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A Cross-sectional Study of Psychosocial Problems Following Therapeutic Abortion With the Mother's Spiritual Experiences

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Abstract

Objectives: Abortion can be stressful for the family and may lead to psychological problems. The question arises whether religious attitudes can be restructured into women who experience induced and spontaneous abortions. In this regard, the present study aimed to investigate the relationship of post-traumatic stress disorder (PTSD) after therapeutic abortion (Induced and spontaneous) with the mother's spiritual experiences.

Materials and Methods: This cross-sectional study with a sample size of 104 people was conducted in 2018-2019 in the selected hospitals of Shiraz University of Medical Sciences. The convenience sampling method was used in 2018. Research tools including the Mississippi PTSD Scale questionnaire were implemented for measuring stress and religious attitudes and completed immediately and a month after abortion. Data were analyzed by SPSS software using one-way ANOVA, least significant difference post hoc test, and paired t-test or Wilcoxon test.

Results: Based on the results, 68.7%, 71.8%, and 72.7% of the abortion group with forensic medical letter, other causes, and spontaneous abortion had a high level of religious attitudes, respectively. In addition, 78.1%, 69.2%, and 72.7% of those who had an abortion with a forensic medical letter, underwent abortion for other causes, and experienced a spontaneous abortion had moderate PTSD immediately after abortion, respectively. Further, 62.5%, 64.1%, and 66.7% of women having an abortion with forensic medical letter, undergoing abortion for other causes, and experiencing spontaneous abortion had moderate PTSD one month after abortion, respectively. The findings revealed no significant relationship between PTSD differences immediately and a month after the abortion in the subjects (P=0.175).

Conclusions: The research community had a high religious attitude while having no association with PTSD reductions. More than half of the pregnancies were unwanted, which may be due to stress levels.

Keywords: Abortion, Post-traumatic stress, Religious attitude, Mothers, Spontaneous, Induction, Forensics

Introduction

Terminology and Prevalence

Pregnancy loss can take many forms including abortion, stillbirth, and miscarriage and is accompanied by maternal and familial stress in all these cases. Spontaneous abortion is the most common and serious complication in early pregnancy, occurring in 17%-22% of all known pregnancies (1). According to the Centers for Disease Control and the World Health Organization, abortion is defined as the termination of a pregnancy before the 20th week of pregnancy or the birth of a fetus weighing less than 500 grams (2). Its prevalence in the United States is 15% of the known pregnancies with spontaneous abortion and about one-third of pregnancies of women with selective abortion (3). As mentioned by Sedgh et al (4), Dakar, the capital of Senegal, had 21 abortions per 1000 to 44-400 women, which was higher than those in other parts of the country (16 per 1000). In one study in Iran, the prevalence of abortion was 8.3% (5) and in another study in Tehran, this value was estimated as 8.7% of those among married women ending in abortion, namely, in every 100 known pregnancies (6).

The Type of Traumatic Reactions Following Abortion Experiences

Hope for the future, feeling of satisfaction, and early bonding with the unborn child are among the complex emotional responses to pregnancy due to its effective nature. On the other hand, abortion can be stressful for family members, doctors, and others in the social support system (7). Some women experience anxiety, anger, post-traumatic stress, and feeling of guilt about childbearing in the future (8) and its detrimental effects on the couple's relationship (9). According to Langkaas et al (10), such feelings can be part of a persistent, overactive, or functional disorder that is associated with post-traumatic

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Key Messages

- Women's psychological responses to abortion and PTSD are influenced by complex socio-cultural and ethnic factors, and psychological problems may persist for a long time after physical recover.
- The existence of religious beliefs as an effective factor in the prevention and treatment of mental disorders, if used effectively, may affect the ability of individuals to adapt and cope with the crisis of abortion. Positive hope and attitude will be effective in reducing PTSD.

stress disorder (PTSD). Abortion is associated with moderate to severe mental, social, and occupational risk including psychological problems such as depression and anxiety, suicidal behaviors, PTSD, alcohol or marijuana use, and smoking (7,8,11). A cohort study in Sweden was performed on 1457 women with induced abortion. The prevalence of PTSD before and after abortion was 4.3% and 23.5%, respectively, and there was a high level of anxiety, depression, and dropout. Evidence showed that within one month after abortion, 10% of women had acute stress disorder and 1% had PTSD (7). Other studies reported that people respond to the bitter experience of abortion in the form of fear and helplessness, constantly imagining the event in their minds. The possibility of post-traumatic stress increases as well. However, no study has focused on religious attitudes and post-traumatic stress in recent years (12-15).

