

# Antenatal depression in expectant fathers: an Egyptian study

Suaad Moussa<sup>a</sup>, Maha Emad<sup>b</sup>, Aref Khoweiled<sup>a</sup>, Dalal Amer<sup>a</sup>, Osama Refaat<sup>a</sup> and Tamer Goueli<sup>a</sup>

<sup>a</sup>Department of Psychiatry, Faculty of Medicine, Cairo University, Cairo and <sup>b</sup>Department of Psychiatry, Beni Suef University, Beni Suef, Egypt

Correspondence to Suaad Moussa, MD, Department of Psychiatry, Faculty of Medicine, Cairo University, 11451, Cairo, Egypt  
Tel: +20 33 022 027; fax: +0020233369116;  
e-mail: suaadmoussa@yahoo.com

Received 3 December 2011  
Accepted 25 December 2011

Egyptian Journal of Psychiatry 2012, 33:90–96

## Background

Depression in relation to child conception and birth is not limited to mothers. Recently, there has been a growing interest in the study of depression in expectant fathers and in fathers after birth of their children, its correlates and consequences. These studies are relatively rare, especially in our culture.

## Objectives

The aim of this study was to screen for depressive symptoms in expectant fathers and to study their sociodemographic, pregnancy and marital correlates.

## Methods

Eighty-five Egyptian expectant fathers, husbands of Egyptian wives attending private Gynaecology and Obstetrics clinics for regular follow up of an unthreatened pregnancy, were asked to fill the Edinburgh Postnatal Depression Scale and the Intimate Bond Measure (IBM).

## Results

A total of 31.8% ( $n=27$ ) of the expectant fathers scored at least 10 on the Edinburgh Postnatal Depression Scale, indicating possible depression. High percentages of anxiety were found in both depressed and nondepressed participants. Depression did not correlate with sociodemographic variables. A significantly higher percentage of depressed participants desired a boy (48.1 vs. 24.1%) and were expecting a boy (40.1 vs. 24.1%). Other pregnancy variables were not associated with depression. A significantly higher percentage of depressed participants (35 vs. 19.5%) perceived their marital relation as lacking intimacy, with only 5% rating their relation as having optimum intimacy on the IBM. Depression correlated negatively ( $r = -0.269$ ,  $P = 0.036$ ) with the care subscale but not with the control subscale of the IBM.

## Conclusion

Fathers are probably at an increased risk of depression in the antenatal period, which is related to their perception of marital intimacy. Delineation of specific cultural and personal contributors needs further research.

## Keywords:

antenatal depression, Edinburgh Postnatal Depression Scale, father, intimacy, paternal

Egypt J Psychiatr 33:90–96  
© 2012 Egyptian Journal of Psychiatry  
1110-1105

## Introduction

The literature on antenatal and postpartum depression has focused predominantly on mothers, which gives the impression that only women suffer from these conditions. However, in recent years, researchers have found that these conditions present a significant problem not only for women but also for men (Matthey *et al.*, 2001; Fletcher *et al.*, 2006). Recently, two systematic reviews by Paulson and Bazemore (2010) and Wee *et al.* (2011) have been published presenting conceptual and methodological reviews of the literature on correlates of depressive symptoms in expectant fathers and in fathers after birth of their children. Wee *et al.* (2011) concluded “The scientific study of predictors of men’s depressive symptoms pre and post birth remains in its infancy”. It is also noteworthy that postnatal depression has been studied more than antenatal depression in men.

Study of depression before and after birth in women revealed the major consequences it has for both the mother’s health and the development of the child. Would the same apply to paternal depression? Although interest in this domain is relatively new, several studies have shown that paternal depression is not a rare phenomenon and that it has potential hazardous effects on the child, who is at risk of emotional and behavioural problems (Schumacher *et al.*, 2008). Ramchandani *et al.* (2008b) found that paternal postnatal depression was associated with later psychiatric disorders – in particular, oppositional defiant or conduct disorders – in children, independent of maternal postnatal depression. With such significant consequences and implications, paternal birth-related depression warrants special attention and poses important questions as to how and who would detect the condition and who would manage the case. In Egypt, expectant women would follow up with their gynaecologists, who

might detect the depression and provide support or refer them accordingly; who would be following up fathers? Similarly, paediatricians work in close alliance with mothers and usually recognize their stress and psychological well-being, but less so with fathers. Public awareness of these conditions as well as awareness among healthcare providers is urgently needed.

---

## Hypothesis

Depression in expectant fathers is underestimated in our culture. When present, it may be associated with negative life events and negative perception of the marital relationship.

