Original Article

The Relationship Between Paternal Postpartum Depression and Psychosocial Variables: A longitudinal Study in Iran

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Abstract

Objective: This study aimed to investigate and identify the psychosocial factors that are associated with paternal postpartum depression.

Materials and methods: A longitudinal correlation study with 150 fathers was performed with three time frames (late pregnancy, postpartum, and four weeks postpartum). The Edinburgh Postnatal Depression Scale assessed those with depression (38.7%; n=58) and those without depressive symptoms (61.3%; n=92). Psychological variables related to paternal depression were also assessed through questionnaires.

Results: Psychological variables such as marital adjustment and stress had a significant relationship with paternal depression. In addition, depressed fathers experienced less marital compatibility and more tension than non-depressed fathers.

Conclusion: These findings emphasize the importance of considering the psychosocial variables that affect paternal psychological health. Mental health professionals may be able to reduce mental disorders, stress, psychological distress, and marital maladjustment in fathers with appropriate psychological interventions.

Keywords: Father; Depression; Postpartum Period; Psychology; Marital Relationship; Paternal Behavior

Introduction

Postpartum depression (PPD) is a frequent and severe mental disorder that affects 12-20% of women after labor (1). In Iran, the prevalence of this disorder has been reported at 28.7% (interval of confidence 95%: 24/9-34/5 (2). Symptoms usually occur within the first few weeks after delivery, but they may begin during pregnancy or after it, up to one year after childbirth (3). Signs and symptoms of postpartum depression may include depressed mood or severe mood swings; excessive crying; lack of attachment to the infant; isolation from family and friends; loss of appetite or eating more than usual; insomnia or somnolence; fatigue or loss of energy; loss of interest in activities such as sex; severe irritability and anger; fear of being a good mother; hopelessness; feeling worthless; shame, guilt or inadequacy; apparent decline of thinking ability, concentration or decision making; restlessness; severe anxiety and panic attacks; thoughts on self or child harm and recurrent

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thoughts of death or suicide (4). Depression in mothers undermines the maternal role and results in a reduction of the response to the infant's needs. Evidence has suggested that treatment of maternal depression can lead to growth, development, and a decrease in the risk of diarrhea and malnutrition for infants (5). PPD can also exacerbate parental stress and lead to marital dissatisfaction as well as threaten the health, well-being, and comfort of the family (6). This matter can affect the health of fathers in the transition phase to parenthood. In a meta-analysis investigation on 43 studies, the prevalence of paternal postpartum depression was 8.4%, which was higher than the average male adult population (4.7%) (7). Paternal depression results in a substantial economic burden on societies, as it can impose substantial economic and social costs on governments (1). Studies show that paternal PPD has a negative impact on family, marital relationships, and child development. Not only does PPD have adverse effects on early child development but also upon the child's later physical and mental growth (8-10).

Maternal PPD is a well-known condition and has been extensively investigated. In comparison, paternal PPD and its potential effects on the family have yet to be widely investigated and recognized (11). PPD is associated with many common risk factors such as depression, emotional stress, poor economic and social conditions (12), anxiety, sleep disorders (13), history of abortion, lifestyle, lack of social support and history of psychological disorders (14, 15). It has also been reported that there are significant risk factors for paternal depression during the phases of transition to parenthood including age, education, history of psychiatric disorders, economic problems, and maternal depression (16, 17). Maternal depression has been identified as the most critical predictor of paternal depression during the postpartum period and has, therefore, been mentioned in most studies (18, 19). Albeit this relation is significant in the diagnosis and treatment of maternal depression, however, it does not provide any sufficient information regarding the diagnostic criteria of paternal depression for early interventions (1).

Studies have indicated the importance and necessity of health in the paternal psychological state during the postpartum period. While paternal PPD harms marital relationships, attachment, and infant growth (20), there also seems to be a negative relationship between postpartum depression and paternal social support, though the number of such studies is limited (21).

Traditionally, most studies have been focused on maternal PPD. In recent decades, however, more attention is being paid to paternal PPD in the literature, including issues of diagnosis, prevalence, and impact on child behavior. Knowledge is growing and expanding regarding paternal PPD, its characteristics, risk factors, associated factors, impact on the infant and child, and its relation with maternal PPD. The incidence of paternal PPD in Iran may, like maternal PPD, be high in prevalence; however, no studies have been carried out on paternal PPD in Iran. Severe economic crises in Iran have led to lower household incomes, an increase in unemployment, and a housing crisis. As a result, people are experiencing serious economic stress factors. Therefore, identifying predictors of PPD in fathers could facilitate the development of diagnostic tools and therapeutic interventions based on the needs of fathers.

