mental disorders appear after abortion for whatever reason. According to Ingrid (2007), the psychological symptoms in women with experiencing an abortion are similar to those of mothers who have lost their babies (36). In this case, mental and physical problems, including sexual and marital ones, caused by an abortion might affect women's quality of life by changing different aspects of their lives (37). Carter (2011) states that abortion, as a serious medical problem could have devastating effects on individuals' quality of life (38).

Although the quality of life plays a critical role in the health of women with an abortion, and understanding the women's post-abortion health behaviors is of paramount importance in promoting women's optimal health, few studies have examined the quality of life among women who have experienced an abortion. Awareness of individuals' quality of life and the detection of the factors that lower the quality of life can contribute to identifying effective strategies to improve the quality of service delivery and the quality of life in the community. Accordingly, about the role of women's physical and mental health in family health and future, this study aimed to examine the quality of life among

women with an abortion experience referring to health centers affiliated to Shahid Beheshti University of Medical Sciences during 2015- 2016.

METHODS

The present research was a descriptive cross-sectional study conducted in 2016 to assess the quality of life among women with a history of abortion. Using similar reviews (39) adopting sample size formula of descriptive studies, and considering $\alpha = 0.05$ and $\beta = 0.20$, the minimum expected correlation coefficient of 0.3 and attrition rate of 20%; the study sample size was estimated to be 165. Samples were selected by using a convenient sampling method. Inclusion criteria were being an Iranian women with an experience of abortion who were living in Tehran, aged 15 - 49 years, no history of known psychological illness (hospitalization, psychiatrist, medication use), an abortion during 22 weeks of pregnancy or less, two weeks to 3 years passed from the abortion (40), no re-occurrence of pregnancy after abortion, lack of known psychological and physical refractory disease such as disabilities of the participant women's husbands, and non-occurrence of misfortunate incidents during the past six months, and non-referral to counseling centers or court before their abortion because of conflicts with their husbands, the researcher provided a list of health centers (Shemiranat, North, East, Pardis) and hospitals supported by Shahid Beheshti University of Medical Sciences and Then randomly through the listed centers, Health centers and hospitals including Qaem, Lavasan, Pardis, ozgol, Deh Vanak, Resalat, Safa, Safari, Mohammadian, and Davazdah-e- Bahman health centers and Shohada, Imam Hossein, Taleghani, and Mahdieh hospitals, were selected. After that the researcher referred and presenting the referral to the selected centers, and introducing herself and expressing the goals and subjects of the research, the sampling was conducted, Given the extent of the population and women's referrals to these centers, the convenience sampling method was used, and by distributing the questionnaires among the subjects, they had them completed. The participants were ensured of the confidentiality of the information and gave the right to quit the study at any stage. Exclusion criteria consisted of failure in completing the questionnaires due to psychological problems, incomplete completion of the surveys, or withdrawal from the study.

In the present study, a demographic and socioeconomic status questionnaire, as well as a short form of the 26 - item Quality of Life Scale, were presented in-person to samples who had a history of abortion. The 26 - item Quality of Life Scale (World Health Organization, 2004) was to assess the eight dimensions of health status, including physical function, physical impairment, physical pain, general health, vitality, social

performance, emotional role, and mental health. The questionnaire was scored in accordance with the instructions. The questionnaire items identify both the positive and negative aspects of health. Scoring of the quality of life questionnaire is based on a 5-score Likert Scale, and the scores range from 0 to 100. A higher rating reflects a better quality of life. According to the obtained score, individuals' quality of life will be categorized in one of the three groups, undesirable (0 to 33.3), moderate (33.46 to 66.3), and desirable (66.4 to 100) (41). The following formula was used to convert the scores to a 100 scale: $\text{Score (100)} = (\text{Score} - \text{min}) * 100 / (\text{max} - \text{min})$.

The total score of quality of life was also obtained by averaging the different dimensions of health status. In this study, Cronbach's alpha was estimated to be 0.90 for the Quality of Life Scale.