---

## Aim of the work

Our objective is to study the presence of depression in expectant fathers and the associated factors. The factors studied include sociodemographic data, current pregnancy characteristics (such as duration and mode of conception), previous losses and the participants' perceptions of their wives and marital relationships.

---

## Participants and methods

### Study type

This is a cross-sectional descriptive study that recruited a convenient sample.

### Site of the study

The study was conducted at private Gynaecology and Obstetric Clinics located at Greater Cairo (Maadi, Down Town, Mohandeseen; 6 October).

Private sector hospitals were selected as men rarely accompany their wives to public sector clinics such as Kasr Al Ainy Hospital or specialized Gynaecological and Obstetric Hospitals such as El Galaa Hospital.

### Participants

Egyptian husbands of healthy Egyptian pregnant women attending regular follow-up of a stable pregnancy between October 2010 and September 2011 were included in this study. Participants whose wives had life-threatening conditions or who were under risk of abortion were excluded from the study. A verbal explanation of the purpose of the study and of the questionnaires and forms included in the study was given. Those who agreed to participate were given the questionnaires to fill and were requested to do so independently (without consulting with their wives, who were given the same questionnaires to answer).

### Tools

#### *A structured information sheet covering*

Sociodemographic data about both parents such as age, education, occupation and duration of marriage were collected.

Information on pregnancy was collected such as duration of pregnancy, whether the current pregnancy was planned, mode of conception, mother's health during pregnancy, desired sex, expected sex if known, number of foetuses, previous pregnancies, previous miscarriages or loss of a baby.

#### *The Edinburgh Postnatal Depression Scale (Cox *et al.*, 1987)*

A self-reporting 10-item questionnaire scored on a four-point scale from 0–3 specifically designed to screen for postnatal depression in community samples was used. Five of the items were on dysphoric mood, two on anxiety and the remaining items dealt with guilt, suicidal ideation and an inability to cope (Cox *et al.*, 1987). The scale was translated and back translated by the authors, and the Arabic version was used.

Cox *et al.* (1987) recommend a cut-off score of nine of 10 for screening purposes for women in the postpartum period. Using this cut-off, the Edinburgh Postnatal Depression Scale (EPDS) has also been validated for men (Matthey *et al.*, 2001).

#### *Intimate Bond Measure (Wilhelm and Parker, 1988)*

It is a 24-item self-report scale assessing the nature of the relationship between partners. It comprises two subscales, care and control. The care subscale covers aspects such as affection, consideration and understanding, whereas the control subscale assesses the extent to which the participant feels dominated, intruded upon, criticized and controlled by the partner.

Wilhelm and Parker (1988) defined four broad styles of intimate relationships, which they labelled as follows: (i) optimal intimacy: high care, low control; (ii) affectionate control: high care, high control; (iii) affectionless control: low care, high control and (iv) absence of intimacy: low care, low control.

The scale was translated into Arabic and back translated. Permission to use the scale was obtained from Kay Wilhelm, by the first author, after she approved the translation and back translation.

### Statistical analysis

Data were statistically analysed using SPSS version 16 (SPSS Inc., Chicago, Illinois, USA). Descriptive statistics for numerical parametric data were means and SD, and for categorical data were number and percentage. Inferential analysis used for quantitative variables was the Student *t*-test and for qualitative data was the  $\chi^2$ -test. The level of significance was set at *P* less than 0.05.

---

## Ethical issues

Approval from the Ethical Committee of the Department of Psychiatry, Cairo University, was obtained. It was clearly stated that participation in the study was voluntary and participants could withdraw and discontinue filling questionnaires at any time. Participants who requested to know the results as well as those who scored highly on the EPDS were informed either by the

gynaecologist attending to the pregnancy or by one of the authors, if this was the preference of the participant.

### Description of participants

Eighty-five expectant fathers filled in the EPDS questionnaire. A few opted not to fill identifying socio-demographic data such as education and occupation or some of the pregnancy-related details such as mode of conception and desired sex of the baby, but were included. Only 61 filled the IBM.

### Age

Participants' age ranged from 26 to 59 years, mean age  $34.11 \pm 7.65$  years; the majority were in their 20s ( $n = 35$ , 43.2%) and 30s ( $n = 33$ , 40.74%). Eight were (9.89%) in their 40s and only five (6.17%) were in their 50s.

### Marriage duration

The duration of marriage ranged from 6 months to 16 years with a mean duration of  $4.22 \pm 3.39$  years. Seventeen couples (21%) were married for less than one year, forty-three couples (53.1%) for 1–5 years, fifteen couples (18.5%) for 5–10 years and six couples (7.4%) had a marriage that lasted for more than 10 years.