Materials and methods

This study had a cohort study (a longitudinal study) design. Data collected from April 2017 to May 2019.

Fathers in this study were selected from parents that referred to hospitals in Tehran, including Vali Asr Hospital (Imam Khomeini Hospital Complex) and Milad Hospital**.** These hospitals are located in the central and northern parts of Tehran and are child-friendly hospitals. Vali ASR Hospital is a public hospital affiliated with Tehran University of Medical Sciences, and Milad Hospital is a public hospital affiliated with the Insurance Agency that receives no fees for provided services for its patients. Pregnant women who came to the clinics for their routine examinations during the last weeks of pregnancy (from 35 weeks onwards) were provided with complete information on the research project by the secretaries of the pregnancy clinics so that their spouses could participate in the study if they were willing to do so. The names of fathers who were willing to participate and had full information about the study were collected. Entry criteria for participation of fathers in the study included: (1) literacy and knowledge of the Persian language; (2) having no serious physical or mental illness, such as psychosis, in either parent; (3) delivery after 36 weeks of pregnancy; (4) minimum neonatal weight of 2500 grams; and (5) no particular neonatal health problems or need to be hospitalized in the neonatal intensive care unit for more than 24 hours. For implementation of the plan and completing the

questionnaires, researchers contacted all of the participating fathers by telephone. Participants could also refer to the research setting (hospitals) to complete the questionnaires in oral sessions. A room with adequate space was provided to meet fathers and complete questionnaires at Vali Asr and Milad hospitals (n = 215). Sixty-five fathers dropped out of the study (30%). Sixty-nine percent (n = 45) of the fathers refused to participate because of a lack of interest in the study and its continuation; thirty-one percent of them (n = 20) were interested in taking part in the study but due to work involvement and lack of time refused to participate.

Fathers who agreed to participate in the study all met at the hospital with the researcher (n = 150), and the researcher explained how and when to complete the self-assessment questionnaires at three different times: (1) late in pregnancy; (2) postnatal; and (3) 4 weeks after delivery. The minimum time estimated to complete the questionnaires was 15 minutes and the maximum was 90 minutes. The questionnaires were given to the fathers in three separate envelopes with the date of implementation on them. Participants were asked to send questionnaires to the hospital after completion. Gift cards of 50,000 tomān (US $12) were given to fathers for the completion of questionnaires. The Ethics Committee of Tehran University of Medical Sciences approved this project (# 24057). After a thorough explanation of the plan and its aims, informed consent was obtained from the participators.

The Beck Depression Inventory (BDI) is a self-scored scale containing 21 items. In this test the key symptoms that are examined include mood, pessimism, sense of failure, despair, guilt, punishment, self-hatred, self-criticism, suicidal ideation, crying, irritability, social withdrawal, poor decision making, change in body image, difficulty at work, insomnia, fatigue, loss of appetite, weight loss, burn out syndrome, and loss of libido. The scoring scale is presented in a multiple-choice format with numerical values of 0-3 (0 = minimum, 3 = maximum) and the possible total for the whole test is from zero to sixty-three (22). (13 <Mild Depression, 19 < Moderate Depression, and 28 <Severe Depression). The validity and reliability of the questionnaires were 0.93 and 0.92, respectively, (Alpha=0.92) (23).

The Edinburgh Postnatal Depression Scale (EPDS) is a postnatal rating scale for depression that contains 10 items scored on a scale of 0-3 based on the severity of depressive symptoms. Questions 1, 2, and 4 are scored from 0 to 3 with the top box scored as 0 and the bottom box scored as 3, and Questions 3, 5, 6, 7, 8, 9, and 10 are reverse scored from 3-0. The score range is from 0-30 (24). The cut-off score of the questionnaire is equal to or greater than 12 (12 ≤), and its Cronbach's alpha value is 0.70 (25).