Religious Beliefs and Practices Defined as a Method of Coping

Many scholars consider having religious beliefs as an influential factor in people's health. This factor can also be effectively used in the treatment and prevention of mental disorders and can increase the ability of individuals to adapt to and deal with illnesses (16). From the mental health point of view, religion offers many guidelines that can help people in creating principles for their lives. Religious beliefs can easily make the pressures, stresses, and uncertainties of life tolerable (17). In addition, religion is a source of support for individuals facing problems, and religious beliefs and practices are defined as a method of coping that uses religious resources such as prayer, trust, and the appeal to God. Religion further leads to the mental health of the individual and society through various mechanisms. Moreover, performing religious behaviors such as prayer, honesty, and faith in God and reading religious books also create inner peace by providing hope and encouragement regarding finding a positive view of the situation. Other mechanisms include having religious mental health, hope, and motivation and positivity in religion, creating an emotional and social support network, giving a clear and decisive answer to the concept of creation, world, and life, along with defining suffering, pain, and deprivation (17,18).

Numerous studies have shown not only a positive relationship between religion and mental health but also the positive effects of religious beliefs and practice on one's mental and physical health (19). Abortion is a controversial issue in all religions and medical societies and schools. From the Islamic point of view, criminal abortion is a sin and unacceptable except for medical cases, especially in certain circumstances. It should be noted that the majority of people are Muslim in Iran. From the perspective of Shiite jurisprudence in Islam with reference to the Holy Quran, all human beings, including the fetus, are equal in the principles of "human dignity" and "right to life". In general, from the perspective of Shiite jurists, abortion is forbidden and punished under the Islamic penal code. Most Shiite jurists allow abortion only in the case of unhealthy and incomplete fetuses and highly urgent medical cases (i.e., heart disease, hypertension, and the like). Additionally, abortion can be performed with the permission of judicial authorities and a forensic medical certificate in cases that the conditions exacerbate the effects of the disease and threaten the mother's life (20-23).

Necessity and Reasons for Conducting Research

Given the high incidence of abortion and its subsequent physical and psychological complications, some studies demonstrated that God-given healing and faith-based therapy are well-organized, psychological-based methods of high importance in treating diseases and alleviating induced pain, anxiety, depression, and tensions. In this regard, the current study mainly sought to determine whether the level of women's religious beliefs in society can be considered as a factor in promoting the attitude toward abortion. More precisely, whether it is possible to expect a more favorable attitude toward abortion by increasing the level of religious belief or whether there is a correlation between the level of women's religious attitudes in PTSD and the types of abortions, and how it is effective in PTSD. Therefore, the study focused on evaluating the relationship between religious attitudes and PTSD in all types of spontaneous and induced abortion permitted by forensic medicine in the hospitals affiliated to Shiraz University of Medical Sciences in 2018 in order to use the results to help a large group of pregnant women.

Materials and Methods

This cross-sectional study was performed in the selected hospitals of Shiraz University of Medical Sciences (i.e., Hazrat Zeinab, Shahid Faghihi, Hafez, and Shooshtari hospitals) due to their availability and a high number of referrals in 2018-2019. The sample size was calculated as 82 patients based on the correlation coefficient estimated from the study by Cowchock et al (24) with a loss probability of 10%. In general, 104 subjects were enrolled given the mothers' willingness to participate in the study.

The inclusion criteria were being 10-49 years old, Iranian, and literate and having experience of one type of abortion while not suffering from chronic illness (i.e., heart disease, hypertension, and diabetes) or using any psychological treatment including medication and psychotherapy. The types of abortion were induced abortion with a forensic medical letter due to fetal abnormalities or maternal complications, induced abortions with other medical causes (e.g., blighted ovum), and spontaneous abortion occurring without any intervention. On the other hand, the exclusion criteria were women's willingness to withdraw from the study at any time and any other adverse events in life that can affect the mother's grief (e.g., financial crisis or bereavement).