The researcher submitted the questionnaires to the participants who met the inclusion criteria. The collected data were then analyzed by SPSS software version 20. Descriptive statistics, including mean and standard deviation as well as the Pearson correlation test, were used in this study.

RESULTS

In general, the mean and standard deviation of the variable 'quality of life' was 16.33 ± 78.43 . Moreover. The mean scores and standard deviations of the gestational age at abortion were 9.71 ± 5.06 . In this regard, 1.8%, 32.1%, 38.8%, and 27.3% of abortions occurred in < 4, 4 - 6, 7 - 12, and 13 - 22 weeks of gestation, respectively. Regarding the level of education, 3% of the participants were illiterate, 21.8% had a primary school, 34.5% hold a diploma, and 40.6% were educated academically. In terms of occupation, 72.1% of the women were housewives, 1.2%, 15.8%, and 10.9% were workers, employees, and self-employed, respectively. In this study, 46% of women had no children, 31% had one child, 18.8% had two children, and 3.6% had three children. Among the participants, 10.3% had experienced more than one marriage, and 89.7% had no previous marriage. A majority of the participants (76.4%) had a family relationship with their husbands. Concerning their language, 50.9%, 21.2%, 13.9%, and 9.1% of the study participants were Farsi, Turkish, and Kurdish and Lurish speakers, respectively. Twenty-eight (17%) women had systemic diseases, among whom there was 14.29% with skeletal, 50% with gland, 25% with blood, 3.57% with respiratory, and 7.14% with nervous system diseases. Considering the participants' husbands, 13 persons (7.9%) were suffering from diseases, out of whom 13.7%, 46.15%, 15.38%, and 30.77% had skeletal, blood, heart, brain, and nervous disorders, respectively. In this study, 65.5% of the participants were not aware of the abortion cause, 34.5% of these women were aware of the reasons, among

whom 26.31%, 24.56%, 1.76%, 10.53%, 26.26%, and 28.07% reported lack of fetal development, deliberate abortion, uterine myomas, placenta problem and cervical insufficiency, trauma and accidents, chromosomal abnormalities, and others as the causes of abortion. Furthermore, 59.4% of the participants were unaware of defects in their fetuses, and 81.8% of the

women were not aware of the gender of the aborted. Moreover, 71.5% of the study participants had not heard the heart sound of the fetus; 61.2% of the women had not observed the fetal images by ultrasound technique. Pregnancy in 63.6% of the study participants had terminated by curettage, and the others had taken drugs. There were 58.8% intended pregnancy for the

Table 1: Mean and standard deviation of the demographic characteristics of the participants

Characteristics	Average	Standard deviation	Min	Max
Age of research units	31	6.61	18	48
Number of pregnancy	2.31	1.42	1	8
gestational age	9.71	5.06	2weeks	22weeks
abortion rate	1.53	1.05	1	8
the interval between abortion occurrence and completion of the questionnaire	10.31	10.02	Less1 than month	36 months

Table 2: Demographic characteristics of the participants and their relationship with quality of life

Relationship between individual variables and quality of life	correlation coefficient	Sig.
Participants' age	0.334	0.003
Husbands' age	0.072	0.356
Level of Education	*0.296	0.001
Husbands' level of education	0.324	0.001
Employment	0.372	0.004
Husbands' employment	*0.263	0.004
Family income	0.452	0.001
Number of living children	-0.047	0.548
Number of miscarriages / previous lost	0.491	0.002
Ethnicity	0.101	0.122
Religion	0.150	0.054
Number of pregnancies	0.093	0.193
Gestational age at fetal loss	**0.236	0.005
Observing the fetal image by ultrasound	0.349	0.000
Intended pregnancy	0.652	0.003
History of physical / chronic diseases	0.321	0.052
History of infertility	*0.283	0.001
abortion treatment technique	*0.324	0.002
Hearing the heart sound of the fetus	*0.523	0.005