The Dyadic Adjustment Scale (DAS) includes 32 items, which evaluates marital satisfaction over the prior 12 months (26). This scale has 4 subsets of the main scale: (1) Dyadic Consensus, comprising 13 items that ask participants to agree or disagree on a number of issues; (2) Dyadic satisfaction, which includes 10 items that evaluate aspects of perceived stability of marriage and how to manage problems and disputes; (3) Affectional Expression, containing 4 items that examine the degree of accord on how emotions are expressed; and (4) Bilateral Dyadic Cohesion, consisting of 5 items that distinguish the frequency of interactions between couples. Higher scores demonstrate a higher quality of marital relationships. The internal consistency of this scale is 0.91, (Alpha=0.80) (27).

The Parent Expectations Survey (PES) is used to measure perceptions of self-efficacy immediately after entering parenthood (28). The Parent Expectations Survey contains 25 statements each rated from 0-10. The sum of the scores represents the mean of all expressions. The highest score indicates a greater perception of parental efficacy. The internal stability is PES 0.90, (Alpha=0.70) (1).

One of the most common measurements for stress is the Parenting Stress Index (PSI), a 120-item questionnaire developed by Abidin in 1995 (29). The short form of this questionnaire (PSI-Sf), based on the long form, contains 36 parental self-reported items that are scored based on the Likert scale from 1-5. The questionnaire has three subscales and each of these has 12 items and a score range from 12-60. Higher scores indicate an increase in parental stress. The three subscales include: (1) the Parental Distress (PD) scale which indicates parental distress based on the parental role-the PD factor indicates 12.2% of parental stress and the Cronbach's alpha is 0.82; (2) the Difficult Child (DC) scale which is for children who are difficult to take care of-the DC factor includes 13.2% of parental stress and the Cronbach's alpha is 0.83); and (3) the Parent-Child Dysfunctional Interaction (P-CDI) scale which manifests 12.6% of parental distress and has a Cronbach's alpha of 0.78 (1,30).

The Multidimensional Scale of Perceived Social Support (MSPSS) has been developed to measure perceived social support from family, friends, and

influential people in life (31) and this tool consists of 12 items each of which has a range from 1-7 (1 = strongly disagree to 7 = strongly agree). For the total score, the scores of all the items are summed up and divided by the number of items (12). The score of each subscale is also obtained by summing the scores of the items divided by the number of items (4). The reliability of the scale using the Cronbach's alpha coefficient for the three subscales (family, friends, important people in life) and the total score were reported at 0.89, 0.90, 0.90, and 0.94, respectively (32).

Information such as paternal age (≤34 vs. > 34 years), level of education (university education vs. no university education), father's job (public vs. private), socioeconomic class (low and medium vs. good), duration of marriage (≤6 vs. >6 years), having/ not having children and number of children (1 child vs. 2 children), type of delivery (normal vs. cesarean section), having/not having an abortion before birth and the number of abortions (once versus more than once)was obtained from the demographic characteristics of the father's questionnaire and the data was encoded. It should be noted that 40 fathers did not report the type of delivery while only 110 fathers did indicate this on the questionnaire. Variables with more than 3 categories and continuous variables were divided into 2 categories based on the median.

Data were analyzed with using descriptive statistics (frequency, percentage, mean and standard deviation) and correlational statistics (chi-square test and t-test 2 independent samples) the relationship between postpartum depression and psychosocial factors and demographic characteristics and dependent sample t-test for measuring the relation between the tests in two stages of after birth and one month after childbirth. And also using SPSS software (version 20.0 Armonk, NY: IBM Corp).

Results

The samples included 150 fathers who participated in the study. These fathers had a mean age of M = 34.44 (SD = 5.14) and an age range of 22-48 years. The highest frequency in age was 34 and 51.3% were under this age. Regarding educational level, 10.7% (n = 16) were under high school level, 39.3% (n = 59) had a diploma and 50% (n = 75) had bachelor's degrees or above. In determining the socio-economic level based on income, 3.3% (5 persons) had low and inadequate income, 50% (75 persons) were at the middle-income level, and 46.7% (70 persons) had adequate income levels. Of these, 66.7% of the fathers (100 persons) were working for the government and 33.3% of them (50 persons) had private or freelance jobs. Duration of married life ranged from 2 to 19 years with a mean and standard deviation of M = 7; SD = 4.24; the most frequent duration was 6 years or less (53.3%). Results showed that 56.7% of fathers (n = 85) were experiencing fatherhood for the first time, 33.3% (n = 50) had one child, and 10% (n = 15) had two children before the birth of their newborn. According to reports given by the fathers, 86.4% (95) of mothers had a cesarean section while 13.6% (15) of mothers had a normal delivery. Fathers who reported a history of abortion comprised 46.7% (70 women) of which 16.7% (25 women) experienced abortion once, 23.3% (35 women) twice, 3.3% (5 women) three times and 3.3% (5 women) four times. The results demonstrated that 50% of infants (75 persons) were female and half were male. Sixty-five parents dropped out of the study due to work difficulties and lack of interest in completing the questionnaires (Table 1).

