

# Is participation in antenatal classes associated with fathers' mental health? A quasi-experimental and prospective study

Çiğdem Gün Kakaşçı<sup>1</sup>  | Dilek Coşkun Potur<sup>2</sup>  | Döne Ertuğrul Abbasoğlu<sup>3</sup>  |  
Özlem Karabulut<sup>3</sup>  | Yeliz Doğan Merih<sup>4</sup>  | Nurdan Demirci<sup>2</sup> 

<sup>1</sup>Faculty of Health Sciences, Division of Midwifery, Suleyman Demirel University, Isparta, Turkey

<sup>2</sup>Faculty of Health Sciences, Department of Obstetrics and Gynecology Nursing, Division of Nursing, Marmara University, Istanbul, Turkey

<sup>3</sup>Zeynep Kamil Women and Child Disease Training and Research Hospital, Istanbul, Turkey

<sup>4</sup>Faculty of Hamidiye, Division on Nursing, Department of Obstetrics Gynecology Nursing, Sağlık Bilimleri University, Istanbul, Turkey

## Correspondence

Çiğdem Gün Kakaşçı, Faculty of Health Sciences, Division of Midwifery, Suleyman Demirel University, Isparta 32260, Turkey.  
Email: [idealistce41@hotmail.com](mailto:idealistce41@hotmail.com)

## Abstract

**Background:** In comparison to those conducted with women, studies about the transition of men to parenthood are limited in numbers, especially in developing countries. Moreover, in Turkey, along with gender roles and sociocultural changes, the roles of fathers are also changing. This change highlights the need to understand early parenthood for fathers.

**Methods:** A quasi-experimental, non-randomized prospective study with a pre-and post-training model was conducted in a hospital in Istanbul, Turkey. Men in the antenatal education group (EG = 55) and their pregnant wives participated in 6 weeks of training during pregnancy (24th–28th weeks gestation). Men in the care-as-usual group (CG = 55) attended routine check-ups and follow-ups with their wives. GHQ-28 (General Health Questionnaire-28) was administered three times in total at study enrolment, immediately following the 6-week intervention period, and at the 6th postpartum week.

**Results:** There was no significant difference between the groups' GHQ-28 scores before and after the training. In the 6th week of postpartum follow-up, the GHQ-28 scores were significantly higher for the fathers who participated in the educational intervention.

**Conclusions:** Antenatal education classes were found to be associated with the mental health of fathers. Further research evaluating family-centered parenting support programs is warranted to better understand how to support fathers in the transition to parenthood, particularly in countries in which fathers' roles in pregnancy and early parenthood are changing.

## KEYWORDS

pre and antenatal education, fathers, transition to parenthood, paternal roles, Turkey

## 1 | INTRODUCTION

The transition to fatherhood is such an important period that it can be regarded as a turning point in a man's life (Rominov et al., 2016). This process involves the man acquiring new parenting knowledge and skills, adapting

to the changes occurring in his sense of self, and managing pressures on the couple's relationship that may come with pregnancy and early parenting (Rowe et al., 2013). In addition, the increasing demands for men's psychological resources in this process increase their vulnerability to stress, anxiety, and depression (Rominov et al., 2016). The

transition to fatherhood is complicated. It is a process in which confusion and disappointment can be experienced, as well as positive emotions such as joy and hope (Widarsson et al., 2015). Cenerini and Messina (2019) found that first-time fathers experienced joy, excitement and hope, exclusion, alienation, and weakness together regarding the expectation and subsequent realization of becoming a family including both parents and the newborn. Being a father for the first time was reported by many fathers as an emotional roller coaster with no clear role (Åsenhed et al., 2014). In fact, the “roller coaster” (p. 4) metaphor illustrates the tension between the differing emotions men may experience about their roles as fathers. Men look for answers on how to be a good father; however, they feel excluded by medical staff when they visit antenatal care centers, and they have difficulty figuring out how to support their partners in pregnancy and early parenthood (Åsenhed et al., 2014). In previous studies, psychological distress rates in fathers were relatively high with up to 51% of fathers reporting high distress during the perinatal period (Philpott et al., 2019). In another study on paternal depression, 86% of fathers who were depressed in the 28th gestational week experienced persistent depressive symptoms throughout the first 6 months of the postpartum period (Paulson et al., 2016). Lifestyle role limitations and changes in men during these periods often result in stress, accompanied by fatigue, irritability, and disappointment. For example, Baldwin et al. (2018) reported that fathers may use ineffective coping strategies such as smoking, working long hours, and denial and avoidance. The results of previous studies show that mental health may be adversely affected in those who are not prepared for the transition to the fatherhood role (Suto et al., 2017; Setodeh et al., 2017).

### 1.1 | Parenting roles in Turkey

Traditionally, men in Turkey have been conceptualized as heads of the household and authoritarian figures; however, such conceptualizations may serve as barriers to fathers' involvement in pregnancy, childbirth, and infant care (Zeybekoğlu, 2010). Despite traditional roles, many women in Turkey today report wanting to receive support from their husbands (Gülşen & Merih, 2018). Moreover, mothers have increased expectations that fathers will be involved in the delivery of the infant because of the effects of changing gender roles in Turkey (Gülşen & Merih, 2018). Fathers, too, want to be involved in pregnancy and parenting (Case et al., 2005). Further, many fathers think they should also be included in antenatal education and when they are included in the training, fathers report reduced anxiety levels (Bal & Koç, 2020), perhaps because they feel more

knowledgeable about the prenatal period after involvement in antenatal education (Finnbogadóttir et al., 2003). Recent legislation in Turkey has supported fathers' participation in the postpartum process. For example, Law No. 657 on Civil Servants was amended to better enable fathers to support the mother in the postpartum period and participate in baby care. Specifically, postpartum paternity leave was increased to 10 days, and, in case the mother cannot take unpaid leave, the father can take 24 months of unpaid leave when the baby is 0–2 years old (Official Newspaper, 2011).

Despite these positive developments, fathers' involvement in pregnancy and parenting may still be discouraged by the elderly members of the family who have traditional beliefs (Atmaca Koçak, 2004; Yapıcı & Yapıcı, 2005). Medical staff, too, may pose barriers to fathers. For example, in a qualitative study of nurses' views on father involvement, Wells et al. (2013) found that nurses reported more actively encouraging mothers' rather than fathers' participation in child health visits, and they did not necessarily see supporting fathers' involvement as part of their roles. In short, both familial and societal perceptions of fathers' roles may pose barriers. In such cases, the father, who has already not been prepared for his fatherhood role in the antenatal period and has not been given education and support, does not have the opportunity to be more fully involved in fathering (Atmaca Koçak, 2004; Yapıcı & Yapıcı, 2005). Fathers' first contact with their infants may come when holding the baby for the first time. Even though this contact has a strong emotional influence on the father, gender roles that keep him away from the newborn and care for the infant may negatively affect the father's process of adaptation to fatherhood (Güngörmüş, 2003).