Table 3: Mean and standard deviation of health dimensions and total score of quality of life of women with abortion experience

	Mean	SD	Dimensions of quality of life in three modes (Undesirable, moderate, desirable)
Physical function	75/23	13/43	Desired
Physical disability	48/55	13/87	Moderate
Emotional impairment	77/40	12/50	Desired
Vitality	70/90	16/47	Desired
Emotional health	49/37	23/63	Moderate
Social Performance	72/03	21/15	Desired
Pain	73/08	8.45	Desired
Health	79/61	10/28	Desired
Quality of Life	78/43	16/33	Desired

Table4: Mean and standard deviation for quality of life during the abortion period at the time of completing the questionnaires

Quality of life passing from the abortion at the time of completing the questionnaires	Average	SD
< 3 months from abortion	2.08	0.231
3 months and one day to 6 months from abortion	2.82	0.543
6 months and one day to 12 months from abortion	3.01	0.109
12 months and one day to 36 months from abortion	3.66	0.547

Table 5: Assessing the effect of demographic characteristics on quality of life

Model	Unstandardized Coefficients		Standardized Coefficients	t	P-value
	B	Std. Error	Beta		
2					
Constant	90.741	3.755		24.167	.000
Number of pregnancies	-2.046	.783	-.201	-2.612	.010
Family income	2.401	1.121	.165	2.141	.034

participant women, and 91.5% of research subjects had no history of infertility. Finally, 94.5% of the women were Muslim and Shiite, and they reported an average degree of religiousness. According to Table 1 The mean scores of the participants' age, number of pregnancies, gestational age, abortion rate and the interval between abortion occurrence and completion of the questionnaire were Lower than average

Table 2 presents a significant relationship between the participants' age, level of education, husbands' level of education, husbands' employment status, family income, number of miscarriages/past lost, gestational age at the time of fetal death, observing the fetal image by ultrasound, intended pregnancy, a history of physical/chronic diseases, a history of infertility, abortion treatment technique, and hearing a heart sound of the fetus with the quality of life.

According to Table 3, the scores of the dimensions and the total score of quality of life were at the desired level in a majority of the women with an abortion experience. Each of the quality of life dimensions ranged from moderate to high, with a total score of 78.43 and a standard deviation of 16.33. The level of the quality of life and its different dimensions ranged from moderate to high for the participants.

Stepwise multiple regression was used to Assessing The Effect of Demographic Characteristics on quality of life, and only two variables, including pregnancy rate and Family income, were significant. With each pregnancy, the quality of life score declined by an average of 2.04, and with an increase in family income, the quality of life score increases by an average of 2.40 Tables 4 and 5.

DISCUSSION

The findings revealed a significant relationship between the participants' age, level of education, husbands' level of education, husbands' employment status, family income, number of miscarriages/past lost, gestational age at the time of fetal death, observing the fetal image by ultrasound, intended pregnancy, a history of physical/chronic diseases, a history of infertility, abortion treatment techniques, and hearing a heart sound of the fetus with the quality of life. The findings of the study were in line with the results of Monfared et al. (2013), as they found that the quality of life was significantly correlated with age, occupation, income, and level of education (42). The study findings were also consistent with the results of other studies (e.g., Ozaras et al., 2010) (43); Engel et al., (2004) (44); Smith et al. (2009) (43); Rezai et al. (2011) (45); and Ghaffari et al. (2009) (46).