Table 1: Characteristics of the sample

Variables	Total (n=150) %
Age of the Father	
≤ 34 years (22-34 years)	51.3% (77)
> 34 years (35-48 years)	48.7% (73)
Level of education	
< University	50% (75)
≥ University	50% (75)
Job of the Father	
Government Job	66.7% (100)
Private Job	33.3% (50)
Socio-economic Level	
Low & Medium	53.3% (80)
Good	46.7% (70)
Duration of marriage	
≤ 6 years (2-6 years)	53.3% (80)
> 6 years (7-19 years)	46.7% (70)
Having child	43.3% (65)
Number of child	
One child	33.3% (50)
Two children	10% (15)
Type of delivery	
Natural	13.6% (15)
Cesarean	86.4% (95)
Abortion experience (yes)	46.7% (70)
Once (Abortion)	16.7% (25)
More than once (Abortion)	30% (45)

The results regarding the relationship between the

demographic variables of prenatal depression and postnatal depression showed that there were no significant differences between depressed and non-depressed groups using the Beck (prenatal) and Edinburgh (postnatal) tests, and the groups were identical. The Beck Depression Inventory assessed paternal depression at 35 weeks and late pregnancy. The results showed that 38.7% (58 fathers) had signs of depression, and it was mild depression. In addition, the Edinburgh Postnatal Depression Questionnaire assessed paternal depression for two time frames (after birth and four weeks after birth). Results showed that 30% (45 fathers) had depressive symptoms the second stage and had depression 28% (42 fathers) in the third time. The prevalence and frequency of depression appeared to be the same at all three periods (prenatal, postnatal, and four weeks postpartum) and did change over time.

In analyzing the data of psychosocial variables at the two stages of postnatal and one month after birth, the results showed that paternal depression decreased one month after childbirth in comparison to the postnatal stage and this difference was statistically significant (M = 4.80 VS M = 4.47; P = 0.018). In addition, according to fathers' reports, infant care ability (parental expectations) increased one month after delivery with a statistically significant difference (M = 169.20 VS M = 177.00; P ≤ 0.0001). Finally, paternal stress had a decrease that was statistically significant (M = 73.13 VS M = 69.40; P ≤ 0.0001) by the one-month-after-birth time frame in comparison to the postnatal stage. Other psychosocial variables such as marital compatibility and parental support had no statistically significant difference among fathers at the two stages of postnatal and one month after birth (Table 2).

There was no significant difference in parental expectations and perceived social support between the two groups of depressed and non-depressed fathers (Table 3).

Discussion

The results showed that the prevalence of postpartum depression in fathers was from 38.7% to 28% based on EPDS and BACK. These statistics show that the rate of postpartum depression among Iranian fathers and other studies with a prevalence of 3 to 12% (33,34). Therefore, shows that The prevalence of depression in Iranian fathers is higher than other studies **.**It may be due to severe economic problems in the country. In the general population, the prevalence of mood disorders was reported to be 14.6%, major depressive disorder in men 10.2%, and depression in adult men 10% (35). According to the presented statistics, it seems that paternal depression is more than the average population and depression among men in Iran increases with pregnancy and has a high prevalence. The results of this study showed that psychological factors, such as marital adjustment four weeks after Birth is significantly associated with paternal depression. Other studies have shown that spousal depression and low marital satisfaction are significantly associated with postpartum depression one-month postpartum (36). Shorey reported marital dissatisfaction and sexual needs, it is effective in postpartum depression for parents (37). The results of the present study showed that fathers in the depressed group had more stress than the non-depressed group after delivery. Previous studies demonstrated that psychological distress was significantly associated with postpartum depression (38) and that fathers who had stress or poor physical health were exposed to depressive symptoms. Increased symptoms of postpartum depression are associated with various social and psychological factors (33).

