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The Effect of Online Medical and Psychological Consultation on the Mental Health of Pregnant Women

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Quantitative Study

Abstract

Background: Pregnancy and childbirth are exciting and enjoyable events in the life of women and are considered as the most sensitive periods in the life of every woman. The purpose of this study was to determine the effect of online medical and psychological consultation on the mental health of pregnant women.

Methods: The present semi-experimental research was conducted with a pretest-posttest design and a control group. The statistical population consisted of pregnant women of the Niniban website (http:www.niniban.com) in the winter of 2019 in Tehran, Iran. A sample of 50 pregnant women who were in their first to sixth months of pregnancy was selected. They were randomly divided into 2 groups of control and experimental (25 individuals in each group). Data were obtained using the Symptom Checklist-90-Revised (SCL-90-R) (1990).

Results: The results showed that online medical and psychological consultations were fruitful in the experimental group and that the mental health of the experimental group improved ($P < 0.001$).

Conclusion: It can be concluded that the online medical and psychological consultations were effective on the mental health of pregnant women.

Keywords: Female; Pregnancy; Mental health; Pregnant women

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Introduction

Pregnancy and childbirth are exciting and enjoyable events in the life of women and are considered as the most sensitive periods in the life of every woman (Witt et al., 2010). Pregnancy is an important experience that causes various psychological changes in a woman (Suto, Takehara, Yamane, & Ota, 2017). Mental health is of great importance in this period as many adulthood issues originate from inappropriate conditions during the fetal period and childhood, and injuries that have occurred during the pregnancy period for the fetus can be the underlying cause of many physical and mental disorders in the following years of the person's life (de wit et al., 2015). Hitherto, most training and effort in the area of health during pregnancy has focused on maintenance and improvement of the health of the mother and fetus, and less attention has been paid to the very important issue of mental health during pregnancy (Lee King, Duan, & Amaro, 2015). Pregnancy is accompanied by very important physiologic and physiological changes, which, despite the enjoyable feeling of motherhood, sometimes causes emotional instability. These changes can be severe or weak depending on the trimester (Miller, 2009).

A history of depression or mental disorder in the pregnant woman or her close family, the dissatisfaction of the wife and husband with having a child, lack of emotional connection with the spouse, history of adverse life events, concern about the acceptance of the infant's gender by family and friends, fear of incompetency in motherhood duties, concern about abortion as well as fear of labor pains, and death and existence of the infant as a competitor for the husband's love are among the factors that cause anxiety in this period (Biratu & Haile, 2015). Decreasing family conflicts, tensions, and economic pressures and increasing affection and emotional support of the pregnant woman by her husband and family members are all factors that can decrease or eliminate the grounds for the incidence or intensification of psychological disorders and diseases during pregnancy (Hantsoo, Podcasy, Sammel, Epperson, & Kim, 2017).

The psychological status of the mother during pregnancy has a significant effect on the physical and mental health of the infant. The fetuses of mothers who experience a high level of tension, anxiety, and disturbance during pregnancy are more likely to be born underweight, preterm, and with hyperactivity disorder later in their life (Kingston, Mcdonald, Austin, Hegadoren, Lasiuk, & Tough, 2014). At-risk women should consult with a physician before pregnancy and be under supervision during this period for mental problems in order to be mentally ready for giving birth and motherhood. Online psychological consultation has great advantages, and can be revised based on the patient's condition (Oram, Khalifeh, & Howard, 2017).

Many people, due to their special psychological conditions, avoid in-person sessions. Moreover, in some cases, the problems of the individuals are of a nature that they cannot state them face-to-face, so online psychological consultation is the best available way for them (Kingston, Mcdonald, Tough, Austin, Hegadoren, & Lasiuk, 2014). Individuals who cannot use in-person consultation sessions due to their distance from the centers, such as small-town residents and those who reside outside the country, can benefit from online psychological consultations (Huizink, Delforterie, Scheinin, Tolvanen, Karlsson, & Karlsson, 2016). Online psychological consultation sessions impose less cost, and thus, can be more suitable for those who want to incur less cost. Some people have superficial mental problems that prevent them from participating in face-to-face sessions. These people prefer to solve these

superficial problems through online psychological consultation instead of spending time on in-person sessions (Bogaerts, Devlieger, Nuyts, Witters, Gyselaers, & Van den Bergh, 2013).