The study findings also indicated that the quality of life in women with an abortion experience was at the desired level with the mean score of 3.43, and this variable was at its lowest level during less than three months from the

time of abortion until the questionnaire was completed and gradually increased over time. The mean scores and the findings of the present study showed that the variable '12 months and one day to 36 months from abortion' had a significant impact on the quality of life. These findings were in a similar vein with the conclusions from Zamani et al. (2013) who compared depression and quality of life among infertile women, fertile women, and the ones with recurrent miscarriages, concluding that women with recurrent miscarriages and infertile women had higher depression scores and lower quality of life than fertile women (47). Similarly, Rahbar et al. (2009) observed a decrease in the quality of life scores for women with abortion (33). In contrast to the present findings, Tavala et al. (2017) claimed that recurrent miscarriage was associated with reduced quality of life in different aspects (physical role, general health, vitality, social performance, emotional role, and mental health) at $P < 0.0001$; however, it had no significant relationship with physical function ($P = 0.06$) and physical pain ($P = 0.17$) (48). The inconsistencies in the findings might be caused by the sample size, type of study, and the research instruments.

The findings of the present study, considering the effect of the variable '3 months and one day to 6 months from abortion' on the quality of life, are in line with the findings by Rahbar et al. (2009) They conducted a cohort study to investigate individuals' general health after abortion, and concluded that abortion had an impact on the occurrence of physical disorders, anxiety, sleep disorders, depression, and public health. They introduced psychological support as a necessity for improving the quality of life (33). According to Nansel et al. (2005), women who lose their pregnancy at the early stages have a lower quality of life and experience higher levels of depression and stress than women of the same age (30). Couto et al. (2009) reported that women with abortion had lower scores in all cases, including physical function, social performance, emotional role, body pain, general health, mental health, and natural life (18).

Steinberg and Biggs [2013] believe that abortion leads to no psychological complication; however, factors such as pre-abortion mental health, domestic violence, pregnancy tendency, economic and social status, and so on play a significant role in the emergence of depression, anxiety, and short-term anxiety symptoms (28), in 20-40% of women (49), after abortion (50, 51). The other researchers, however, claim that abortion as a traumatic and stressful factor can lead to psychological complications (35). In general, it can be mentioned that psychological difficulties appear after abortion for whatever reason. According to Ingrid (2007), the psychological symptoms in women experiencing an abortion are similar to those of mothers who lost their babies (36). In this regard, mental and physical

problems caused by abortion can influence individuals' quality of life through affecting different aspects of their life, including sexual and marital problems (37). Carter (2011) states that abortion, as a serious medical problem has devastating effects on one's quality of life (38).

From the perspective of Mevorach-Zussman et al. (2012), if a woman experiences an abortion, the quality of her life decreases. They found that all women with recurrent miscarriage suffer from mild to moderate levels of anxiety, suggesting that women with abortion, in comparison to those who do not experience recurrent miscarriage, experience more stress if they do not experience a new pregnancy. Such an adventure leads to lower quality of life and possibly subsequent abortion or preterm delivery (9).

Blackmore et al. (2011) showed that the loss of previous pregnancies could be a predictor of perinatal depression. Depression can not only aggravate patients' living conditions but also reduce the quality of their life and contributes to decreased ability, mental health, and overall understanding of health and social role. Thus, the quality of individuals' life improves with reducing depression (52). In the present study, the relationship between gestational ages at abortion, observing the fetal image by sonography, intended pregnancy, abortion treatment technique, and hearing the heart sound of the fetus with the quality of life was examined. No previous study had addressed this issue, so that this is the novelty and one of the strengths of the present study.

CONCLUSIONS

Pregnancy is one of the most critical stages of a woman's life. Although this course is a joyous time for most women, it's often a stressful period with physiological and psychological changes. Therefore, many changes occur during pregnancy in different dimensions of quality of life, including the physical, mental, and social health of pregnant women at different gestational ages. There are various complications during a woman's pregnancy that affect the quality of life of women, and the most common complication in the first and second trimesters of pregnancy is abortion. States that abortion as a serious medical problem could have devastating effects on individuals' quality of life. Awareness of individuals' quality of life and the detection of the factors that lower the quality of life can contribute to identifying effective strategies to improve the quality of service delivery and the quality of life in the community.

