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RESEARCH ARTICLE

THE RELATIONSHIP BETWEEN VAGINISMUS, DYSMENORRHEA, SOCIAL SUPPORT, AND TOKOPHOBIA WITH MEDIATING ROLE OF CHILDBIRTH SELF-EFFICACY

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ABSTRACT

Purpose: Tokophobia is a manifestation of severe anxiety that causes fear for women. As a result, women tend to avoid having children and pregnancy due to their fear of childbirth, despite their great interest in having children and the beauty of motherhood. The present study aimed to examine the relationship between Vaginismus, Dysmenorrhea, and social support and tokophobia through the mediation of childbirth self-efficacy.
Material and Methods: The present study was a cross-sectional descriptive correlational study. The statistical population of the study consisted of all pregnant women referred to Taleghani Hospital. Out of the population, 146 pregnant women were selected as the research sample using the availability sampling technique. Research data were collected using the Tokophobia Questionnaire (2021), Multidimensional Vaginal Penetration Disorder Questionnaire (MVPDQ), Moos Menstrual Distress Questionnaire, Perceived Social Support (MSPSS), and Lowe's Childbirth Self-Efficacy Questionnaire. The collected data were then analyzed using the Smart PLS software and statistical methods of correlation and path analysis.
Results: The results showed that there was a significant relationship between, vaginismus with child birth self-efficacy (B=0.341, t=4.145, p<0.001) and social support with child birth self-efficacy (B=0.205, t=2.591, p<0. 01), but there wasn't relationship between dysmenorrhea with child birth self-efficacy(B=0.035, t=0.293, p>0. 05) and child birth self-efficacy with tokophobia (B=0.210, t=1.497, p>0. 05).
Conclusion: According to the fitting indices of the model, it can be concluded that the tokophobia model has an weak fit on the basis of vaginismus, dysmenorrhea, and social support and mediating role of child birth self-efficacy.

Keywords: Tokophobia,vaginismus,dysmenorrhea, social support, childbirth self-efficacy,pregnancy

INTRODUCTION

In the late 19th century, the initial systematic steps concerning the fear of childbirth were taken by a psychiatrist named Marce. He stated that if the fear of childbirth becomes unbridled and becomes morbid, a phobia arises called tokophobia (1). The word tokophobia is a compound of two words with Greek origins, with Toko meaning childbirth and phobia meaning fear (2). In fact, tokophobia is an abnormal and damaging state of fear, not just the normal fear of childbirth that any pregnant woman may face. The prevalences of 7.6%, 15.2%, and 19.29% have been