A simple purposive sampling method was used in this study, and the sampling lasted for 4 months from September 2018 to January 2019. General information questionnaire and medical and midwifery history and type of abortion until the moment of abortion were recorded after obtaining written consent from eligible individuals. Then, Mississippi PTSD Scale was applied to measure stress levels, and a religious attitude questionnaire was completed for all the samples. The questionnaires were completed immediately after the abortion and one month later via phone calls.

Study Design

After obtaining the code of ethics from the Ethics Committee of Shiraz University of Medical Sciences, the researcher was introduced to the hospitals. Then, the researcher referred to three hospitals. The target population consisted of all women candidates for abortion for any reason. They were given a verbal lecture and written information about the study objectives, approach, and necessary training on how to fill out the questionnaires, and were assured of data confidentiality. Willing women signed a written consent form and participated in the study. They filled out the general information questionnaire, and their medical history and midwifery records were recorded until the time of the abortion including the type of abortion, causes and complications, and type of treatment. Next, a standardized questionnaire and the recovery assessment scale-revised were applied to measure stress levels and religious attitudes, respectively. Four weeks after the abortion, subjects were asked to re-complete the stress and religious questionnaires. It should be noted that the information about the causes, complications, and type of treatment is not included in this article.

Data Collection Tools

a. The demographic questionnaire consists of 60 researcher-made items in two sections of demographic (14 items) and midwifery (46 items) information. To determine validity, the final version of the questionnaire approved by the research team was given to 10 expert professors of the schools of nursing and midwifery of Shiraz Universities of Medical Sciences. The validity of the questionnaire was confirmed after the application of the professors' recommendations.
b. Mississippi PTSD Scale includes 35 items scored from 1 to 5. The total score ranges from 35 to 175 with scores of 107 and above indicating a person with PTSD (25-29). This scale has been validated in Iran by Goodarzi and with a Cronbach's alpha coefficient of 0.92 (28). Three tools of life events inventory, the PTSD index, and the Padua inventory were used to determine the concurrent validity of this scale. The correlation coefficients of the Mississippi scale with each tool were reported as 0.23, 0.82, and 0.75, respectively (29). This validation process was utilized as a basis for the present study.
c. The Religious Attitude Questionnaire consists of 25 items scored based on a Likert-type scale ranging from 1 to 5, classifying the participants into three levels of high (scored 100 and above), low (scored 50 and lower), and moderate (scored 51-99) religious attitudes (19,30,31). Its Cronbach's alpha coefficient was estimated as 0.954. The reliability and validity indexes reported by Ebrahimi et al were the basis of the present study (30).

Statistical Analysis Methods

One-way ANOVA, least significant difference, and post hoc tests were used to compare stress levels in the three groups. Paired *t* test or Wilcoxon test was also used to compare stress in each group. In addition, one-way ANOVA was applied to express differences in scores immediately and one month after abortion in addition to comparing the three groups according to their religious attitudes.

Results

The mean age of the subjects was 30.62 years, of whom 89.4% were housewives and 41.3% had a high school diploma. The mean age of their spouses was 34.94%, of whom 77.8% were self-employed and 35.6% had a high school diploma (Table 1).

In the spontaneous abortion group, 72.7% and 28.8% had high and medium levels of religious attitudes, respectively (Table 2). The induced abortion group with a forensic medical letter, the induced abortion group with other causes, and the spontaneous abortion group had a PTSD score of 30.8%, 37.5%, and 31.7%, respectively, and the highest stress scores in all three groups were moderate (Table 3).

One month after abortion, 62.5%, 64.1%, and 66.7% of subjects in the induced abortion group with a forensic medical letter, the induced abortion group with other causes, and the spontaneous abortion group had moderate PTSD, respectively (Table 4).