With feedback and accurate information, most mental disorders during this period can be improved, and it is expected that, with timely diagnosis and immediate and correct treatment, symptoms be improved promptly, but if treatment is delayed the disease will become resistant and will need a longer time to be treated (Kingston et al., 2015). However, face-to-face psychological consultation is not accessible to everyone, especially those who live in rural areas or pregnant women who cannot pay the costs of consultation and transportation (Ashley, Harper, Arms-Chavez, & LoBello, 2016). This deprivation may result in side effects and irreparable damages for the patients. This problem can be solved easily with online consultation. The purpose of this study was to determine the effect of online medical and psychological consultation on the mental health of pregnant women.

Methods

The present research was a semi-experimental study with a pretest-posttest design and a control group. The statistical population consisted of all pregnant users of the Niniban website (https: www.niniban.com) in Tehran, Iran, in 2018. In the control group, 25 individuals were included. In total, 50 individuals participated in this study. They were selected using stratified random sampling and assigned to the two control and experimental groups (25 people in each). The study inclusion criteria were to be pregnant, between the first and sixth months of pregnancy, a healthy fetus (determined through ultrasonic), no history of miscarriage, and no history of mental illness before the pregnancy. At the first stage, the mental health questionnaire was sent to the subjects after coordination, and all 50 individuals answered the questionnaire at the informed time. The questionnaires were scored, and the scores were recorded. At the second stage, a schedule was made for the experimental group (25 people), and 5 minutes of online consultation was determined for each person. This study was conducted in 5 two-hour sessions. Online medical and psychological therapy sessions are presented in table 1.

Symptom Checklist-90-Revised: The Symptom Checklist-90-Revised (SCL-90-R) includes 90 questions that measure psychological symptoms and are answered by the subject. It was first designed and introduced by Derogatis et al. in 1990 (Alhusen, Ayres, & DePriest, 2016). This scale consists of 9 sections, and every section includes several questions. The subjects considered in the items include physical complaints, obsessive-compulsive disorder (OCD), interpersonal sensitivity, depression, anxiety, aggression, phobia, paranoid thoughts, and psychosis. The items are scored based on a 5-point rating scale ranging from 1 to 4 [never (1), to some extent (2), strongly (3), and very strongly (4)]. Concurrent validity showed that the highest and lowest correlations with the symptom checklist subscales were observed in the depression criterion with 0.73, and the phobia criterion with 0.36. The validity of the questionnaire was assessed in a study with 100 samples, and the results indicated a Cronbach's alpha coefficient of 0.79 (Alhusen, Frohman, & Purcell, 2015).

The collected data were analyzed using descriptive and inferential statistics in SPSS software (version 22, IBM Corporation, Armonk, NY, USA). Mean and standard deviation indices were used to describe the data, and in inferential analysis, after testing the validity of the underlying assumptions, multivariate analysis of covariance (MANCOVA) was applied.

Table 1. Online medical and psychological therapy sessions

Sessions	Content
1	On the first session, the pregnant women were provided with training on the physical and psychological symptoms that are related to physiological changes during pregnancy in order to improve their behavior. For example, they were provided with some information about common physical issues during pregnancy, such as food craving, nausea, vomiting, back pain, sleep and fatigue, and skin changes. They were also provided with some information about psychological changes during pregnancy, such as doubt and frustration, lack of self-confidence and emergence of emotional reactions, fear of pregnancy, unstable emotions, a sense of disarray in appearance, and feeling ugly or unattractive in the third trimester of pregnancy.
2	On the second session, correct information about behavior was provided with the aim of acceptance of pregnancy changes. The content of this session included some information about the importance of mental health during pregnancy and the effect of mental disorders on pregnancy outcome. The participants were asked to read some books about pregnancy, delivery, and caring for the baby. They were asked to have balanced physical activity and do mild exercises.
3	On the third session, training was provided with an emphasis on the role of important and influential persons in the life of the pregnant woman, including her husband and mother, and their role in changing behaviors related to the mental health of the pregnant woman was emphasized. For example, it is emphasized that pregnant women should ask for the physical and psychological support of these important persons during their pregnancy.
4	The focus of the fourth session was the skills required to change behavior, such as problem-solving and communicational skills.
5	On the fifth session, some self-calming techniques were taught, and the pregnant women were asked to use these techniques (relaxation, deep and regular breathing, painting, and drawing) under stressful circumstances. At the end of the session, a summary and a conclusion of all sessions were provided.