reported for this disease in Iceland, Sweden, and the USA, respectively (3). Given what has been mentioned, it is quite important to identify the factors associated with tokophobia. One of these factors is vaginismus (painful intercourse). Vaginismus refers to a recurring or persistent pain during sexual intercourse in the genital tract. vaginismus could include both physical and mental dimensions. Therefore, detecting its physiological origin using scans and ultrasound might not be enough, and its potential psychological causes must be discovered as well (4). Vaginismus Painful intercourse is a disorder observed in many women. This pain can be short-term or long-term, but one thing that is common among almost all cases is that painful intercourse can reduce the quality of one's marital life, adjustment, and even acceptance of their marital role (5). In studying factors related to childbirth and the fear and pain caused by it, most sources have focused on menstrual pain as an effective factor (6). Dysmenorrhea or painful menstruation is a pain in the lower abdomen or the pelvis and may be associated with clinical symptoms such as nausea, dizziness, fatigue, headache, etc. (7). Dysmenorrhea is classified into two categories of primary and secondary. Primary dysmenorrhea refers to experiencing pain without suffering from pelvic disease, while secondary dysmenorrhea is usually due to pathological problems (8). However, the important thing is the significant relationship between this variable and childbirth and the fear and the pain of labor, because childbirth can influence the intensity and duration of menstrual pain (9). Pregnancy is a complex process because, on the one hand, the transition to motherhood is quite difficult, and on the other hand, pregnant women deal with other challenges such as fear and type of childbirth. One of the effective variables in accepting motherhood is the sources of support (10) During pregnancy, social support is essential for the health and welfare of the expectant mother. Providing emotional-supportive and informational resources could soothe the pregnancy-related physical and psychological changes. Research even shows that such supportive resources can be related to fetal development (11). Social support received by pregnant women affects their acceptance of motherhood and can pave the way for an anxiety-free childbirth (12). There is a lot of evidence on the effect of psychological factors on the fear of childbirth, the flow of labor, and the type of childbirth. Childbirth self-efficacy is one of the important factors influencing the fear of childbirth as it greatly prevents pregnant women from avoiding highly painful vaginal labor. Childbirth self-efficacy refers to a mother's belief in her ability to express specific coping behaviors. Childbirth self-efficacy is one of the most influential factors in coping with a stressful delivery and adjusting to the pain of labor (13). Childbirth self-efficacy can affect the motivation and attitude of pregnant women towards childbirth, type of delivery, and satisfaction with childbirth (14). Given the importance of identifying the psychological factors affecting tokophobia, the present study aimed to investigate the relationship between Vaginismus, Dysmenorrhea, social support and tokophobia through the mediation of childbirth self-efficacy. A major question of the study is whether there is a relationship between Vaginismus, Dysmenorrhea, Social Support, and Tokophobia with a mediating role of Childbirth Self-Efficacy?

MATERIAL AND METHODS

The study was approved by the Ethics Committee of Shahid Beheshti University of Medical Sciences (No:IR.SBMU.RETECH.REC.1400.056, Date: 02.05.2021). Potential participants were provided with information about the goals and procedure of the research, which included confidentiality and anonymity of their contribution. The statistical population of the study consisted of all pregnant women referred to the Taleghani Hospital. To be included in the research, the women had to be 20 to 40 years old, not suffer from psychological problems or illness according to DSM5, not consume psychiatric medication, and not partake in psychotherapy sessions. The exclusion criteria also included filling out the questionnaire incompletely, being below 20 or above 40 years, being illiterate and unable to fill out the questionnaires, using psychiatric drugs, and receiving concomitant psychological interventions to reduce tokophobia. The research sample was selected according to the Fidell & Tabachnik formula (N≥50+8m), which is used for path analysis (Path analysis, a precursor to and subset of structural equation modeling, is a method to discern and assess the effects of a set of variables acting on a specified outcome via multiple causal pathways) and correlational research (15). According to this formula m shows the number of independent variables. In this research we have 12 independent variables (vaginismus and its subscales=9, social support, dysmenorrhea). 8 is fixed number.

Multiply 8 by 12 plus 50 to get 146. Thus, based on this formula, 146 pregnant women were selected using the non-random availability sampling technique. In Taleghani Hospital, data were collected in two sections: gynecology clinic and delivery block. On the other hand, due to the coronavirus pandemic and lack of referral of many pregnant women to hospitals, many women were reluctant to fill out paper forms. In order to observe medical precautions and sensitivity of the conditions of pregnant women, the questionnaire was sent electronically. Ultimately, 12 of the research sample filled out the electronic questionnaires completely.

Research Tools

Demographic questionnaire: This scale was designed by the researcher and aimed to examine the demographic specifications of the patients, including their age, number of childbirths (primiparous or multiparous),, history of miscarriage, and monthly income.