### 1.2 | Fathers' additional support needs in pregnancy and early parenthood

A variety of studies conducted with mothers and fathers in countries around the world show common needs relative to supporting fathers in pregnancy and early parenting. For example, in one study conducted in Ireland with women presenting to the perinatal services unit of a hospital and their partners to determine fathers' educational needs in the perinatal period, mothers and most fathers emphasized the importance of providing fathers-to-be with support through education (Simbar et al., 2010). The researchers also specified that fathers-to-be should be informed about variations in their emotional states that might be experienced, physiological changes, and fathers may need emotional support as they could feel alienated in the transition to parenthood (Boyce et al., 2007; Fenwick et al., 2012). In a qualitative study of men becoming fathers for the first

time in Tanzania, Mbekenga et al. (2011) reported that new fathers struggled to gain confidence and embrace parenthood while dealing with family issues such as financial difficulties in the postpartum period; the healthcare system was unable to respond to the concerns and support needs of fathers related to maternal and newborn health especially in the postpartum period (Mbekenga et al., 2011), suggesting fathers' additional support needs. Fathers may feel distressed when they experience barriers to participating in pregnancy and early parenting (Yapıcı & Yapıcı, 2005). This distress can cause fathers to psychologically move away from their wives and babies and, in some cases, develop mental health problems such as anxiety and depression (Musser et al., 2013). In a systematic review that investigated mental health and well-being during the transition to fatherhood among first-time fathers-to-be, Baldin et al. (2018) concluded that educating fathers-to-be on the changes that await them and the difficulties they may encounter in their transition to fatherhood, as well as assisting fathers in locating appropriate resources, would benefit new fathers.

### 1.3 | Benefits of support for paternal mental health and family well-being

Preventing mental health problems, such as perinatal depression and anxiety in fathers, and promoting the psychological well-being of the father, considered as a whole, provides benefits for maternal and newborn health (Rominov et al., 2016). Accordingly, fathers can become critically protective against the development of maternal perinatal mental health problems and the effects of these on newborn outcomes (Darwin et al., 2017). Regarding the promotion and improvement of maternal and newborn health, the World Health Organization also recommends the active participation of men in pregnancy, childbirth, and postnatal periods (World Health Organization, 2015). Although there was not enough evidence in the meta-analysis of the 11 studies in which the effects of antenatal education on fathers' mental health problems such as anxiety, distress, and depression were investigated, it was emphasized that paternal mental health was important for perinatal health. Moreover, at the end of this study, it was reported that more research and interventions were needed to inform the partners of pregnant women based on evidence and to support the whole family (Suto et al., 2017). Finally, a study (Turan et al., 2001) of Turkish fathers-to-be revealed that their participation in antenatal education programs contributed to the reinforcement of beliefs that the mother-to-be and father-to-be are equal partners in the parenthood process. The same study showed that antenatal education also increased fathers'

participation in postnatal family planning and newborn care and improved the couple's communication (Turan et al., 2001). Fathers' exclusion from fathering activities may contribute to familial problems, including the disruption of family relationships (Bateson et al., 2017). Hence, supporting fathers' participation in early pregnancy and parenting may have benefits for fathers and for the family unit.

### 1.4 | Benefits to parenting and infant development

As noted, previous studies have reported that men want to support their spouses in their experience of a positive perinatal period, but they may sometimes be pushed to the background in this process, and they feel excluded (Alio et al., 2013; Fenwick et al., 2012). Specifically for the family system, the short-term effects of fathers' mental health problems have been reported as lower paternal sensitivity to their infants, and lower levels of participation in infant care tasks (Nicholas et al., 2012), all of which compromise the psychological health of the family environment for the newborn (Rominov et al., 2016). These factors may affect the developmental process of the newborn negatively (Rominov et al., 2016). The long-term effects of poor paternal mental health have been reported as harmful effects on the emotional, social and cognitive development, and well-being of children, as well as a source of constant tension in the couple's relationships (Giallo et al., 2013; Ramchandani et al., 2008).

On the other hand, Bagheri et al. (2016) found that education about newborn care given to couples who were going to be parents for the first time increased Iranian fathers' knowledge about infant care. Further, Salehi et al. (2018) conducted a systematic review to examine paternal attachment to during pregnancy in Iran and reported that the healthcare system could facilitate the attachment process by providing antenatal education and counselling support for parents-to-be. They argued this could facilitate the process of parent-newborn attachment. Collectively, these studies underscore the potential benefits of supporting men in pregnancy and early parenting as they become fathers.

### 1.5 | The current study

Considering the aforementioned reasons, it is important for healthcare professionals to realize that men who remain in between more traditional male gender roles and more modern productive fatherhood roles in the perinatal period may experience mental distress (Musser et al., 2013).

Especially in Turkey, where the physiological and psychological effects of antenatal education on pregnant women have been frequently examined (Çankaya & Şimşek, 2020; İşbir et al., 2016; Karabulut et al., 2016; Mızrak et al., 2017), a different perspective could contribute to the relevant literature. Studies to investigate the mental health of men who attend couple-centered antenatal education program with their spouses could provide needed insight as to how to support fathers and families in the transition to parenthood as gender roles and expectations of fathers shift in Turkey. Accordingly, the goal of the current study was to examine fathers' mental health before and after the completion of a 6-week antenatal education program. Determining whether antenatal education provided to fathers-to-be is associated with their mental health in both the antenatal and postpartum periods may contribute to the protection and improvement of paternal mental health.

## 2 | METHODS

### 2.1 | Participants and procedures

The sample of the study consisted of 200 fathers-to-be who participated in antenatal education classes with their wives at a Women's and Children's Diseases Research and Training Hospital located on the Anatolian side of Istanbul between April 2016 and June 2017 (educational group- EG) and those who attended antenatal follow-ups with their wives but did not want to receive antenatal education (control group-CG). In the study, data were collected only from fathers-to-be. The education program that was free of charge was announced to pregnant women and their spouses presenting to the outpatient clinics using posters, information was provided to them by the healthcare professionals who conducted their follow-ups that there was such a service available, and announcements were made on the webpage of the hospital. Couples who were interested contacted the education center at the same hospital (via face-to-face meeting, e-mail, or phone calls) and received verbal and written information about the education program (location of the program in the hospital, days, hours, duration per session and for the entirety of the program). Consequently, the EG consisted of fathers accompanying pregnant women who had voluntarily enrolled in the antenatal training class.

#### 2.1.1 | Explanation of non-randomization

Although we aimed to perform randomization in the study and compare pre and post program mental health for fathers in a control group (CG) and educational group

(EG), this was not possible for a variety of reasons. The number of fathers-to-be who accompany their pregnant wives in their attendance to all routine follow-ups at our hospital is highly limited. Considering the conditions in Turkey, the number of fathers available and able to accompany their wives in routine follow-ups raised concerns that the sufficient sample size would not be reached. Given the pilot nature of the current study, we elected to preserve fathers' participation in the study by allowing fathers to self-select. Despite the lack of randomization and biases that come with self-selection, we determined that the pre and post comparisons would still be of heuristic value and contribute to future research with fathers in Turkey. As gendered parenting roles continue to shift in Turkey, randomized trials may become more feasible in studies of early fatherhood. Ideally, we would have collected process evaluation data to perhaps identify incentives and barriers to research participation. Unfortunately, the limited time interval of research permitted by the clinical setting prevented the collection of additional data we could otherwise obtain to understand how we could better involve the fathers-to-be in the intervention.