### Occupation

Out of the 57 fathers who filled the occupation, 35 (61.4%) were professionals (pharmacists, physicians, engineers, lawyers and accountants); 19 (33.33%) were

semiprofessionals or in high managerial positions (owning small businesses, human-resource managers).

### Education

The majority of the 55 who filled in their education were University graduates ( $n = 45$ , 81.8%); only one (1.8%) was illiterate and 4 (7.3%) pursued postgraduate certification. The remaining five had intermediate (one preparatory and four secondary) education.

### Occupational status of the wife

Of the 58 fathers who answered this question, 34 (58.6%) had working wives.

## Results

### Depression according to the Edinburgh Postnatal Depression Scale

Participants' scores ranged from 0 to 17, with a mean of  $7.65 \pm 4$ . According to the EPDS, 31.8% ( $n = 27$ ) of the expectant fathers scored 10 and above and hence will be referred to as the depressed group. Half of those classified as being depressed had a score of 12 and above ( $n = 14$ ; 16.5% of all participants). The depressed group differed significantly from the nondepressed group in the 10 statements of the scale (Table 1).

As seen in Table 1, the highest negated item in both groups was self-harm (item 10). The answer was 'never' for 100% of the nondepressed and 81.5% of the depressed group. None

**Table 1 Comparison of responses of depressed and nondepressed expectant fathers to 10 items of Edinburgh Postnatal Depression Scale**

|    | EPDS                     | 0         | 1          | 2         | 3        | $\chi^2$ | P     |
|----|--------------------------|-----------|------------|-----------|----------|----------|-------|
| 1  | Able to laugh and funny  |           |            |           |          |          |       |
|    | Depressed ( $n=27$ )     | 4 (14.8)  | 19 (70.4)  | 3 (11.1)  | 1 (3.7)  | 20.1     | 0.000 |
|    | Not depressed ( $n=58$ ) | 44 (75.9) | 13 (22.4)  | 1 (1.7)   | 0 (0)    |          |       |
| 2  | Enjoyment                |           |            |           |          |          |       |
|    | Depressed ( $n=27$ )     | 4 (14.8)  | 18 (66.7)  | 4 (14.8)  | 1 (3.7)  | 23.05    | 0.000 |
|    | Not depressed ( $n=58$ ) | 39 (67.2) | 18 (31)    | 1 (1.7)   | 0 (0)    |          |       |
| 3  | Self-blame               |           |            |           |          |          |       |
|    | Depressed ( $n=27$ )     | 0 (0)     | 7 (25.9)   | 13 (48.1) | 7 (25.9) | 16.99    | 0.001 |
|    | Not depressed ( $n=58$ ) | 14 (24.1) | 25 (43.1)  | 16 (27.6) | 3 (5.2)  |          |       |
| 4  | Anxious/worried          |           |            |           |          |          |       |
|    | Depressed ( $n=27$ )     | 0 (0)     | 1 (3.7)    | 18 (66.7) | 8 (29.6) | 15.83    | 0.001 |
|    | Not depressed ( $n=58$ ) | 8 (13.8)  | 15 (25.9)  | 31 (53.4) | 4 (6.9)  |          |       |
| 5  | Scared for no reason     |           |            |           |          |          |       |
|    | Depressed ( $n=27$ )     | 4 (14.8)  | 10 (37)    | 8 (29.6)  | 5 (18.5) | 19.5     | 0.000 |
|    | Not depressed ( $n=58$ ) | 30 (51.7) | 20 (34.5)  | 8 (13.8)  | 0 (0)    |          |       |
| 6  | Things on top of me      |           |            |           |          |          |       |
|    | Depressed ( $n=26$ )     | 1 (3.85)  | 12 (46.15) | 10 (38.5) | 3 (11.5) | 21.69    | 0.000 |
|    | Not depressed ( $n=58$ ) | 20 (34.5) | 31 (53.4)  | 7 (12.1)  | 0 (0)    |          |       |
| 7  | Difficulty sleeping      |           |            |           |          |          |       |
|    | Depressed ( $n=26$ )     | 4 (15.4)  | 13 (50)    | 7 (26.9)  | 2 (7.7)  | 21.39    | 0.001 |
|    | Not depressed ( $n=58$ ) | 37 (63.8) | 16 (27.6)  | 4 (6.9)   | 1 (1.7)  |          |       |
| 8  | Sad or miserable         |           |            |           |          |          |       |
|    | Depressed ( $n=27$ )     | 5 (18.5)  | 18 (66.7)  | 4 (14.8)  | 0 (0)    | 24.1     | 0.000 |
|    | Not depressed ( $n=58$ ) | 41 (70.7) | 17 (29.3)  | 0 (0)     | 0 (0)    |          |       |
| 9  | Crying                   |           |            |           |          |          |       |
|    | Depressed ( $n=27$ )     | 12 (44.4) | 14 (51.9)  | 1 (3.7)   | 0 (0)    | 31.33    | 0.000 |
|    | Not depressed ( $n=58$ ) | 56 (96.6) | 2 (3.4)    | 0 (0)     | 0 (0)    |          |       |
| 10 | Self-harm                |           |            |           |          |          |       |
|    | Depressed ( $n=27$ )     | 22 (81.5) | 4 (14.8)   | 1 (3.7)   | 0 (0)    | 11.41    | 0.003 |
|    | Not depressed ( $n=58$ ) | 58 (100)  | 0 (0)      | 0 (0)     | 0 (0)    |          |       |