Table 1. Demographic Characteristics of the Study Subjects

Variable		Component	Induced Abortions (Forensic Medicine)	Induced Abortions (Other Etiology)	Spontaneous Abortions Spontaneous Abortions	Total
			n (%)	n (%)	n (%)	n (%)
Job	Mother	Housewife	29 (90.6)	35 (89.7)	29 (87.9)	93 (89.4)
		Self-employment	1 (3.1)	1 (2.6)	1 (3)	3 (2.9)
		Employment	2 (6.3)	3 (7.7)	3 (9.1)	8 (7.7)
		Unemployment	1 (3.1)	0 (0)	0	1 (1)
	Father	Self-employment	23 (71.9)	32 (82.1)	26 (78.8)	81 (77.8)
		Employment	8 (25)	7 (17.9)	7 (21.2)	22 (21.2)
Education	Mother	Elementary	9 (28.1)	5 (12.8)	3 (9.1)	17 (16.4)
		Middle school	7 (21.9)	6 (15.4)	6 (18.2)	19 (18.3)
		High School (Diploma)	9 (28.1)	18 (46.2)	16 (48.5)	43 (41.3)
		Licensee and postgraduate	7 (21.9)	10 (25.6)	8 (24.2)	25 (24.0)
	Father	Elementary	4 (12.5)	4 (10.2)	3 (9.1)	11 (10.6)
		Middle school	11 (34.4)	12 (30.8)	12 (36.4)	35 (33.7)
		High school (Diploma)	11 (34.4)	15 (38.5)	11 (33.3)	37 (35.6)
		Licensee and Postgraduate	6 (18.7)	8 (20.5)	7 (21.2)	21 (20.1)
Age	Mother	20 and lower	1 (3.1)	0 (0)	3 (9.1)	4 (3.8)
		21-30	10 (31.3)	20 (51.3)	17 (51.5)	47 (45.2)
		31-40	16 (50)	18 (46.1)	13 (39.4)	47 (45.2)
		41and higher	5 (15.4)	1 (2.6)	0 (0)	6 (5.8)
		Mean	32.53	30.51	28.88	30.62
	Father	20-30	5 (15.6)	5 (12.8)	12 (36.4)	22 (21.15)
		31-40	19 (59.4)	30 (76.9)	17 (51.5)	66 (63.46)
		41 and higher	8 (25)	4 (10.5)	4 (12.1)	16 (15.4)
		Mean	36.6	35.12	33.12	34.94
Total			32 (100)	39 (100)	33	104 (100)

Table 2. The Level of Religious Attitudes in the Induced and Spontaneous Abortion Groups

RA Score	Induced Abortions (Forensic Medicine)	Induced Abortions (Other Etiology)	Spontaneous Abortions	Total
	n (%)	n (%)	n (%)	n (%)
Medium (50-100)	10 (31.3)	11 (28.2)	9 (27.3)	30 (28.8)
High (100-125)	22 (68.7)	28 (71.8)	24 (72.7)	74 (71.2)
Total	32 (100)	39 (100)	33 (100)	104 (100)

RA: Religious attitude score.

Table 3. Comparison of PTSD Intensity in the Induced and Spontaneous Abortion Groups Immediately After Abortion

PTS Score	Induced Abortions (Forensic Medicine)	Induced Abortions (Other Etiology)	Spontaneous Abortions	Total
	n (%)	n (%)	n (%)	n (%)
Low (35-70)	6 (18.8)	7 (17.9)	7 (21.2)	20 (19.2)
Medium (70-107)	25 (78.1)	27 (69.2)	24 (72.7)	76 (73.1)
High (107-175)	1 (3.1)	5 (12.8)	2 (6.1)	8 (7.7)
Total	32 (30.8)	39 (37.5)	33 (131.73)	104 (100)

PTS: Post-traumatic stress score; PTSD: Post-traumatic stress disorder.

One-way ANOVA was used to compare the three groups in terms of religious attitudes. The results showed that there was no statistically significant difference between the three groups regarding religious attitudes (Table 5). Spearman correlation was applied to determine the correlation between PTSD score changes immediately and one month after abortion with the religious attitude in general and in each of the three groups. Based on the results, the changes in the scores were not significant. In other words, the difference in PTSD was not significant immediately and one month after the abortion ($P = 0.175$).

Data analysis on the relationship between the PTSD score and religious attitudes revealed that the difference in PTSD scores immediately and one month after abortion was significant and inverse only in the case of induced abortion with other causes ($P = 0.027$) while not being statistically significant in other cases. In other words, higher scores of the religious attitudes led to lower PTSD scores before and after abortion (Tables 5 and 6).