Despite the precautions, the loss of the cases (attrition) was 45% although 200 participants that met the study criteria for the training and control groups were reached. Ten fathers-to-be (n: 5 did not agree to participate, n: 5 another reason) did not participate in the study initially. A total of 190 fathers-to-be who agreed to participate in the study both verbally and in written form were included in the study. At the first stage of the study (pre-education for EG, first meeting for CG), there were 95 participants in each group. At the second stage (6 weeks after the pre-education time and after the education program for EG, 6 weeks after the first meeting for CG), 20 participants in EG (n: 11 wanted to withdraw from the study or did not complete the education program, n: 9 early births), and 11 participants in CG (n: 11 early births) left the study. Although all of the fathers in EG and CG were asked to come to the hospital for the health checks of their babies and spouses, especially in the postpartum 6th week, 20 fathers in EG and 29 fathers in CG did not come. The wives of these fathers either came to the hospital without their husbands or they preferred to go to the healthcare institutions that were closer to them with or without their husbands. For this reason, most cases were lost at this stage of the investigation. Consequently, the study was completed with a data loss rate of 45% and finally included 110 participants (EG n: 55, CG n: 55) (Figure 1).

#### 2.1.2 | Inclusion criteria

Fathers-to-be whose spouses were in the 24th–28th weeks of pregnancy were included in the study. In the

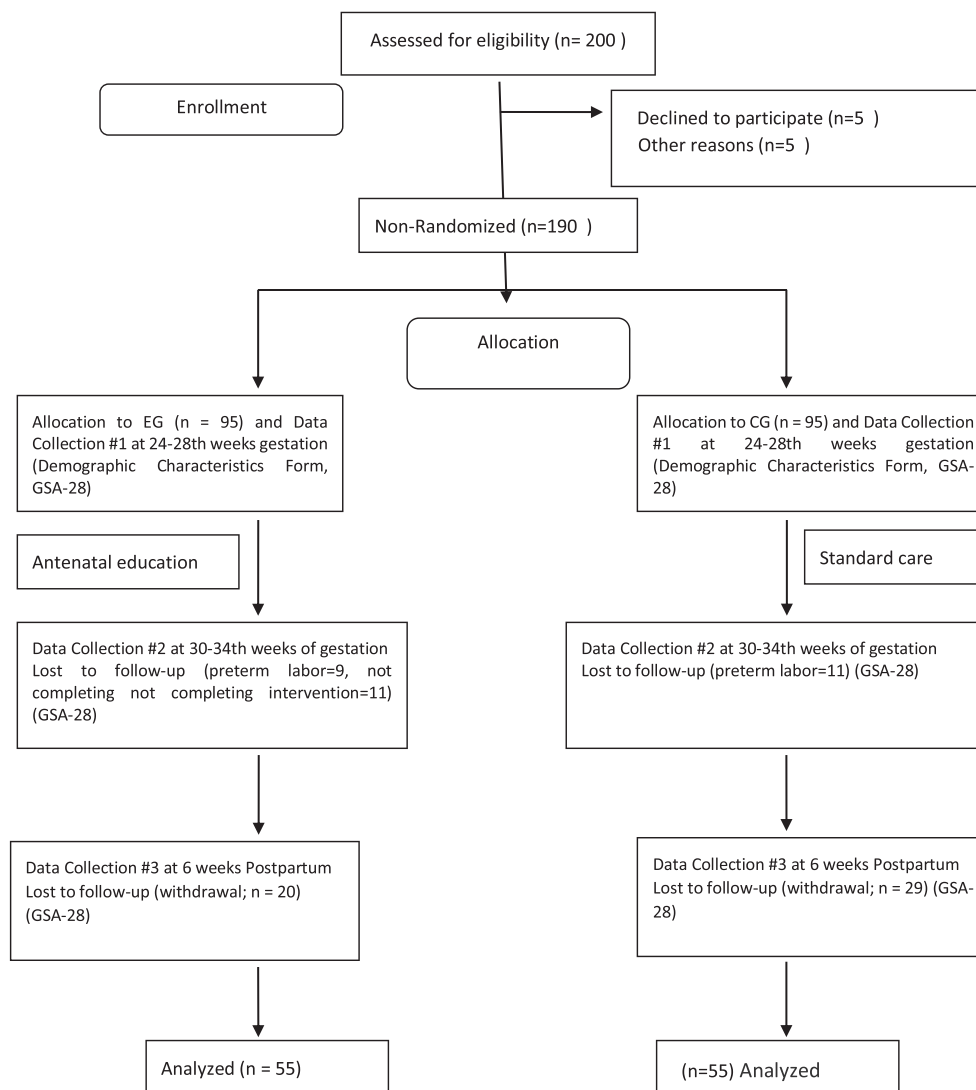


FIGURE 1 Flow of major study activities

prenatal period, the inclusion criteria for the fathers-to-be were that they voluntarily agreed to take part in the study, the pregnancy of the mothers-to-be was planned, their spouses were having a low-risk pregnancy, they were nulliparas and having a singleton pregnancy, the men were becoming fathers for the first time, they had not previously participated in any antenatal education program, they would be able to attend the education program on the days and at the times determined by the education center with their spouses, and they did not have any physical or mental illness. In the postpartum period, the inclusion criteria were having a healthy newborn, not having any postpartum complications in the mother, continuing to visit the hospital with their spouses until the end of the study, the absence of physical or mental illnesses in the men or their spouses based on their self-reports, and they had their postpartum

6th-week follow-ups at the hospital where the study was carried out.

### 2.1.3 | Research approval and informed consent processes

The principles of the Declaration of Helsinki were followed in the research protocol. Prior to the study, permission was obtained from the ethics committee of the Zeynep Kamil Women's and Children's Diseases Research and Training Hospital (decision numbered: 169). The participants were provided with verbal and written information by the researchers. They were assured that participation in the study was on a voluntary basis, they could leave the study any time, and, their responses to the data collection tools and their identifying information would be kept

confidential. Written informed consent was obtained from all participants prior to their participation in the study.

## 2.2 | Design

This prospective and quasi-experimental study was carried out with a CG (care-as-usual group) and a pre- and post-intervention (educational) model.

## 2.3 | Data collection procedures and measures

Data were collected via the self-reports of the fathers-to-be about their demographic characteristics and their responses to the General Health Questionnaire (GHQ)-28. Both data collection forms were administered by the fifth author for the EG and by the fourth author for the CG.

### 2.3.1 | Demographic characteristics

A demographics form contained questions regarding socio-demographic characteristics (age of the father-to-be, age of the mother-to-be, duration of marriage, educational status of the father-to-be, educational status of the mother-to-be, occupation of the father-to-be, employment status of the mother-to-be), and whether the pregnancy was planned. This question was asked to exclude the potential psychologically negative effects of unwanted pregnancies. All participants stated that they had planned pregnancies.