The present study revealed that the quality of life for a majority of women with an abortion experience was at the desired level for 12 months and one day to 36 months after the abortion. Although the quality of life plays a critical role in the health of women with abortion,

understanding the factors that lower women's quality of life during the early months after abortion can be the primary goal of social, cultural, and family support institutions and centers. Concerning the findings of the present study, it is recommended to screen all women after abortion in terms of the quality of life to detect vulnerable women to provide them with proper health-related counseling and treatment and to have a healthy society ultimately. Also, policymakers in the field of reproductive health and midwifery are suggested to spare their efforts to improve the quality of life in this group of women by developing appropriate programs using new psychological and medical approaches.

Future studies can compare the quality of life in women with an abortion experience and the ones without such an experience.

Research Limitations

Non-regular referrals of women with abortion to the concerned health centers was one of the limitations of the present study. The researchers tried to overcome this limitation by increasing the sampling period.

Acknowledgments

This article was extracted from an MA thesis in midwifery. The authors would like to express their gratitude to the participants, authorities of Shahid Beheshti University of Medical Sciences, selected hospitals and health centers affiliated to Shahid Beheshti University of Medical Sciences, for their contribution in conducting this study.

Authors' Contribution

Feizollahi N. and Nahidi N. Sereshti M, Azadpour Motlagh A contributed to the study design. Nasiri M. was the statistic advisor. Feizollahi N. collected the data. All authors have approved the final manuscript.

Conflicts of Interests

There was no conflict of interest to be declared.

Funding

This study has not sponsored any organization

Ethical Consideration

The researcher obtains the permission of the Medical Research Ethics Committee, code No. 40, 1395.IR.SBMU.RAM.REC, from the International Branch of Shahid Beheshti University of Medical Sciences, and receive a recommendation letter from the Health Department and the chair of the University Health Center.

Issues, Informed consent, conflict of interest, plagiarism, misconduct, data fabrication and/or falsification, double publication and/or submission, redundancy, etc. have been considered carefully by the authors.