Results

The mean ± SD of age was 35.7 ± 6.4 and 35.1 ± 6.7 years in the experimental and control groups, respectively. The experimental and control groups were similar in terms of age ($F = 0.55$; $P > 0.05$). Descriptive statistics of mental health in the pretest and posttest in the two groups are presented in table 2.

Table 2. Mean ± SD of mental health in the pretest and posttest in the experimental and control groups

Variables	Group	Posttest	Pretest
		Mean ± SD	Mean ± SD
Physical complaints	Control	2.09 ± 0.39	3.00 ± 0.39
	Experimental	2.09 ± 0.49	2.99 ± 0.39
Obsessive-compulsive symptoms	Control	1.68 ± 0.53	1.68 ± 0.53
	Experimental	12.1 ± 3.00	1.68 ± 0.52
Interpersonal sensitivity	Control	2.43 ± 0.57	2.44 ± 0.57
	Experimental	1.71 ± 0.36	2.44 ± 0.57
Depression	Control	2.23 ± 0.48	2.28 ± 0.48
	Experimental	2.68 ± 0.83	2.68 ± 0.83
Aggression	Control	2.10 ± 0.52	2.10 ± 0.52
	Experimental	1.27 ± 0.48	2.1 ± 0.50
Phobia	Control	1.45 ± 0.69	1.45 ± 0.69
	Experimental	0.86 ± 0.21	1.46 ± 0.69
Paranoid thoughts	Control	1.09 ± 0.33	1.09 ± 0.33
	Experimental	0.81 ± 0.17	1.09 ± 0.33
Psychosis symptoms	Control	1.34 ± 0.35	1.26 ± 0.35
	Experimental	1.06 ± 0.45	1.26 ± 0.34
Mental health (Total)	Control	2.05 ± 0.48	2.05 ± 0.48
	Experimental	1.21 ± 0.29	2.05 ± 0.49

SD: Standard deviation

Data normality assumption was significance (higher than 0.05), which indicates that the data are normal. Therefore, parametric tests were used. The analysis of covariance (ANCOVA) should illustrate equal variances in the control group. For this reason, Levene's test was used. Variances in both groups were homogenous, and thus, this assumption was acceptable with a 95% confidence interval (CI). Furthermore, F covariate interaction was 1.04 ($P > 0.05$), which was not significant, and it can be concluded that the null hypothesis was not rejected. The assumption of the homogeneity of the regression slope was observed. The results of ANCOVA in the two groups are presented in table 3.

As table 3 indicates, after controlling for the pretest effect, there was a significant difference between the experimental and control groups in terms of the posttest mental health scores ($P < 0.001$). The online consultation sessions held for the experimental group were effective, and the mental health of the pregnant women in the experimental group Increased.

Discussion

This study was conducted to determine the effect of medical and psychological online consultation on the mental health of pregnant women. The results of the study are consistent with that of the studies by Andaroon, Kordi, Kimiaee, and Esmaily (2018), Mukherjee, Pierre-Victor, Bahelah, and Madhivanan (2014), and Sandmire, Austin, and Bechtel (1976). Psychological- educational intervention for pregnant women gives them the ability to deal with stressful situations during pregnancy and better control their physical and psychological condition. Moreover, these interventions decrease their fears and concerns about pregnancy and increase their satisfaction with their pregnancy period.

The most obvious change which occurs is an enlargement of the woman's abdomen. Gradually, as the fetus grows and needs more space, it presses on the other organs. This means that the volume of the lungs decreases, and therefore, shortness of breath occurs. The intestines and stomach become smaller. With hormonal changes in the body, heartburn decreased bowel activity, and constipation may occur. In addition, the swelling of the body organs, especially the legs, can be a little frustrating.

Table 3. Results of the analysis of covariance in the experimental and control groups

Variables			df	MS	F	P-value
Physical complaints	Group	16.28	2	8.14	2742.741	0.0001
	Error	0.134	45	0.003		
Obsessive-compulsive symptoms	Group	11.355	2	5.66	314.186	0.0001
	Error	0.812	45	0.018		
Interpersonal sensitivity	Group	15.503	2	7.751	176.663	0.0001
	Error	1.974	45	0.044		
Depression	Group	22.022	2	11.011	502.541	0.0001
	Error	0.986	45	0.022		
Aggression	Group	59.547	2	29.773	76.22	0.0001
	Error	1.762	45	0.039		
Phobia	Group	17.061	2	11.011	123.805	0.0001
	Error	3.101	45	0.022		
Paranoid thoughts	Group	14.867	2	7.433	144.347	0.0001
	Error	2.317	45	0.051		
Psychosis symptoms	Group	3.742	2	1.871	145.867	0.0001
	Error	0.577	45	0.013		
Mental health (Total)	Group	6.251	2	3.126	100.741	0.0001
	Error	1.396	45	0.031		