### 2.3.2 | General health questionnaire (GHQ)

GHQ was developed by Goldberg, 1972. A study that measured the validity and reliability of the questionnaire in Turkish was conducted by Kılıç in 1996. This 28-item questionnaire evaluates the individual's mental health in the past month (Nasimi et al., 2020). It is a screening test developed to determine mental health problems encountered in the community and non-psychiatric clinical settings. The scale consists of items about whether the individual has had a recent complaint. The answers range from "less than usual 'to' much more than usual." In the case of the positive items, the following scale is used: 0 = more than usual, 1 = as usual, 2 = less than usual, and 3 = much less than usual. In the case of the negative items, the following scale is used: 0 = not at all, 1 = not more than usual, 2 = a little more than usual, and 3 = much more than usual.

There are two scoring methods. Scoring can be achieved as a Likert scale (0-1-2-3) or with the scoring system devel-

oped by Goldberg for GHQ (0-0-1-1) recommended in the GHQ handbook. In this study, scoring using the Goldberg method was preferred. In this way, the total score was calculated for each of the 28 items by evaluating the items between 0 and 1. While the questionnaire can be used safely in the detection of non-psychotic depression and anxiety, it is not recommended for use with psychotic and manic patients (Kılıç, 1996). GHQ-28 comprises four subscales. These are: somatic symptoms (items 1–7, e.g., Have you recently been feeling perfectly well and in good health?); anxiety/insomnia (items 8–14, e.g., Have you recently lost much sleep over worry?); social dysfunction (items 15–21, e.g., Have you recently been managing to keep yourself busy and occupied?); and severe depression (items 22–28, e.g., Have you recently been thinking of yourself as a worthless person?) (Sterling, 2011).

According to the manual, based on Goldberg's scoring system, individuals with a score of 4 or below are considered normal in terms of mental health, while individuals with a score of 5 or above are evaluated as "at risk for mental problems." However, the scale is not an exact measure of final diagnosis. GHQ has been widely used for stroke patients (Hjelle et al., 2019), adult individuals (Noorbala et al., 2017), university students (Ilhan et al., 2014), fathers (Mahmoodi et al., 2017), infertile women (Namdar et al., 2017), and the general population (Ames-Guerrero et al., 2020). In the scoring system provided by Goldberg, a minimum of 0 and a maximum of 28 points can be obtained from the scale; higher scores indicate a higher possibility of a mental health disorder (Kılıç, 1996, 1997). In Kılıç's (1996) study of Turkish individuals the reliability coefficient of GHQ (Cronbach's alpha) was found to be .94. In the current study, the Cronbach's alpha value was found as .82.

## 2.4 | Description of the intervention

The mothers-to-be and fathers-to-be were enrolled in the education program between the 24th and 28th weeks of pregnancy through individual face-to-face interviews. We targeted enrollment for late second and early in the third trimester of pregnancy. As the pregnancy enters the latter stages, fathers-to-be are likely to experience different emotional responses to pregnancy as their spouses were preparing to go into labor (Masoni et al., 1994).

In studies in the literature conducted in Turkey and other countries, the ideal number of couples in education groups has been stated as 10 (Bayram & Sahin 2010). Therefore, enrollment was limited to 8–10 couples in each education group (EG) class. Program dates and class arrangements were determined 2–3 weeks in advance, and new participants were informed about the program. The

antenatal educational sessions were always administered by the third educator author, who was not involved in data collection. The reason for not including different educators in the program was the aim to prevent the individual differences of educators from influencing the intervention. The educational sessions were conducted with couples, and the data were obtained only from the spouses (fathers) of the pregnant women.

The sessions were held in the pregnancy education center of the hospital, once a week for 3 h (1 p.m. and 4 p.m. in the afternoon on Wednesday) with a 15-min break. Although not ideal in terms of many parental work schedules, the timing of the sessions was performed in line with the hospital rules. Each education session lasted 6 weeks, and the fathers-to-be were ensured to actively participate in all activities and discussions. To determine the schedule of the 6-week education program, the study conducted by Coşar and Demirci (2012) was taken as a basis. The education content focused on the Lamaze philosophy. The Lamaze method consists of childbirth training, relaxation, and breathing techniques. The philosophy of Lamaze emphasizes that emotional support including the participation of the father-to-be should be provided in the process (Walker et al., 2009). Throughout the education program, both theoretical knowledge and practice were equally focused on. Both theoretical and applied education was couple-focused. The fathers-to-be were included in the activities in every session. The content of the program included information about health, breathing exercises during labor, support systems during pregnancy, breastfeeding, the father's role, childcare for couples, the postpartum period, and family planning (Table 1).

## 2.5 | Data analysis

In calculating sample size needs, the total GHQ score was considered to be the primary outcome. The numbers required for each group were calculated using power analyses based on a significance level of .05 and assumed means (.30 and 1.84) and standard deviations (2.77) within the data collection tool. As a result of the analyses, the minimum sufficient sample size was determined as 52 participants for EG and 52 for CG. The SPSS 16.0 software (SPSS, Inc., Chicago, IL, USA) was used for data analysis. Kolmogorov–Smirnov test was used to examine the normality of the distribution of the data, and chi-squared test was used to compare the distributions of socio-demographic and clinical variables within the two groups. Two-factor, repeated-measures ANOVA was used to determine whether there was a significant difference in the mean GHQ-28 scores of the participants before the education program, immediately after the program, and at the

6th postpartum week for EG, first meeting, 6 weeks after the first meeting and at the 6th postpartum week for CG.  $p < .05$  was considered statistically significant. Since the  $p$  value of the ANOVA result was less than .05 in repeated measurements, it was concluded that the mean values of the different measurements were significantly different from each other. For this reason, the Posthoc Bonferroni Test was applied to determine which measurements were different because of the difference between the three measurements performed at the first encounter and 6 weeks after the first encounter, and the postpartum 6th week in the EG and CG groups. Time and time X group terms were included in the analytic model.

## 3 | RESULTS

The demographic characteristics of the fathers-to-be and their spouses in EG and CG are given in Table 2. The mean age of the fathers-to-be in EG was 31.24, SD = 3.39, years, the mean age of their spouses was 28.93, SD = 4.10, years, and the mean duration of the marriages of the participants in EG was  $3.11 \pm 1.86$  years. In CG, the mean age of the fathers-to-be was  $32.09 \pm 4.62$  years, the mean age of the mothers-to-be was 29.47, SD = 4.83, years, and the mean duration of marriage was 3.31, SD = 2.72, years. The two groups were found similar in terms of their mean durations of marriage. Most of the fathers-to-be in both groups and their spouses were university graduates and civil servants. The demographic data (age, duration of marriage, and education levels of the fathers-to-be and mothers) employment status, occupation, economic status) of the fathers-to-be and mothers-to-be did not differ significantly between the two groups.

### 3.1 | Comparison of EG and CG and GHQ-28 mean scores

As shown in Table 3, no statistically significant differences were detected between the mean scores of the EG and CG at the baseline, in other words, at the first evaluation and at the second evaluation 6 weeks after the first evaluation. However, a significant difference was detected in favor of the EG in the third evaluation performed at the postnatal 6th week ( $F = 10.509$ ,  $df = 1062$ ,  $p = .00$ ).