REFERENCES

- Serag El Din H, Shalaby A, Farouh HE, Elarlane SA. Principles of urban quality of life for a neighborhood. *HBRC J*. 2019;9(1):86-92. doi: 10.1016/j.hbrj.2013.02.007
- Panahi E, Fatehizadeh M. To evaluate the association between psychological capital and quality of marital life among couples in Isfahan. *J women soc*. 2015;3:41- 58.
- Global tuberculosis control: epidemiology, strategy, financing: WHO report 2009: World Health Organization; 2009.
- Morais P, Camanho AS. Evaluation of performance of European cities with the aim to promote quality of life improvements. *Omega*. 2011;39(4):398-409. doi: 10.1016/j.omega.2010.09.003
- Nejat S, Montazeri A, Hulakuei Naeini K, Majd zadeh S. Standardization of Quality of Life Questionnaire of WHO(WHOQOLBREF). *J Inst Public Health Res*. 2006;4(4):1-12.
- Cunningham F, Gant N, Leveno K, Gilstrap I, LC H. Gilstrap III LC and Wenstrom KD. Williams Obstetrics. New York: McGraw-Hill; 2005.
- Bicking Kinsey C, Baptiste-Roberts K, Zhu J, Kjerulff KH. Effect of previous miscarriage on the maternal birth experience in the First Baby Study. *J Obstet Gynecol Neonatal Nurs*. 2013;42(4):442-450. doi: 10.1111/1552-6909.12216 pmid: 23772602
- Gong X, Hao J, Tao F, Zhang J, Wang H, Xu R. Pregnancy loss and anxiety and depression during subsequent pregnancies: data from the C-ABC study. *Eur J Obstet Gynecol Reprod Biol*. 2013;166(1):30-36. doi: 10.1016/j.ejogrb.2012.09.024 pmid: 23146315
- Mevorach-Zussman N, Bolotin A, Shalev H, Bilenko N, Mazor M, Bashiri A. Anxiety and deterioration of quality of life factors associated with recurrent miscarriage in an observational study. *J Perinat Med*. 2012;40(5):495-501. doi: 10.1515/jpm-2011-0313 pmid: 23120756
- Conway K. Miscarriage. *J Psychosom Obstet Gynecol*. 2009;12(2):121-131. doi: 10.3109/01674829109077995
- Frost M, Condon JT. The psychological sequelae of miscarriage: a critical review of the literature. *Aust N Z J Psychiatry*. 1996;30(1):54-62. doi: 10.3109/00048679609076072 pmid: 8724327
- Kersting A, Wagner B. Complicated grief after perinatal loss. *Dialogues clin neurosci*. 2012;14(2):187.
- Broen AN, Moum T, Bodtker AS, Ekeberg O. Reasons for induced abortion and their relation to women's emotional distress: a prospective, two-year follow-up study. *Gen Hosp Psychiatry*. 2005;27(1):36-43. doi: 10.1016/j.genhosppsych.2004.09.009 pmid: 15694217
- Mills TA, Ricklesford C, Cooke A, Heazell AE, Whitworth M, Lavender T. Parents' experiences and expectations of care in pregnancy after stillbirth or neonatal death: a metasynthesis. *BJOG*. 2014;121(8):943-950. doi: 10.1111/1471-0528.12656 pmid: 24589119
- Fertl KI, Bergner A, Beyer R, Klapp BF, Rauchfuss M. Levels and effects of different forms of anxiety during pregnancy after a prior miscarriage. *Eur J Obstet Gynecol Reprod Biol*. 2009;142(1):23-29. doi: 10.1016/j.ejogrb.2008.09.009 pmid: 18986753
- Gravenstein IK, Helgadottir LB, Jacobsen EM, Sandset PM, Ekeberg O. Long-term impact of intrauterine fetal death on quality of life and depression: a case-control study. *BMC Pregnancy Childbirth*. 2012;12:43. doi: 10.1186/1471-2393-12-43 pmid: 22676992
- Armstrong DS, Hutti MH, Myers J. The influence of prior perinatal loss on parents' psychological distress after the birth of a subsequent healthy infant. *J Obstet Gynecol Neonatal Nurs*. 2009;38(6):654-666. doi: 10.1111/j.1552-6909.2009.01069.x pmid: 19930279