The higher the score, the higher the pathology.  
EPDS, Edinburgh Postnatal Depression Scale.

said 'a lot'; only one participant chose 'sometimes' (scoring 2) for this item and four answered hardly ever (scoring 1).

However, the least negated symptom in the nondepressed group was being anxious or worried for no reason (item 4), with 60% reporting it sometimes or very often (i.e. scoring 2 or 3). Again, this was significantly higher in the depressed group, in which 96% felt that way sometimes or very often.

### Sociodemographic correlates of depression

There were no significant differences between the depressed and the nondepressed groups regarding participant's age group ( $\chi^2 = 3.977$ ,  $P = 0.264$ ), education ( $\chi^2 = 8.54$ ,  $P = 0.074$ ), occupation ( $\chi^2 = 4$ ,  $P = 0.261$ ), occupational status of the wife ( $\chi^2 = 1.69$ ,  $P = 0.429$ ) and marriage duration ( $\chi^2 = 6.36$ ,  $P = 0.096$ ).

### Pregnancy-related correlates of depression

Depressed participants differed significantly from non-depressed participants with regard to the preferred sex of

their expected baby and the sex of their baby as revealed by the gynaecologist. A significantly higher percentage of depressed participants desired a boy (48.1 vs. 24.1%) and were expecting a boy (40.1 vs. 24.1%). There were no significant differences between the depressed and nondepressed groups regarding whether the pregnancy was planned; its duration; whether participants were expecting for the first time; mother's health during pregnancy, previous foetal loss, number of foetuses in current pregnancy; method of conception; and cause of infertility in those with assisted conception (Table 2).

### Perception of spouse and marital relation

A significantly higher percentage of depressed participants perceived their marital relationship as lacking intimacy. However, both groups had equal percentages of participants who regarded their wives as highly caring but also showing high levels of control (affectionate control type of relation). A markedly low percentage (5%) of the depressed