## 4 | DISCUSSION

This study was conducted to examine associations between participation in antenatal education classes and the mental health of fathers-to-be. The mental health statuses of

TABLE 1 Antenatal education program (N = 110)

Weeks	Subject	Educational content	Method/materials
1	Pregnancy process	What can fathers-to-be and mothers-to-be do about the fertilization, baby development, prenatal care, and changes/disorders during pregnancy? Healthy nutrition, exercise, and sexuality during pregnancy for fathers-to-be and mothers-to-be, Danger Signs in pregnancy, stress reduction strategies for fathers-to-be and mothers-to-be. The role of the father-to-be in the pregnancy process.	Power point presentation Role play Question and answer discussion Visual imagination
2	Childbirth process	Informing fathers-to-be and mothers-to-be about birth indicators, birth plan, mode of birth, and receiving their opinions, What should fathers-to-be and mothers-to-be do?; What are the roles and responsibilities of fathers in birth planning?; Discussion; Stress reduction strategies for fathers-to-be and mothers-to-be (continued),	Power point presentation Demonstration Role play Question and answer discussion Visual imagination
3	Birth Pain	Discussing birth positions, drug-free relaxation techniques, prejudices about birth pain with fathers-to-be and mothers-to-be and providing information on how fathers-to-be can support their pregnant spouses	Case presentation Question and answer discussion Power point presentation Role play
4	Breastfeeding	Why should I breastfeed? Breastfeeding physiology, Paternal role, Preparation for breastfeeding, Breastfeeding education, Breastfeeding problems and solutions, Talking about false facts on breastfeeding, Information on how fathers-to-be can support their wives during breastfeeding. Explaining the importance of the support to be provided by fathers-to-be by using current study results; Discussion; Why should I breastfeed? Breastfeeding physiology	Question and answer discussion Demonstration Power point presentation Role play Animation
5	Baby arrives	Informing fathers-to-be and mothers-to-be about newborn care, follow-up, vaccinations, danger signs, safety, and potential newborn issues, Discussing the importance of skin-to-skin contact not only for mothers but also for fathers, Discussing the changes in paternal roles in Turkey from past to present	Question and answer Discussion Power point presentation Demonstration Role play Animation
6	Postpartum period	Introducing the postpartum service to fathers-to-be and mothers-to-be, Adaptation to the postpartum period in mothers, Adaptation to the postpartum period in fathers, Forward guidance for parenting, Strategies to facilitate adaptation to the paternal and maternal roles, Sharing the expectations of fathers-to-be and mothers-to-be from themselves and their spouses about parenthood, Discussing the differences between expectations and reality.	Question and answer Discussion Power point presentation Demonstration Role play

TABLE 2 Comparison of the characteristics of the groups (N = 110)

Characteristics	EG (n = 55)		CG (n = 55)		t	p
	Mean ± SD		Mean ± SD			
Age of the Father-to-Be	31.24 ± 3.39		32.09 ± 4.62		5.015	.271
Age of the Mother-to-Be	28.93 ± 4.10		29.47 ± 4.83		2.233	.525
Duration of marriage	3.11 ± 1.86		3.31 ± 2.72		2.432	.654
	N	%	N	%	x <sup>2</sup>	p
<b>Educational level of the Father-to-Be</b>						
Primary-Secondary School	5	9.1	5	9.1	(2.349)	.503
High School	8	14.5	13	23.6		
University	33	60.0	32	58.2		
Postgraduate	9	16.4	5	9.1		
<b>Educational level of the Mother-to-Be</b>						
Primary-Secondary School	6	10.9	6	10.9	(.940)	.816
High School	4	7.3	7	12.7		
University	37	67.3	35	63.6		
Postgraduate	8	14.5	7	12.7		
<b>Profession of the Father-to-Be</b>						
Laborer	13	23.6	14	25.5	(.451)	.196
Civil servant	36	65.5	37	67.3		
Self-employment	6	10.9	4	7.3		
<b>Profession of the Mother-to-Be</b>						
Laborer	8	14.5	8	14.5	(3.255)	.977
Civil servant	37	67.3	29	52.7		
Unemployed	10	18.2	18	32.7		

Abbreviations: EG, Education group; CG, care-as-usual group; SD, Standard Deviation; x<sup>2</sup>, Chi-squared tests; t, Independent-samples t-test.

TABLE 3 Comparison of the mean “General Health Questionnaire-28” (GHQ-28) scores of EG and CG

Time Group	First evaluation		Second evaluation		Third evaluation		Main Effect			Time Effect			Group*Time Interaction Effect		
	GHQ		GHQ		GHQ		F	df	p	F	df	p	F	df	p
	Mean	SD	Mean	SD	Mean	SD									
EG	1.33	2.40 <sup>a</sup>	1.29	2.22 <sup>b</sup>	.25	1.02 <sup>c</sup>	4.328	1	.04*	4.538	1	.03*	10.509	1.062	.00*
CG	1.16	1.97 <sup>d</sup>	1.01	1.86 <sup>e</sup>	1.81	2.87 <sup>f</sup>									
Difference GHQ evaluation a, b,d,e,f > c															

Abbreviations: EG, Education group; CG, care-as-usual group; SD, Standard Deviation.

\*Analyzed with repeated-measures ANOVA, GHQ = General Health Questionnaire-28.

EG and CG were evaluated three times: at the beginning of the intervention, 6 weeks after the first meeting, and at the 6th week in the postpartum period. Randomization could not be employed in the study. The fathers-to-be in EG and CG did not differ significantly in terms of their mental health in the pre-intervention assessment, underscoring the homogeneity of the groups. In the evaluations at the 6th week in the postpartum period, the fathers in EG reported significantly fewer mental health symptoms in comparison to their prenatal statuses, while there was no significant change in mental health symptoms among

the fathers in CG. In the second evaluation, which took place 6 weeks after the first evaluation for the EG and CG, no differences were detected between the groups in terms of the mental health status of the fathers-to-be (Table 3).

Figueiredo and Conde (2011) reported that anxiety levels in men were lower in the first three postpartum months compared to the last trimester prior to birth. In a systematic review of 18 studies, fathers' stress levels increased during the prenatal period and decreased after delivery (Philpott et al., 2017). Li et al. (2009) stated that antenatal education reduced fathers' postpartum anxiety levels.

Similarly, Tohotoa et al. (2012) reported that new fathers were anxious before the birth of their babies, but fathers who received antenatal education were less anxious than those who did not receive such education in the postpartum period. These studies suggest positive changes in mental health postpartum. However, antenatal education might not be associated with improvements in fathers' mental health prior to the end of pregnancy. Thus, our null results relative to pre to post changes in mental health may reflect the fact that the post assessment occurred during the third trimester of pregnancy rather than after birth. With the approach of labor, fathers-to-be may experience stress and anxiety about the health of their wives and unborn babies (Vehviläinen-Julkunen & Liukkonen, 1998). This may explain the similar mental health levels in EG and CG in this study immediately post intervention.