- Couto ER, Couto E, Vian B, Gregorio Z, Nomura ML, Zaccaria R, et al. Quality of life, depression and anxiety among pregnant women with previous adverse pregnancy outcomes. *Sao Paulo Med J*. 2009;127(4):185-189. doi: 10.1590/s1516-31802009000400002 pmid: 20011922
- Shaver PR, Tancredy CM. Emotion, attachment, and bereavement: A conceptual commentary. Handbook of bereavement research: Consequences, coping, and care. Washington, DC: American Psychological Association; 2001. p. 63-88.
- Barr P. Relation between grief and subsequent pregnancy status 13 months after perinatal bereavement. *J Perinat Med*. 2006;34(3):207-211. doi: 10.1515/JPM.2006.036 pmid: 16602840
- Lohan JA, Murphy SA. Mental Distress and Family Functioning among Married Parents Bereaved by a Child's Sudden Death. *Omega J Death Dying*. 2016;52(4):295-305. doi: 10.2190/fn94-p6rh-pmnd-uh0q
- Tsartsara E, Johnson MP. The impact of miscarriage on women's pregnancy-specific anxiety and feelings of prenatal maternal-fetal attachment during the course of a subsequent pregnancy: an exploratory follow-up study. *J Psychosom Obstet Gynaecol*. 2006;27(3):173-182. doi: 10.1080/01674820600646198 pmid: 17214452
- Najman JM, Vance JC, Boyle F, Embleton G, Foster B, Thearle J. The impact of a child death on marital adjustment. *Soc Sci Med*. 1993;37(8):1005-1010. doi: 10.1016/0277-9536(93)90435-7
- Moriarty HJ, Carroll R, Cotroneo M. Differences in bereavement reactions within couples following death of a child. *Res Nurs Health*. 1996;19(6):461-469. doi: 10.1002/(sici)1098-240x(199612)19:6<461::Aid-nur2>3.0.Co;2-m
- Levav I, Kohn R, Iscovich J, Abramson JH, Tsai WY, Vigdorovich D. Cancer incidence and survival following bereavement. *Am J Public Health*. 2000;90(10):1601-1607. doi: 10.2105/ajph.90.10.1601 pmid: 11029995
- Li J, Precht DH, Mortensen PB, Olsen J. Mortality in parents after death of a child in Denmark: a nationwide follow-up study. *Lancet*. 2003;361(9355):363-367. doi: 10.1016/s0140-6736(03)12387-2
- Kero A, Hogberg U, Lalos A. Wellbeing and mental growth-long-term effects of legal abortion. *Soc Sci Med*. 2004;58(12):2559-2569. doi: 10.1016/j.socscimed.2003.09.004 pmid: 15081205
- Fergusson DM, Horwood LJ, Ridder EM. Abortion in young women and subsequent mental health. *J Child Psychol Psychiatry*. 2006;47(1):16-24. doi: 10.1111/j.1469-7610.2005.01538.x pmid: 16405636
- Hutti MH. Social and professional support needs of families after perinatal loss. *J Obstet Gynecol Neonatal Nurs*. 2005;34(5):630-638. doi: 10.1177/0884217505279998 pmid: 16227519
- Nansel TR, Doyle F, Frederick MM, Zhang J. Quality of life in women undergoing medical treatment for early pregnancy failure. *J Obstet Gynecol Neonatal Nurs*. 2005;34(4):473-481. doi: 10.1177/0884217505278319 pmid: 16020415
- Lok IH, Yip AS, Lee DT, Sahota D, Chung TK. A 1-year longitudinal study of psychological morbidity after miscarriage. *Fertil Steril*. 2010;93(6):1966-1975. doi: 10.1016/j.fertnstert.2008.12.048 pmid: 19185858
- Thorp JM, Jr., Hartmann KE, Shadigian E. Long-term physical and psychological health consequences of induced abortion: review of the evidence. *Obstet Gynecol Surv*. 2003;58(1):67-79. doi: 10.1097/00006254-200301000-00023 pmid: 12544786
- Rahbar N, Ghorbani R, moazzen S, Sotodehasl N. Relationship between spontaneous abortion and mental health. *J Obstet Gynecol Infertility*. 2010;13:7-12.
- Veiga MB, Lam M, Gemeinhardt C, Houlihan E, Fitzsimmons BP, Hodgson ZG. Social support in the post-abortion recovery room: evidence from patients, support persons and nurses in a