Tokophobia Questionnaire: This questionnaire was proposed by Nunes, which contained 25 items and measured six scales, i.e., physical summation (7 items), the feeling of panic (4 items), social involvement (4 items), interference with daily habits (4 items), avoidance of pregnancy (4 items), and self-perception of tokophobia (2 items). The higher the score of a respondent, the more intense their tokophobia. The reliability of this questionnaire was measured based on the Pearson correlation coefficient (0.766). The Cronbach's alpha of 0.935 was reported for this questionnaire (16). Cronbach's alpha for this research is .88

Multidimensional Vaginal Penetration Disorder Questionnaire (MVPDQ): MVPDQ measures the participants' painful vaginal penetration or sexual intercourse. This questionnaire contained 72 items and measured nine subscales: terrible thoughts and contractions (4 items), helplessness (5 items), marital adjustment (8 items), avoidance(9items), penetration motivation (14 items), sexual information (16 items), hypervigilance (12 items), optimism (2 items), and genital incompatibility (2items). This scale was designed and first proposed by Molayinejad et al. (2014) (17). The reliability and validity of this questionnaire were satisfactory (Cronbach's alpha of 0.87) (18). Cronbach's alpha for this research is .76

Menstrual Distress Questionnaire: The adjusted Menstrual Distress Questionnaire by Mosse (1968) was used to examine the participants' painful menstruation. This questionnaire contained 16 questions and aimed to assess dysmenorrhea in women. It was scored on a five-option Likert scale (1-5), ranging from very high to very low. The sum of the scores given to each of these sixteen questions would be calculated to obtain the total score. The higher the score of the respondent, the more intense their dysmenorrhea. Qorbanalipoor et al. conducted a cross-sectional and descriptive study and examined the reliability and validity of this questionnaire. They were able to confirm the content and face validity of this scale using the views of experts. They also measured its validity using factor analysis. They found that the reliability of this questionnaire was satisfactory by calculating the Cronbach's alpha coefficient (=0.93) (19). Cronbach's alpha for this research is .82

Perceived Social Support (MSPSS): The Perceived Social Support Scale (MSPSS) is a 12-item questionnaire developed by Zimet et al. (1988) (20) to assess perceived social support. This scale measured an individual's level of perceived social support. The questions were scored on a five-option spectrum, from totally disagree and totally agree. The minimum and maximum scores obtained for this questionnaire would be 12 and 60, respectively. Scores between 12-20, 20-40, and 40+ indicated that the respondent's level of perceived social support was low, moderate, and high, respectively. The Cronbach's alpha coefficients have been 0.86 (21). Cronbach's alpha for this research is .71

Lowe's Childbirth Self-Efficacy Questionnaire: The Childbirth Self-Efficacy Questionnaire was designed and developed by Lowe (22) to measure childbirth self-efficacy. This questionnaire contained 62 questions and two stages: 1) active and 2) childbirth stage each stage had two sections: the expectation of outcome and expectation of self-efficacy. The questions were scored on a 10-option Likert scale (1-10). Structural validity for the Childbirth Self-Efficacy Questionnaire was calculated using exploratory factor analysis and rotation matrix. Furthermore, the reliability of this questionnaire was measured using the internal alignment method with Cronbach's alpha coefficient of 0.84-0.91. Cronbach's alpha for this research is .81

RESULTS

Regarding the age variable, the highest percentage was related to the participants aged 34 to 38 years (33.6%) and the lowest was related to participants

Table 1. Demographic characteristic

	Demographic characteristic	Frequency	Percentage
Age	24-20	36	24.6
	24-28	33	22.6
	34-28	28	19.2
	34-38	49	33.6
Education	Diploma and lower	103	70.5
	Bachelor	32	21.9
	Master	5	3.4
	Doctoral	5	3.4
	Missing	1	0.7
History of abortion	Yes	119	81.5
	No	27	15.5
Number of deliveries	Nulliparous	73	50.0
	Multiparous	71	48.6
	Missing	2	1.4

Table 2. Effect coefficients of t values of the path analysis model for the relationship between Vaginismus, Dysmenorrhea, Social support with Tokophobia mediated by the childbirth self-efficacy role