Darwin et al. (2017) reported that men shared their early perinatal experiences through their prenatal appointments and prenatal education classes, as well as preparations for the baby at home, and they mentioned their roles of preparing for the birth and being parents. However, many stated that they did not “really” feel prepared, and that parenting became “real” only when they “experienced” this role. In their study, the stress experienced by the men about pregnancy and parenthood was different from other stressful situations they had experienced before, and this sometimes made them feel powerless. Therefore, their conclusions align with our finding in this respect. After the birth, what is learned from the education received by fathers-to-be may be reflected on their real life over time, and fathers take a more active part in birth and postnatal processes. The postnatal period is the process for fathers to now put the things they have learned into practice. Thus, they may become more active than they were during the pregnancy period by using the learned information in order to keep up with the presence of the new member of the family and the changing family dynamics. They can support their wives and newborns and this way; they can feel more powerful and protect their mental health. In other words, the process of coping with stressors did not occur right after the training. One interpretation is that as fathers put what they learned into practice over time, experienced the fatherhood process concretely, and acquired experience with what they learned, their mental health was affected positively (postpartum 6th week, 3rd measurement).

The results of the study suggest that antenatal education may reduce the potential of fathers to experience mental health problems during the transition to parenthood. In the adaptation to parenthood, ensuring that fathers-to-be gain skills, involving them in the process of preparation for parenthood, helping them improve their roles and responsibilities, teaching them what they do not know about, and preparing them for parenthood may reduce the depression,

anxiety, and stress levels of fathers. It may help them feel more valued and involved (Rominov et al., 2016). Couple-focused antenatal classes may be influential in improving the father's mental health (Suto et al., 2017). Antenatal classes may play a role in preventing potential mental health problems by facilitating the adaptation to paternal roles, which have changed over time in Turkey. For this reason, it is important to conduct randomized controlled studies on the potential effects of antenatal classes on the mental health of fathers in Turkey.

#### 4.1 | Limitations

Most mothers came to the hospital alone for their prenatal and postnatal follow-ups. Since mothers did not come together with the fathers, we had difficulties in reaching the fathers. The most important limitation of this study was the inability to randomly assign participants to the intervention or care-as-usual groups. Without random assignment, interpretation of findings relative to any intervention effects are limited. The times of the antenatal education sessions inside the working schedules of the researchers were set by the institution and the researchers. The researcher's on-call duties prevented us from choosing alternative times for the education sessions because of the researcher's duty as a midwife in the perinatology clinic. The inability to offer alternative times to participants, especially to those who had a busy work routine, also limited the number of participant able to attend and caused some to leave the study. Another limitation of our study was that there were also data losses in the control group as some fathers-to-be did not attend the follow-ups regularly with their spouses, or they attended their follow-ups at different institutions. For this reason, providing alternative education places and times to the participants in future studies may reduce case losses.

#### 4.2 | Conclusions

Antenatal education classes are held regularly in various parts of the world. However, there are a very limited number of family-oriented programs that consider the mental health of fathers-to-be, including in Turkey. When the focus of antenatal education classes is family-oriented, rather than just focusing on the mother and the newborn, these classes may help protect the mental health of fathers-to-be—who may feel excluded, passive and isolated—by enabling them to contribute to the process. In antenatal education, the perception of both the mother-to-be and the antenatal educator should not be “the world only consists of two people: the mother and the newborn.”

Rather, fathers-to-be should also be included in the process, and their needs should be listened to. The importance of preparing content that can appeal to both the mother and the father is apparent. Ensuring maximal participation by including activities that are responsive to and continuously include the needs of the father-to-be can help avoid problems that may threaten fathers' mental health, including stress, anxiety, and depression.

As fathering roles continue to shift away from more traditional paradigms, health policymakers in Turkey may need to take into account the possibility of standardizing and popularizing family-oriented and antenatal education programs, as well as engaging in public initiatives that will raise awareness in men and develop programs that can be routinely available to couples. Demand for antenatal education programs may be increased by announcing them on a nation-wide scale. Programs focused on the needs of fathers and mothers may help to overcome the belief in society that the responsibility of the newborn mostly belongs to mothers. The findings of this study will contribute to clinical research by nurses and midwives within a more comprehensive and standardized antenatal training program for men becoming fathers for the first time. This study, which was conducted to investigate the mental health of first-time fathers, may help to guide the development of family-oriented healthcare services in antenatal education, although, as noted, randomized controlled studies are needed.

## ACKNOWLEDGMENT

This research did not receive any specific grant from funding agencies in the public, commercial, or not-for-profit sectors.

## CONFLICT OF INTEREST

The authors declare no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

## DATA AVAILABILITY STATEMENT


Derived data supporting the findings of this study are available from the corresponding author on request.

## PATIENT CONSENT STATEMENT

Informed consent and verbal permission were obtained from the participants.

## ORCID


Çiğdem Gün Kakaşçı  <https://orcid.org/0000-0003-1951-563X>

Dilek Coşkun Potur  <https://orcid.org/0000-0002-2186-4663>

Döne Ertuğrul Abbasoğlu  <https://orcid.org/0000-0002-8121-5155>

Özlem Karabulut  <https://orcid.org/0000-0003-4830-0398>

Yeliz Doğan Merih  <https://orcid.org/0000-0002-6112-0642>

Nurdan Demirci  <https://orcid.org/0000-0003-0489-186X>

## REFERENCES

- Alio, A. P., Lewis, C. A., Scarborough, K., Harris, K., & Fiscella, K. (2013). A community perspective on the role of fathers during pregnancy: A qualitative study. *BMC Pregnancy and Childbirth*, 13(1), 60. <https://doi.org/10.1186/1471-2393-13-60>
- Atmaca Koçak, A. (2004). Current status of fathers in Turkey. Father support program evaluation report. Mother Child Education Foundation, 1–65. [http://www.acev.org/wp-content/uploads/2017/11/baba\\_destek\\_programi\\_-degerlendirme\\_raporu.pdf](http://www.acev.org/wp-content/uploads/2017/11/baba_destek_programi_-degerlendirme_raporu.pdf)
- Ames-Guerrero, R. J., Barreda-Parra, V. A., & Huamani-Cahua, J. C. (2020). Psychometric properties and factor invariance for the General Health Questionnaire (GHQ-28): Study in Peruvian population exposed to the COVID-19 pandemic. *medRxiv*, <https://doi.org/10.1101/2020.11.10.20229435>
- Åsenhed, L., Kilstam, J., Alehagen, S., & Baggens, C. (2014). Becoming a father is an emotional roller coaster—an analysis of first time fathers' blogs. *Journal of Clinical Nursing*, 23(9-10), 1309–1317. <https://doi.org/10.1111/jocn.12355>
- Bagheri, M., Tafazoli, M., & Sohrabi, Z. (2016). Effect of education on the awareness of primigravida couples toward infant care. *Iranian Journal of Neonatology IJN*, 7(4), 30–34. <https://doi.org/10.22038/IJN.2016.7776>
- Bal, S., & Koç, G. (2020). Nurse's role about fathers baby care participation. *Samsun Journal of Health Sciences*, 5(2), 90–96. <https://doi.org/10.47115/jshs.755020>
- Baldwin, S., Malone, M., Sandall, J., & Bick, D. (2018). Mental health and wellbeing during the transition to fatherhood: A systematic review of first time fathers' experiences. *JBIR Database of Systematic Reviews and Implementation Reports*, 16(11), 2118. <https://doi.org/10.11124/JBISRIR-2017-003773>
- Bateson, K., Darwin, Z., Galdas, P., & Rosan, C. (2017). Engaging fathers: Acknowledging the barriers. *Journal of Health Visiting*, 5(3), 126–132.
- Bayram, G. O., & Sahin, N. H. (2010). Childbirth education models and current approaches. *Journal of Education and Research in Nursing*, 7(3), 36–43.
- Boyce, P., Condon, J., Barton, J., & Corkindale, C. (2007). First-time fathers' study: Psychological distress in expectant fathers during pregnancy. *Australian & New Zealand Journal of Psychiatry*, 41(9), 718–725. <https://doi.org/10.1080/00048670701517959>
- Çankaya, S., & Şimşek, B. (2020). Effects of antenatal education on fear of birth, depression, anxiety, childbirth self-efficacy, and mode of delivery in primiparous pregnant women: A prospective randomized controlled study. *Clinical Nursing Research*, 30(6), 818–829. <https://doi.org/10.1177/1054773820916984>
- Case, D. O., Andrews, J. E., Johnson, J. D., & Allard, S. L. (2005). Avoiding versus seeking: The relationship of information seeking to avoidance, blunting, coping, dissonance, and related concepts. *Journal of the Medical Library Association*, 93(3), 353.