Table 2: Mean and standard deviation of psychosocial variables at two stages after birth and one month after birth in the study group

Variables	M ± SD	t	P
Edinburgh Postnatal Depression Scale (1)	4.80 ± 5.12	2.39	0.018
Edinburgh Postnatal Depression Scale (2)	4.47 ± 4.59		
Dyadic Adjustment Scale (1)	121.00 ± 15.75	0.29	0.769
Dyadic Adjustment Scale (2)	120.76 ± 15.99		
The Parent Expectations Survey (1)	169.20 ± 47.16	3.72	0.0001
The Parent Expectations Survey (2)	177.00 ± 42.37		
Parenting Stress Index (1)	73.13 ± 25.81	4.77	0.0001
Parenting Stress Index (2)	69.40 ± 25.82		
Multidimensional Scale of Perceived Social Support (1)	63.00 ± 13.22	0.172	0.864
Multidimensional Scale of Perceived Social Support (2)	62.93 ± 13.42		

Table 3: Associations between psychosocial variables and paternal postnatal depression according to the Edinburgh Postnatal Depression Scale (EPDS)

Variables	Non-depressed (M ± SD)	Depressed (M ± SD)	t	P
DAS[a] (After birth)	122.70 ± 15.30	105.67 ± 10.90	4.19	0.324
DAS (A month after birth)	122.59 ± 15.51	104.33 ± 9.87	4.45	0.043
PES[b] (After birth)	176.96 ± 42.36	99.33 ± 26.27	6.94	0.197
PES (A month after birth)	181.96 ± 39.69	132.33 ± 40.61	4.58	0.683
PSI[c](After birth)	69.22 ± 24.18	108.33 ± 4.17	- 6.23	0.010
PSI (A month after birth)	66.04 ± 24.58	99.67 ± 14.89	- 5.18	0.444
MSPSS[d] (After birth)	63.78 ± 13.06	56.00 ± 13.01	2.19	0.681
MSPSS (A Month after birth)	63.55 ± 13.24	57.33 ± 14.25	1.71	0.304

[a]Dyadic Adjustment Scale (DAS), [b]The Parent Expectations Survey (PES), [c]Parenting Stress Index (PSI), [d] Multidimensional Scale of Perceived Social Support (MSPSS)

The results of the present study indicated that paternal depression and stress decreased one month after birth while parental self-efficacy in parenthood increased during the month after childbirth.

This study investigates the psychosocial factors connected to paternal depression, such as marital adjustment, parental expectations, social support, and psychological stress, which lead to an increase of awareness and understanding of paternal depression. Reports have suggested that postpartum depression is associated with poor marital relationships (39, 40). Experts in the psychological health field have suggested that parental mental health and marital relations should be considered. Identifying the factors associated with paternal depression, which can lead to the prevention of marital dissatisfaction or increase the quality of marital relations, is vital for the prevention and early detection of paternal depression (36). Paternal depression is associated with a history of mental disorders, psychological distress during pregnancy, low income, unemployment, maternal postpartum depression, and neonatal diseases that are undergoing medical treatment (38). Psychosocial variables should be considered as effective risk factors in early screening and targeted prevention is available for fathers who are at risk of depression during the transition to parenthood (41). Professionals need to develop training packages that help spouses achieve marital satisfaction and its positive consequences on psychological health, which include models of healthy communication between couples during pregnancy to one year after childbirth, and provide these training packages to health care providers so they can present them to those in need of marital counseling services.

Stress, anxiety, and depressive symptoms have been reported in fathers during the transition to parenthood. Findings show that symptoms of anxiety related to postpartum depression are more than depression unrelated to the postnatal phase and generalized anxiety after delivery is more common than postpartum depression (42-44). Paternal anxiety increases before and during delivery and decreases after childbirth. Paternal anxiety has a negative impact on the father's psychological health, physical health, social relationships, and parental skills and causes stress, depression, fatigue, and decreased paternal self-efficacy (45). Depression and stressful responses of the father may affect the family environment and, ultimately, the growth of the child and adolescent. Findings have indicated that symptoms of paternal depression and father-child conflicts are associated with emotional and behavioral problems in children, which may have been brought about through negative parenting. Preventive interventions focused on symptoms of paternal depression, and father-child conflict should be considered (46-48).