	Relation between component and dimensions	Factorial load	t-value	Sig.
Total	Vaginismus ➡ Childbirth self-efficacy	0.341	4.145	0.001
	Vaginismus ➡ Tokophobia	0.247	0.970	0.332
	Dysmenorrhea ➡ Childbirth self-efficacy	0.035	0.293	0.769
	Social support ➡ Childbirth self-efficacy	0.205	2.591	0.01
	Social support ➡ Tokophobia	0.120	0.888	0.375
	Childbirth self-efficacy ➡ Tokophobia	-0.210	1.497	0.135

aged 28 to 34 years (19.2%). Regarding the education variable, the highest percentage was related to the participants with diploma and under diploma (70.5%) and the lowest was related to the participants with PhD level of education (3.4%). Regarding the history of abortion variable, the highest percentage of participants (81.5%) had no history of abortion and only 15.5% had a history of abortion. Regarding the number of deliveries, the percentage of multiparous women was almost equal to the percentage of nulliparous participants. Regarding the monthly income, the highest percentage of participants (92.5%) had an income below $ 43 and the lowest was related to the participants with an income of more than $ 100 (7.5%) (Table 1).

As noted, the average variance extracted (AVE) values of the variable of tokophobia are less than the acceptable level of 0.5, but for the childbirth self-efficacy, this value is higher than 0.5, though lower than the acceptable level of 0.7. Cronbach's alpha and composite reliability values of all components are over 0.7, indicating their good reliability. R^2 values of 0.19-0.33 are weak, 0.33-0.67 are moderate, and 0.67 and over are strong. As seen, the predictive variables of painful intercourse, painful menstruation, and social support explain 0.20 of the variance of the self-efficacy variable, while self-efficacy explains 0.09 of the variable of tokophobia, which is weak. Positive values of cross-validation redundancy indices and cross-validation communalities of the measurement model components indicate the good quality of the measurement model (Table 3).

As noted from the above Table 4, only the direct effects of on Vaginismus on childbirth self-efficacy ($p>0.001$, $t=4.145$, $B=0.341$) and social support on childbirth self-efficacy ($p>0.010$, $t=2.591$, $B=0.205$) are significant, while other paths are not.

As seen from the Table 5, none of the indirect effects of the variables of Vaginismus, Dysmenorrhea, and social support on tokophobia are significant.

Table 3. Extracted variance, Cronbach's alpha, composite reliability, R^2, cross-validation redundancy indices values, and cross-validation communality of the path analysis model on the relationship between painful intercourse, painful menstruation, Social support with Tokophobia mediated with the role of childbirth self-efficacy

Variables	AVE	Cronbach's alpha	Composite reliability	R^2 values	Cross-validation redundancy	Cross-validation communality
Painful intercourse (Vaginismus)	0.547	0.952	0.954			0.195
Painful menstruation (dysmenorrhea)	0.676	0.930	0.934			0.376
Social support	0.576	0.987	0.988			0.526
Childbirth self-efficacy	0.548	0.903	0.917	0.200	0.104	0.385
Tokophobia	0.24	0.876	0.887	0.090	0.009	0.163

Table 4. Direct effects of predictive variables on criterion variables

	Beta coefficients	T	P
Vaginismus ➡ Childbirthself-efficacy	0.341	4.145	0.001
Vaginismus ➡ Tokophobia	0.247	0.970	0.332
Dysmenorrhea ➡ Childbirth self-efficacy	0.035	0.293	0.769
Dysmenorrhea ➡ Tokophobia	0.073	0.396	0.692
Childbirth self-efficacy ➡ Tokophobia	-0.218	1.497	0.135
Social support ➡ Childbirth self-efficacy	0.205	2.591	0.010
Social support ➡ Tokophobia	0.120	0.888	0.375

Table 5. Indirect effects of Vaginismus, Dysmenorrhea, and social support with Tokophobia mediated by childbirth self-efficacy role

	Beta coefficients	T	P
Vaginismus ➡ Childbirth self-efficacy ➡ Tokophobia	-0.074	1.229	0.219
Dysmenorrhea ➡ Childbirth self-efficacy ➡ Tokophobia	-0.008	0.250	0.803
Social support ➡ Childbirth self-efficacy ➡ Tokophobia	-0.045	0.123	0.200