Discussion

Our results demonstrated that patients with abortion

Table 4. Comparison of PTSD Intensity in the Induced and Spontaneous Abortion Groups a Month After Abortion

PTS Score	Induced Abortions (Forensic Medicine)	Induced Abortions (Other Etiology)	Spontaneous Abortions	Total
	n (%)	n (%)	n (%)	n (%)
Low (35-70)	11 (34.4)	12 (30.8)	11 (33.3)	34 (32.7)
Medium (70-107)	20 (62.5)	25 (64.1)	22 (66.7)	67 (64.3)
High (107-175)	1 (3.1)	2 (5.1)	0 (0)	3 (2.9)
Total	32 (100)	39 (100)	33 (100)	104 (100)

PTS: Post-traumatic stress score; PTSD: Post-traumatic stress disorder.

Table 5. Comparison of Religious Attitudes in the Induced and Spontaneous Abortion Groups

Induced Abortions (Forensic Medicine)	Induced Abortions (Other Etiology)	Spontaneous Abortions	Index	*P* Value
8.2±103.1	9.7±102.2	9.6±103.4	0.168	0.848

Table 6. The Relationship Between the PTSD Score and Religious Attitudes

	Induced Abortions (Forensic Medicine)		Induced Abortions (Other Etiology)		Spontaneous Abortions		Total	
PTS Score	*P* Value	r	*P* Value	r	*P* Value	r	*P* Value	r
Immediately after abortion	0.951	-0.02	0.415	0.136	0.802	-0.04	0.847	0.01
A month after abortion	0.768	-0.05	0.325	-0.164	0.272	-0.11	0.212	-0.12
Variation	0.747	0.06	0.027	-0.259	0.740	-0.05	0.175	-0.134

PTSD: Post-traumatic stress disorder.

had a high religious attitude. The results of the group with induced abortions with other causes showed that the difference in stress immediately after an abortion and a month later was significant and had an inverse relationship ($P = 0.027$), meaning that the higher was the religious attitude score, the lower was the stress score. A review study on the role of mothers' religious beliefs in dealing with pregnancy loss represented that religion has a significant impact on the parents' acceptance of fetal loss and their recovery from such tragic events (32). Based on the results of the study by Layer et al on the effect of spiritual group intervention on post-abortion sadness and mourning, PTSD symptoms were less responsive to intensive interventions (33). Likewise, Cowchock et al evaluated the effect of religious beliefs on post-pregnancy sadness and found that belief in God reduced sadness and grief scores 4-6 weeks after fetal loss (24,33). All the above-mentioned studies showed that higher religious attitudes and spiritual beliefs reduced PTSD in mothers with induced abortion. These results are consistent with those of our study.

The impact of one's spiritual beliefs on the interpretation of events can facilitate the process of accepting events. In other words, spirituality is described as an umbrella that covers various concepts such as spiritual health, beliefs, and spiritual adjustment (34). Religion satisfies one's basic needs and fills moral, emotional, and spiritual gaps (35). Furthermore, religious beliefs and behaviors help the individuals cope with stress, create hope and positive attitudes, strengthen their inner peace, and successfully cope with stress (32,36-38). They also have better mental health and less depression and anxiety (19,31,39-42).

Our results demonstrated that the majority of abortion patients with a forensic medical letter and spontaneous abortion had religious attitudes. There was no significant relationship between PTSD and religious attitudes in the forensic medicine group.

Some studies reported that traumatic events cause PTSD. However, the severity of the initial response and the number of people showing these reactions markedly decreased over time (43-45). A study in the US evaluated the mental health of women who had unwanted pregnancies and abortions one hour later, one month later, and two years later and concluded that most of these women did not experience psychological problems (46), The results of these studies are in line with the findings of our study.

Some studies showed that spontaneous abortion does not lead to psychological complications although factors such as pre-abortion mental health, domestic violence, pregnancy tendency, and economic status affect depression and PTSD (47,48). However, induced abortion had some negative psychological effects on women because they have been deprived of a healthy child. Based on the results of Allahdadian and Irajpou, religion and religious beliefs reduce the sadness and stress caused by fetal loss and prepare the parents to accept it (32).