- Cenerini, M. V., & Messina, D. (2019). A 'strong enough' father. Observations from groups for expectant and new fathers. *Infant Observation*, 22(2-3), 147–164. <https://doi.org/10.1080/13698036.2019.1689839>
- Coşar, F., & Demirci, N. (2012). The effect of education of pregnant women in childbirth education classes based on the philosophy of lamaze on perception and orientation of birth process. *SDU Journal of Health Science Institute*, 3(1), 18–30.
- Darwin, Z., Galdas, P., Hinchliff, S., Littlewood, E., McMillan, D., McGowan, L., & Gilbody, S. (2017). Fathers' views and experiences of their own mental health during pregnancy and the first postnatal year: A qualitative interview study of men participating in the UK Born and Bred in Yorkshire (BaBY) cohort. *BMC Pregnancy and Childbirth*, 17(1), 1–15. <https://doi.org/10.1186/s12884-017-1229-4>
- Fenwick, J., Bayes, S., & Johansson, M. (2012). A qualitative investigation into the pregnancy experiences and childbirth expectations of Australian fathers-to-be. *Sexual & Reproductive Healthcare*, 3(1), 3–9. <https://doi.org/10.1016/j.srhc.2011.11.001>
- Figueiredo, B., & Conde, A. (2011). Anxiety and depression in women and men from early pregnancy to 3-months postpartum. *Archives of Women's Mental Health*, 14(3), 247–255. <https://doi.org/10.1007/s00737-011-0217-3>
- Finnbogadóttir, H., Svalenius, E. C., & Persson, E. K. (2003). Expectant first-time fathers' experiences of pregnancy. *Midwifery*, 19(2), 96–105. [https://doi.org/10.1016/S0266-6138\(03\)00003-2](https://doi.org/10.1016/S0266-6138(03)00003-2)
- Giallo, R., D'Esposito, F., Cooklin, A., Mensah, F., Lucas, N., Wade, C., & Nicholson, J. M. (2013). Psychosocial risk factors associated with fathers' mental health in the postnatal period: Results from a population-based study. *Social Psychiatry and Psychiatric Epidemiology*, 48(4), 563–573. <https://doi.org/10.1007/s00127-012-0568-8>
- Goldberg, D. P. (1972). *The detection of psychiatric illness by questionnaire: A technique for the identification and assessment of non-psychotic psychiatric illness*. Oxford U. Press.
- Gülşen, Ç., & Merih, Y. D. (2018). Doğum sonu dönemde anneler kimden hangi desteği bekliyor? *Kadın Sağlığı Hemşireliği Dergisi*, 4(1), 20–34.
- Güngörmüş, O. (2003). Father-child relationship. In K. Aydoğmuş (Ed.), *Parent school*. (pp. 245–254). Remzi Kitabevi.
- Hjelle, E. G., Bragstad, L. K., Zucknick, M., Kirkevold, M., Thommessen, B., & Sveen, U. (2019). The General Health Questionnaire-28 (GHQ-28) as an outcome measurement in a randomized controlled trial in a Norwegian stroke population. *BMC Psychology*, 7(1), 18. <https://doi.org/10.1186/s40359-019-0293-0>
- Ilhan, N., Bahadırli, S., & Toptaner, N. E. (2014). Determination of the relationship between mental status and health behaviours of university students. *Clinical and Experimental Health Sciences*, 4(4), 207. <https://doi.org/10.5455/musbed.20140913124019>
- İşbir, G. G., İnci, F., Önal, H., & Yıldız, P. D. (2016). The effects of antenatal education on fear of childbirth, maternal self-efficacy and post-traumatic stress disorder (PTSD) symptoms following childbirth: an experimental study. *Applied Nursing Research*, 32, 227–232. <https://doi.org/10.1016/j.apnr.2016.07.013>
- Karabulut, Ö., Coşkuner Potur, D., Doğan Merih, Y., Cebeci Mutlu, S., & Demirci, N. (2016). Does antenatal education reduce fear of childbirth? *International Nursing Review*, 63(1), 60–67. <https://doi.org/10.1111/inr.12223>
- Kılıç, C. (1996). General health questionnaire: A validity and reliability study. *Turkish Journal of Psychiatry*, 7, 3–9.
- Kiliç, C., Rezaki, M., Rezaki, B., Kaplan, I., Özgen, G., Sağduyu, A., & Ozturk, M. O. (1997). General health Questionnaire (GHQ12 and GHQ28): Psychometric properties and factor structure of the scales in a Turkish primary care sample. *Social Psychiatry and Psychiatric Epidemiology*, 32(6), 327–331. <https://doi.org/10.1007/BF00805437>
- Li, H. T., Lin, K. C., Chang, S. C., Kao, C. H., Liu, C. Y., & Kuo, S. C. (2009). A birth education program for expectant fathers in Taiwan: Effects on their anxiety. *Birth*, 36(4), 289–296. <https://doi.org/10.1111/j.1523-536X.2009.00356.x>
- Mahmoodi, H., Golboni, F., Nadrian, H., Zareipour, M., Shirzadi, S., & Gheshlagh, R. G. (2017). Mother-father differences in postnatal psychological distress and its determinants in Iran. *Open Access Macedonian Journal of Medical Sciences*, 5(1), 91. <https://doi.org/10.3889/oamjms.2017.009>
- Masoni, S., Maio, A., Trimarchi, G., De Punzio, C., & Fioretti, P. (1994). The couvade syndrome. *Journal of Psychosomatic Obstetrics & Gynecology*, 15(3), 125–131.
- Mbekenga, C. K., Lugina, H. I., Christensson, K., & Olsson, P. (2011). Postpartum experiences of first-time fathers in a Tanzanian suburb: A qualitative interview study. *Midwifery*, 27(2), 174–180. <https://doi.org/10.1016/j.midw.2009.03.002>
- Mizrak, B., Ozerdogan, N., & Colak, E. (2017). The effect of antenatal education on breastfeeding self-efficacy: Primiparous women in Turkey. *International Journal of Caring Sciences*, 10(1), 503.
- Musser, A. K., Ahmed, A. H., Foli, K. J., & Coddington, J. A. (2013). Paternal postpartum depression: What health care providers should know. *Journal of Pediatric Health Care*, 27(6), 479–485. <https://doi.org/10.1016/j.pedhc.2012.10.001>
- Namdar, A., Naghizadeh, M. M., Zamani, M., Yaghmaei, F., & Sameni, M. H. (2017). Quality of life and general health of infertile women. *Health and Quality of Life Outcomes*, 15(1), 139. <https://doi.org/10.1186/s12955-017-0712-y>
- Nasimi, M., Ahangari, N., Lajevardi, V., Mahmoudi, H., Ghodsi, S. Z., & Etesami, I. (2020). Quality of life and mental health status in patients with lichen planopilaris based on dermatology life quality index and general health questionnaire-28 questionnaires. *International Journal of Women's Dermatology*, 6(5), 399–403. <https://doi.org/10.1016/j.ijwd.2020.09.005>
- Nicholas, M., Mares, S. P., Newman, L. K., Williams, S., Powrie, R. M., & Karin, T. (2012). Family matters: Infants, toddlers and preschoolers of parents affected by mental illness. *Medical Journal of Australia*, 199(3), 14–17. <https://doi.org/10.5694/mja11.11285>
- Noorbala, A. A., Faghihzadeh, S., Kamali, K., Yazdi, S. A. B., Hajebi, A., Mousavi, M. T., Akhondzadeh, S., Faghihzadeh, E., & Nouri, B. (2017). Mental health survey of the Iranian adult population in 2015. *Archives of Iranian Medicine*, 20(3), 128–134.
- Official Newspaper. (2011). Civil Servants Law. Law number:657. İtem number: 104 (Revised: 25/02/2011- 13/2/2011- 6111 /106).
- Philpott, L. F., Leahy-Warren, P., FitzGerald, S., & Savage, E. (2017). Stress in fathers in the perinatal period: A systematic review. *Midwifery*, 55, 113–127. <https://doi.org/10.1016/j.midw.2017.09.016>
- Philpott, L. F., Savage, E., FitzGerald, S., & Leahy-Warren, P. (2019). Anxiety in fathers in the perinatal period: A systematic review. *Midwifery*, 76, 54–101. <https://doi.org/10.1016/j.midw.2019.05.013>
- Ramchandani, P. G., Stein, A., O'Connor, T. G., Heron, J., Murray, L., & Evans, J. (2008). Depression in men in the postnatal period and later child psychopathology: A population cohort study.