- Vancouver clinic. *Contraception*. 2011;**83**(3):268-273. doi: 10.1016/j.contraception.2010.07.019 pmid: 21310290
35. Steinberg JR, McCulloch CE, Adler NE. Abortion and mental health: findings from The National Comorbidity Survey-Replication. *Obstet Gynecol*. 2014;**123**(2 Pt 1):263-270. doi: 10.1097/AOG.000000000000092 pmid: 24402590
 36. Lok IH, Neugebauer R. Psychological morbidity following miscarriage. *Best Pract Res Clin Obstet Gynaecol*. 2007;**21**(2):229-247. doi: 10.1016/j.bpobgyn.2006.11.007 pmid: 17317322
 37. Wilmoth GH, Alteriis M, Bussell D. Prevalence of Psychological Risks Following Legal Abortion in the U.S.: Limits of the Evidence. *J Soc Issues*. 1992;**48**(3):37-66. doi: 10.1111/j.1540-4560.1992.tb00897.x
 38. Carter J, Applegarth L, Josephs L, Grill E, Baser RE, Rosenwaks Z. A cross-sectional cohort study of infertile women awaiting oocyte donation: the emotional, sexual, and quality-of-life impact. *Fertil Steril*. 2011;**95**(2):711-716 e711. doi: 10.1016/j.fertnstert.2010.10.004 pmid: 21055740
 39. Nematpour Z, Golzari M. Evaluate the effectiveness of counseling and grief therapy group method with a religious approach to the promotion of quality of life bereaved mother. *Clin psychol res consultat*. 2015;**5**(1):69-52.
 40. Sereshti M, Nahodi F, Simbar M, Ahmadi F, Bakhtiyari M, Zayeri F. Explaining the Maternal Experience of Perinatal Loss Event: Development and Psychometric Properties of the Perinatal Grief Assessment Tools in Iranian Women. Iran: International Branch Of Shahid Beheshti University Of Medical Sciences & health services 2016, 2016.
 41. Gharacheh M, Azadi S, Afrasiyabi A. mistreated wife married women. *J think behav*. 2012;**19**:64-55.
 42. Monfared A, Pak Seresht S, Ghanbari A, Atkarkar Roshan Z. Quality of life related to health and its determinants in women with breast cancer. *Nurs Midwifery Compr*. 2011;**23**(70):52-62.
 43. Özaras G, Özyurda F. Quality of life and influencing factors in patients with a gynaecologic cancer diagnosis at Gazi University, Turkey. *Asian Pac J Cancer Prev*. 2010;**11**(5):1403-1408.
 44. Engel J, Kerr J, Schlesinger-Raab A, Eckel R, Sauer H, Holzel D. Predictors of quality of life of breast cancer patients. *Acta Oncol*. 2003;**42**(7):710-718. doi: 10.1080/02841860310017658 pmid: 14690156
 45. Rezaei R, SAAT SS, Haji HF, Sharifnia S, Nazari R. Quality of life in gynecologic cancer patients before and after chemotherapy. *J Babol Univ Med Sci (Jbums)*. 2011;**13**(4):78-84.
 46. Ghaffari F, Fotokian Z, Karimi M, Keihanian S, Karimi H. The relationship between anemia-related fatigue and quality of life in canceric patients. *QUMS*. 2009;**13**(1):34-41.
 47. Zamani N, Ghasemi M, Jokar E, Khazri Moghadam N. Comparison of depression and life quality of fertile and infertile women and those with frequent abortions. *J Babol Univ Med Sci*. 2013;**15**(6):78-83.
 48. Tavoli Z, Mohammadi M, Tavoli A, Moini A, Effatpanah M, Khedmat L, et al. Quality of life and psychological distress in women with recurrent miscarriage: a comparative study. *Health Qual Life Outcomes*. 2018;**16**(1):150. doi: 10.1186/s12955-018-0982-z pmid: 30055644
 49. Janssen HJ, Cuisinier MC, Hoogduin KA, de Graauw KP. Controlled prospective study on the mental health of women following pregnancy loss. *Am J Psychiatry*. 1996;**153**(2):226-230. doi: 10.1176/ajp.153.2.226 pmid: 8561203
 50. Steinberg JR, Tschann JM, Furgerson D, Harper CC. Psychosocial factors and pre-abortion psychological health: The significance of stigma. *Soc Sci Med*. 2016;**150**:67-75. doi: 10.1016/j.socscimed.2015.12.007 pmid: 26735332
 51. Biggs MA, Gould H, Foster DG. Understanding why women seek abortions in the US. *BMC Womens Health*. 2013;**13**:29. doi: 10.1186/1472-6874-13-29 pmid: 23829590
 52. Blackmore ER, Cote-Arsenault D, Tang W, Glover V, Evans J, Golding J, et al. Previous prenatal loss as a predictor of perinatal depression and anxiety. *Br J Psychiatry*. 2011;**198**(5):373-378. doi: 10.1192/bjp.bp.110.083105 pmid: 21372060