Investigations in most studies focus on maternal depression, and few studies have focused on paternal psychological health and how it affects children. Therefore, further studies are needed to investigate the prevalence of psychiatric disorders and their related factors in fathers. Men generally tend to be treated less; however, they may be more willing to have their symptoms of depression treated if they are aware of the positive effects of treatment on their child. Thus, health care providers and professionals who are dealing with children and families should encourage fathers to promote the psychological health of all family members (49). In addition, it seems that systemic collaboration is possible between mental health professionals and gynecologists-midwives in the procedure of postpartum depression treatment, and therapeutic and psychological services could be provided immediately after delivery to

depressed mothers and mothers who are hospitalized (50). Unfortunately, during pregnancy, only the physical and mental health of the mother is considered, and the mental health of fathers is not examined; as a result, the diagnoses of anxiety, stress and emotional problems of fathers are neither common nor taken seriously by medical professionals and health care providers (51). It seems that professionals and health care providers do not have the knowledge, cognition, and planning necessary to provide health care to fathers and their needs are neglected (1). Given the importance of family health and the lack of information on paternal postpartum depression, especially in developing countries, paternal mental health screening during the prenatal stage (even before pregnancy) should be performed (52). Various studies have indicated that potential psychological therapies include cognitive-behavioral therapy (CBT); group work; electronic support (e-support); and psychotherapy interventions for incompatibilities and cognitive distortions related to masculine identity, masculine role expectations, and feelings of isolation and rejection are effective in promoting paternal mental health in the perinatal and postpartum periods (53). It also appears that parental involvement, especially of fathers, in parenting can lead to a sense of self-efficacy, increased levels of social cohesion, reinforcement of self-perception of skills, and confidence in parents of young children. In addition to these, an increase in individual and group adaptation, reduction of anxiety, and no used merely limited and specific solutions to solve problems (54). In one qualitative study, it was reported that a lack of awareness by fathers regarding postpartum paternal depression (PPD) leads to inappropriate assessment and diagnosis of PPD. Fathers acknowledged that an increase in the awareness of the community could encourage treatment. Experts believe that supportive resources should be provided to men as the first step to encouraging treatment and identifying treatment priorities in men (51). We suggested for future research such as having qualitative in-depth interviews from Iranian fathers to understand their in-depth emotional needs.

Strengths and Limitations: This study investigated the psychological factors affecting paternal depression postnatal and one month postpartum. As no prior research has been done on paternal depression in our country, this is the first study in this field. The fathers who participated in this study appeared to have no psychological problems. BDI (late pregnancy) and EPDS (postpartum) questionnaires were used as tools for screening and identifying signs and symptoms of depression in fathers. It should be noted that fathers who received a score of 14 on the BDI or a score of 12 on the EPDS via face-to-face interviews, were given information about psychological health so they could use psychological services if they desired.

One of the limitations of this study was the selection of individuals using the available sampling method, which may not lead to the same chance of presences all of the fathers generally with different experiences.

Another limitation of this study was sampling from public hospitals in Tehran, where people from different socioeconomic classes referred, and no sampling was done in private hospitals in Tehran. This study needs to be repeated with a variety of samples from different private and public centers.

Another limitation of this study, which is related to cultural issues in our country, is the unwillingness of men to complete questionnaires. Also, due to the large number of questionnaires, there is a possibility that the questionnaires may not have been completed correctly. It seems that the use of diagnostic interviews and oral questioning is the best option for conducting studies on men in our country.

Conclusion

This study demonstrated that paternal depression was significantly associated with some psychological variables such as marital adjustment and stress. Also, depression, efficacy, or parental expectations and paternal stress were assessed at two stages of postnatal and one month postpartum. The results showed that paternal depression and stress decreased over time, while fathers' parental efficacy in caring for their children increased. These findings indicate the importance of screening for postnatal depression in fathers. Given the importance of this subject, it seems that screening should take place not only from the time of pregnancy but also until at least one year after childbirth. Paternal depression affects psychological components such as mental health, stress, marital relations, quality of life, and relations or interaction with the child; therefore, psychology professionals should pay special attention to the mental health of fathers. Improving the psychological health of the father can lead to the health of the whole family.

Conflict of Interests

All authors declare that they have no conflict of interest.

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