Examining the quality of the path analysis model of the relationship between painful intercourse, painful menstruation, social support with tokophobia mediated with the childbirth self-efficacy role

The GOF has been developed as an overall measure of model ft. GOF is one of the most important measures of model fit.The GOF acts similar to fit indices for the LISREL (linear **s**tructural relations) model, and it ranges from 0.0 to 1.0 and the GOF values close to 1 indicate a good quality of the model. In the present study, the GOF was used to measure the model ft. In this formula, communality is the average common values of each construct in PLS. According to Wetzels, Odekerken-Schroder, and Van Oppen, three values of 0.01, 0.25, and 0.36 which were known as weak, medium, and strong values for GOF. According to the results of this study, the value of the GOF of the model was 0.219, which indicated weak fit of the structural model.

$$GOF=\sqrt{\text{mean}(Communality) \times \text{mean}(R2)}$$

$$0.219==\sqrt{0.329 \times 0.145}$$

The findings from the GOF index of the relationship between vaginismus, dysmenorrhea, and social support with tokophobia with the mediation role of childbirth self-efficacy indicate that this model enjoys a weak fit of 0.219 in the Iran sample.

DISCUSSION

The present study aimed to examine the relationship between Vaginismus, Dysmenorrhea, and social support and tokophobia with the mediating role of childbirth self efficacy. This study was the first model to examine the prognosis of tokophobia. The research data are homogeneous, so the result can be generalized to similar groups. However, previous research has examined the relationship between univariates and tokophobia. The results showed that

there was no direct relationship between tokophobia and childbirth self-efficacy. This finding was consistent with the results of the study by Khobbin Khoshnazar et al (23) and inconsistent with the findings of Zhao et al (24). To explain the results, the components of self-efficacy must be examined first and foremost. One of the components of self-efficacy was previous experiences. Previous experiences had the greatest impact on the formation of self-efficacy beliefs. Evidence showed that previous experiences had the greatest impact on the development of self-efficacy beliefs. According to the evidence obtained, the previous experience led to the development of self-efficacy beliefs more than any other source. If individuals had improved their self-efficacy through repeated successes, small failures could not have much of an impact on their self-efficacy (25). In this study, 50% of the population were primiparous women. Moreover, out of the multiparous women, 15.5% reported a history of miscarriage. Therefore, the component of "previous experiences" in these women did not play a role in the formation of their self-efficacy. Also, in cases when it had an effect, it was negative. Another factor that was important in explaining this hypothesis was the level of education. In this study, 70.5% of women had a high school diploma or lower, and low levels of education had a negative effect on the participants' self-efficacy. A positive relationship was reported between the level of education and self-efficacy in numerous studies; thus, it has been stated that perception and knowledge influenced one's self-efficacy (26). Furthermore, there was no significant relationship between Vaginismus and tokophobia through the mediation of childbirth self-efficacy. These findings were inconsistent with the results of the study by Novo et al. (27) and consistent with the results obtained by Achour et al. (2019) (28). Despite all the pain and suffering that this disease causes for women, it still does not make them give up their basic need to become a mother. As reported by Achour et al. (28), 60% of the women suffering from painful intercourse disorder had visited the doctor because they wanted to get pregnant, and since they wished to get pregnant, they were trying to cure this disease. They argued that the same desire to get pregnant caused them to be both on the right path to pregnancy and treatment of this disease. One of the main reasons for fear of childbirth is the fear of giving birth to a sick and defective baby as well as stillbirth (29). However, their results suggested that there was no statistically significant difference between women with this disorder and healthy women as far as the neonatal Apgar score or maternal mortality were concerned (28). According to the cases mentioned, painful intercourse could cause a lot of pain and suffering for patients, but the desire to become a mother was such a strong factor that it increased the women's childbirth self-efficacy and reduced their tokophobia. Women suffering from this disease could give birth to healthy children. Thus the main fear for refusing to conceive a child was practically eliminated. Hence, it could be explained that there was no relationship between painful intercourse and tokophobia with the mediation of childbirth self-efficacy. Moreover, there was no relationship between dysmenorrhea and tokophobia through the mediation of childbirth self-efficacy. This finding was incompatible with the results of the studies by Firouzi (9) and Juang et al (6). In explaining this result, it could be stated that painful menstruation or dysmenorrhea was divided into two categories of primary and secondary. Primary dysmenorrhea assessment tools were divided into two categories: objective and subjective. Subjective tools detect the patients' discomfort and pain by asking them certain questions. On the other hand, objective tools detect the patient's pain based on various measures, such as drug consumption and the amount of prostaglandin secretion (19). One way to explain this finding could be that testees might not have been too precise when answering the questions, or their illness was not severe and did play a role in the development and amplification of tokophobia. Also, it could be argued that age was related to dysmenorrhea, as the dysmenorrhea of most women was improved with age. Thus, childbirth in women between the ages of 34 and 44 had no effect on this disease (6). In the statistical population of this study, 33.6% of the women were between the ages of 34 and 38 which meant their age had no impact on their tokophobia. On the other hand, many women could be free of their disease by taking medicine, and thus did not have a frightening idea of childbirth. Based on the research findings, there was no relationship between social support and tokophobia through the mediation of childbirth self-efficacy an. This result was inconsistent with the results of the study by Khan et al (30) and Aytac & Yazici (31). Besides, there are three important sources for social support, i.e., financial support (money and job), emotional and spiritual support (love and empathy), and informational