On the other hand, other studies indicated that no specific psychological changes occur after an abortion, and as a result, there is no relationship between abortion and post-abortion mental health. The problems that occur after abortion are due to violence and social deprivation in these women before the abortion. When these factors were taken into account during the analysis of the PTSD data, abortion was not associated with subsequent psychological problems (49-51).

In this study, 53.8% of the pregnancies were unwanted (50% of these women did not use a reliable contraceptive method), and they did not take any action for abortion and considered spontaneous abortion or the need for induced abortion as a kind of a divine blessing because of their religious beliefs and attitudes about their feeling of guilt about abortion. They were wholeheartedly happy about the incident. Therefore, the unwillingness of these women to become pregnant was one of the reasons for this issue and the lack of a decrease in the stress level of these people despite their high religious attitudes. Otherwise, the authors can have no specific justification in this regard. In addition, permitted abortions by forensic medicine usually have fetal problems or abnormalities, or the mother has a serious illness that can lead to a life-threatening pregnancy.

The role of religion in dealing with stressors is highly complex and not fully understood yet (52). In a review study, Becker et al found that religious beliefs had positive effects on the relief of sadness (53). A constant heart-to-heart connection with God and friendship with Him and His remembrance brings reassurance to the heart and relieves all anxiety and worries of human existence. Great people, with a big and calm heart, spend their lives with security and pride. Verse 62 of *Surah Yunus* in the Holy Quran says:

"Remember, there is neither fear nor regret for the friends of God."

The same belief in God is also mentioned in many other verses (*al-Ahaqaf* 13, and *al-Fater* 24).

Some evidence suggests that there may be a beneficial relationship between religion and mental peace. Some people may turn to God by losing something while others may turn away from God (54). Anxiety and depression have long been known to be associated with abortion. Several studies have confirmed a relationship between abortion experience and the onset of PTSD (55-57). The psychological responses of women to abortion and PTSD symptoms are influenced by complex sociocultural and ethnic factors (58,59). Accordingly, the following recommendations are presented to reduce the incidence of abortion and PTSD.

1. Given the religious context in Iran, attention should be focused on primary prevention. In this respect, it is recommended that authorities set up services for all members of the community, both single and married. Access to necessary services should be available 24/7.
2. It is recommended that the existing abortion policies should be revised with an emphasis on maternal health. Of course, the new fatwas of religious scholars and laws that make abortion eligible in the areas of hardship in the period before the insufflation of spirit could pave the way for the revision of laws by courts and lawmakers to reduce or even avoid unsafe abortions.

Conclusions

The results of our study showed that induced abortions (with other etiologies) had an inverse relationship with religious attitude and there was no significant statistical relationship with religious attitudes in the case of spontaneous and induced (Forensic Medicine) abortions.

In this study, 53.8% of the pregnancies were reported as unwanted pregnancy cases, and 36.8% of women took no action for abortion due to religious beliefs and attitudes about the guilt of abortion despite the parents' unwillingness to keep the unwanted fetus. Therefore, they considered spontaneous abortion or the need for induced abortion as a divine gift. It can be argued that their unwanted pregnancy was one of the reasons for the lack of a decrease in stress levels in these women. Some studies demonstrated that although no specific psychological changes occur after an abortion, some factors such as pre-abortion mental health, domestic violence, pregnancy tendency, and economic status contribute to depression and PTSD. However, induced abortion has had some negative psychological effects on women because women have been deprived of a healthy child. It seems that further studies are needed to confirm or disprove the existence of this relationship. If there is a relationship, the religious trainings by midwives and other health care providers should be used to help reduce PTSD in women with abortion.

Authors' Contribution

MA and SA prepared the first draft of the manuscript and MA and MZ made critical revisions to the paper and responded to the reviewers. MT and MA helped the Surge Articles.

Conflict of Interests

The authors declare no conflict of interest, financial or otherwise.

Ethical Issues

This study was conducted with the code number of IR.SUMS.REC.1396.S673 and financially supported by Shiraz University of Medical Sciences. Subjects were free in providing their details (questionnaires were marked with codes and at each stage) and could leave the study at any stage. The researchers sought to ensure that all participants' rights were respected following the Helsinki Convention on Ethics.

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