- Journal of the American Academy of Child and Adolescent Psychiatry*, 47(4), 390–398. <https://doi.org/10.1097/CHI.0b013e31816429c2>
- Rominov, H., Pilkington, P. D., Giallo, R., & Whelan, T. A. (2016). A systematic review of interventions targeting paternal mental health in the perinatal period. *Infant Mental Health Journal*, 37(3), 289–301. <https://doi.org/10.1002/imhj.21560>
- Rowe, H. J., Holton, S., & Fisher, J. R. (2013). Postpartum emotional support: A qualitative study of women's and men's anticipated needs and preferred sources. *Australian Journal of Primary Health*, 19(1), 46–52. <https://doi.org/10.1071/PY11117>
- Salehi, K., Kohan, S., & Taleghani, F. (2018). Factors and interventions associated with parental attachment during pregnancy in Iran: A systematic review. *International Journal of Pediatrics*, 6(1), 6823–6842. <https://doi.org/10.22038/IJP.2017.26168.2232>
- Setodeh, S., Pourahmad, S., & Akbarzadeh, M. (2017). A study of the efficacy of fathers' attachment training on paternal-fetal attachment and parental anxiety. *Family Medicine & Primary Care Review*, 19(4), 393–398. <https://doi.org/10.5114/fmpcr.2017.70814>
- Simbar, M., Nahidi, F., Tehran, F. R., & Ramezankhani, A. (2010). Fathers' educational needs for perinatal care in urban Iran: A qualitative approach. *Journal of Biosocial Science*, 42(5), 633–641. <https://doi.org/10.1017/S0021932010000167>
- Sterling, M. (2011). General health questionnaire–28 (GHQ-28). *Journal of Physiotherapy*, 57(4), 259.
- Suto, M., Takehara, K., Yamane, Y., & Ota, E. (2017). Effects of prenatal childbirth education for partners of pregnant women on paternal postnatal mental health and couple relationship: A systematic review. *Journal of Affective Disorders*, 210, 115–121. <https://doi.org/10.1016/j.jad.2016.12.025>
- Tohotoa, J., Maycock, B., Hauck, Y. L., Dhaliwal, S., Howat, P., Burns, S., & Binns, C. W. (2012). Can father inclusive practice reduce paternal postnatal anxiety? A repeated measures cohort study using the hospital anxiety and depression scale. *BMC Pregnancy and Childbirth*, 12(1), 1–8.
- Turan, J. M., Nalbant, H., Bulut, A., & Sahip, Y. (2001). Including expectant fathers in antenatal education programmes in Istanbul, Turkey. *Reproductive Health Matters*, 9(18), 114–125.
- Vehviläinen-Julkunen, K., & Liukkonen, A. (1998). Fathers' experiences of childbirth. *Midwifery*, 14(1), 10–17. [https://doi.org/10.1016/S0266-6138\(98\)90109-7](https://doi.org/10.1016/S0266-6138(98)90109-7)
- Walker, D. S., Visger, J. M., & Rossie, D. (2009). Contemporary childbirth education models. *Journal of Midwifery & Women's Health*, 54(6), 469–476. <https://doi.org/10.1016/j.jmwh.2009.02.013>
- Wells, M. B., Varga, G., Kerstis, B., & Sarkadi, A. (2013). Swedish child health nurses' views of early father involvement: A qualitative study. *Acta Paediatrica*, 102(7), 755–761. <https://doi.org/10.1111/apa.12246>
- Widarsson, M., Engström, G., Tydén, T., Lundberg, P., & Hammar, L. M. (2015). 'Paddling upstream': Fathers' involvement during pregnancy as described by expectant fathers and mothers. *Journal of Clinical Nursing*, 24(7-8), 1059–1068. <https://doi.org/10.1111/jocn.12784>
- World Health Organization. (2015). *WHO recommendations on health promotion interventions for maternal and newborn health 2015*. World Health Organization.
- Yapıcı, M., & Yapıcı, Ş. (2005). Moral development in children. *Science, Education and Thought Journal*, 5(3), 1–8.
- Zeybekoğlu, Ö. (2010). Turkish society's perception of masculinity within the context of gender roles. *ETHOS Dialogues in Philosophy and Social Sciences*, 3(3), 25–37.
- Paulson, J. F., Bazemore, S. D., Goodman, J. H., & Leiferman, J. A. (2016). The course and interrelationship of maternal and paternal perinatal depression. *Archives of Women's Mental Health*, 19, 655–663. <https://doi.org/10.1007/s00737-016-0598-4>

**How to cite this article:** Kakaşçı, Ç. G., Potur, D. C., Abbasoğlu, D. E., Karabulut, Ö., Merih, Y. D., & Demirci, N. (2022). Is participation in antenatal classes associated with fathers' mental health? A quasi-experimental and prospective study. *Infant Mental Health Journal*, 1–13. <https://doi.org/10.1002/imhj.22015>