SS: Sum of squares df: Degree of freedom; MS: Mean of squares

An enlarged abdomen places pressure on the legs, waist, and spinal cord, and may cause back pain (Siegel & Brandon, 2014). Nausea and vomiting in the first few months, sensitivity to the smell of food, and changes in complexion and skin may occur during pregnancy (World Health Organization, 2016). Thus, it is necessary that women be informed about these changes so that they can differentiate between natural changes and diseases for which they need to refer to the physician. From the first moment that women realize they are pregnant, they experience anxiety and various concerns about their competency as a mother, the baby not being stillborn and its future, about the delivery, and many other issues. Sadness and unhappiness may be experienced during this period. Moreover, irritability and higher sensitivity to other factors are common. This means that women experience mood swings and need more attention and care (WHO and United Nations Population Fund, 2008).

The emotional needs of pregnant women can be investigated in different parts in terms of the support they need for different emotions they may experience. Defiantly, obviating these needs and neglecting them will have negative consequences on the health status of the mother and fetus. During the pregnancy period, women experience countless changes (Substance Abuse and Mental Health Services Administration, 2018). The hormonal arrangement of their body changes to make them ready for childbirth, motherhood, and raising children. Indeed, women's mood changes greatly under the influence of hormonal changes, and therefore, their needs in this period will be different. Given the importance of anxiety during this period and its negative effects on the fetus and mother, the importance of consultation during the pregnancy period in order to decrease anxiety is clear (Vesga-Lopez, Blanco, Keyes, Olfson, Grant, & Hasin, 2008).

The mental status of the mother during the pregnancy has a great influence on the psychological and physical health of the infant. The fetuses of mothers who experience a high level of tension and anxiety and disturbance during pregnancy are more likely to be born underweight and preterm, and have hyperactivity disorder later in their life. At-risk women should consult with a physician before pregnancy and be under supervision during this period for mental problems in order to be mentally ready for giving birth and motherhood (Siu, 2015). Since mental health directly affects the body of the individuals. Anxiety, insomnia, eating disorders, depression, and isolation from social activities all are among the symptoms that, if they emerge and continue, will put the health of the mother and child at risk. Psychological disorders during pregnancy are curable, and if they are diagnosed and treated on time, no problem will occur for the fetus and the mother's mental status will improve. However, many pregnant mothers in the country do not have access to a counselor and psychiatrist due to various reasons such as financial problems or place of residence, consequently, they may incur irreparable damages. Considering that today the internet is available nearly to all people around the country, online consultation and providing information on websites can be useful and have a positive and significant effect with little time.

The present study had some limitations. This study was conducted on 50 subjects; thus, generalization should be made with care. Moreover, data collection was performed using a questionnaire and through self-report, and this imposes some restrictions. The provision of educational and psychological programs plays a great role in the mental health of pregnant women. However, many pregnant women are not provided with mental healthcare, as a part of routine care before birth. It is suggested that more information be provided in mass media about online

consultation. It is suggested that gynecologists provide information about the benefits of consultations to pregnant women and encourage their patients to use consultation during pregnancy. It is recommended that pregnant women be trained relaxation techniques in order to decrease anxiety. Exercise classes designed exclusively for pregnant women such as pregnancy yoga can be very beneficial for the health of the fetus. It is suggested that enough information be provided before pregnancy about mental health and women be educated in this regard in order to prevent psychological disorders during the pregnancy period. It is also suggested that the women's spouses be provided with consultation and information so that they can decrease the mental pressures on the pregnant women by taking their emotional needs into account. Pregnant women need the attention, affection, and approval of their husbands. They may have some concerns and anxieties, and their husbands with their support can play a great role in controlling their anxieties. Considering that this is a novel topic, it is suggested that this study be performed in different statistical populations and on a larger number of subjects.

Conclusion

It can be concluded that the intervention and online counseling sessions were effective in the experimental group and that the mental health of the experimental group has improved.

Conflict of Interests

Authors have no conflict of interests.

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