support (providing suggestions and counseling) (32). In the present study, only 7.5% of the samples had an income of more than 100 dollars per month (although even this was not high at all). Thus, it could be seen that one of the three sources of social support, i.e., financial dimension, was missing in this population. On the other hand, medical centers are among the important sources of support. They support pregnant women emotionally by providing supportive and educational services to them in addition to sufficient and clear information. Therefore, pregnant women who used social support and support from professionals and clinical experts were more likely to better accept the role of motherhood, experience less fear of childbirth, etc. (33). In developed countries such as Sweden, almost all obstetrics and gynecology sectors have a specialized multidisciplinary team. This team is tasked with identifying, supporting, and treating women suffering from tokophobia. This team is composed of a midwife, an obstetrician, a psychologist, a social worker, and in some cases, a psychiatrist. This team has reportedly had a beneficial performance in some cases, in a way that half of the women suffering from tokophobia who had requested a cesarean section accepted natural labor (34). Unlike developed countries, there is no such forum in our country that examines pregnant women regarding tokophobia and other psychological aspects. Also, if there were such forums, they would be extremely costly. As a result, in such a group with this level of income, attention would be focused only on pregnant women's medical and physical aspects, and psychological aspects such as the fear of childbirth would be neglected.

CONCLUSION

Based on the present study's findings, there was no direct relationship between tokophobia and childbirth self-efficacy and due to this, there was no significant relationship between vaginismus, dysmenorrhea, social support and tokophobia through the mediation of childbirth self-efficacy. Our model did not demonstrate a relationship between tokophobia and other variables. It can also show different results when interacting with different variables. Consequently, tokophobia as a psychological variable, can affect various mental health aspects. Tokophobia questionnaire was used for the first time in this study, and it is suggested that other researchers use it in the future. In order for the results to be more generalize, it is recommended to conduct the research in other cities and counteries.

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Conflict of interests: All the authors whose names are listed immediately certify that they have no affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript.
Ethical approval: Participation informed Consent Forms for taking part in the research. Before the study had begun, the ethical considerations and issues were discussed and explained to the patients, individuals became familiarized with the nature of the study and how to collaborate on conducting the research. Moreover, the participants could leave the research study at any time. It is crucial to say that all the patient information has been kept confidential. This research has an ethics code number IR.SBMU.RETECH.REC.1400.056 and Trial registration from Shahid Beheshti University on May 2, 2021.
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