**Table 2 Pregnancy-related correlates in depressed and nondepressed participants**

| Pregnancy correlates             | N (%)     |              | $\chi^2$ | P     |
|----------------------------------|-----------|--------------|----------|-------|
|                                  | Depressed | Nondepressed |          |       |
| Planned                          | (n=27)    | (n=58)       |          |       |
| Yes                              | 22 (81.5) | 46 (79.3)    |          |       |
| No                               | 4 (4.8)   | 10 (17.2)    |          | 0.961 |
| Unstated                         | 1 (3.7)   | 2 (3.4)      | 0.08     | NS    |
| Unplanned                        | (n=27)    | (n=58)       |          |       |
| Yes                              | 26 (96.3) | 54 (93.1)    |          |       |
| No                               | 0 (0)     | 2 (3.4)      |          | 0.621 |
| Unstated                         | 1 (3.7)   | 2 (3.4)      | 0.95     | NS    |
| Pregnancy duration               | (n=26)    | (n=57)       |          |       |
| First trimester                  | 1 (3.8)   | 5 (8.8)      |          |       |
| Second trimester                 | 13 (50)   | 22 (38.6)    |          | 0.523 |
| Third trimester                  | 12 (46.2) | 30 (52.6)    | 1.29     | NS    |
| First-time fathers               | (n=26)    | (n=54)       |          |       |
| Yes                              | 16 (61.5) | 33 (61.5)    |          | 1     |
| No                               | 10 (38.5) | 21 (38.9)    | 0.001    | NS    |
| Mother's health during pregnancy | (n=26)    | (n=58)       |          |       |
| Good                             | 18 (69.2) | 45 (80.4)    |          | 0.266 |
| Poor                             | 8 (30.8)  | 11 (19.6)    | 1.23     | NS    |
| Foetus sex                       | (n=27)    | (n=58)       |          |       |
| Unstated                         | 8 (29.6)  | 21 (36.8)    |          |       |
| Both                             | 7 (25.9)  | 1 (1.7)      |          |       |
| Boy                              | 11 (40.7) | 14 (24.1)    |          |       |
| Girl                             | 1 (3.7)   | 22 (37.9)    | 21.4     | 0.000 |
| Desired sex by father            | (n=27)    | (n=58)       |          |       |
| Unstated                         | 5 (18.5)  | 20 (34.5)    |          |       |
| Both                             | 4 (14.8)  | 1 (1.7)      |          |       |
| Boy                              | 13 (48.1) | 14 (24.1)    |          |       |
| Girl                             | 3 (11.1)  | 9 (15.5)     |          |       |
| No preference                    | 2 (7.4)   | 14 (24.1)    | 13.3     | 0.01  |
| Previous loss of foetus/newborn  | (n=27)    | (n=58)       |          |       |
| No                               | 22 (81.5) | 42 (72.4)    |          |       |
| Yes                              | 2 (7.4)   | 3 (5.2)      |          | 0.448 |
| Unstated                         | 3 (11.1)  | 13 (22.4)    | 1.6      | NS    |
| Number of foetuses               | (n=26)    | (n=55)       |          |       |
| One                              | 19 (73.1) | 48 (87.3)    |          | 0.115 |
| Two                              | 7 (26.9)  | 7 (12.7)     | 2.48     | NS    |
| Method of conception             | (n=27)    | (n=58)       |          |       |
| Normal                           | 9 (33.3)  | 29 (50)      |          |       |
| Assisted                         | 17 (63)   | 27 (46.6)    |          | 0.349 |
| Unstated                         | 1 (3.7)   | 2 (3.4)      | 2.107    | NS    |
| Cause of infertility             | (n=17)    | (n=27)       |          |       |
| Male factor                      | 9 (52.9)  | 12 (44.4)    |          |       |
| Female factor                    | 5 (29.4)  | 9 (33.3)     |          |       |
| Both                             | 3 (17.6)  | 1 (3.7)      |          | 0.134 |
| Unexplained                      | 0 (0)     | 5 (18.5)     | 5.587    | NS    |

**Table 3 Marital relation as perceived by expecting father (Intimate Bond Measure)**

| IBM types of relation    | N (%)            |                     |
|--------------------------|------------------|---------------------|
|                          | Depressed (n=20) | Nondepressed (n=41) |
| Lack of intimacy         | 7 (35)           | 8 (19.5)            |
| Affectionless constraint | 6 (30)           | 5 (12.2)            |
| Affectionate control     | 6 (30)           | 14 (34.1)           |
| Optimum intimacy         | 1 (5)            | 14 (34.1)           |

IBM, Intimate Bond Measure.  
 $\chi^2 = 8.39$ ,  $P = 0.039$ .

participants rated their wives as showing high care and low control – that is, optimal intimacy – compared with 34.4% of participants who were not depressed (Table 3).

Depression correlated negatively ( $r = -0.269$ ,  $P = 0.036$ ) with the care subscale but not with the control subscale of the IBM (Table 4).

## Discussion

### Depression (Edinburgh Postnatal Depression Scale)

Although the EPDS was developed to screen for depression in postpartum women, it has also been used antenatally (Brandon *et al.*, 2008; Seimyr *et al.*, 2009) and has been validated for use in men (Matthey *et al.*, 2001, Ramchandani *et al.*, 2008b, Lai *et al.*, 2010).

We have chosen the EPDS as it is a well validated, widely used, self-report questionnaire (Ramchandani *et al.*, 2008b). Flynn *et al.* (2011), comparing it with the Patient Health Questionnaire (PHQ)-9, found that the two measures had comparable sensitivity and specificity. However, Lai *et al.* (2010) found, in their comparative study, that using a cut-off score of 10 or more, the EPDS was significantly more accurate than the Beck Depression Inventory and PHQ-9 in detecting postnatal depression among Chinese men. In a pilot study, we found that the EPDS was more easily accepted than the PHQ-9, in contrast to what was reported by Weobong *et al.* (2009), who, in Ghana, found the PHQ-9 easier to administer and more acceptable to a largely illiterate population of Ghanaian women, 5–11 weeks postpartum.

Table 1 shows that the distribution of responses to all items was significantly different between the depressed and the nondepressed group. Anxiety was high among the nondepressed and might indicate the importance of studying it among expectant fathers. This seems to be in agreement with the findings of Buist *et al.* (2003), Condon *et al.* (2004), and Figueiredo and Conde (2011) who state

**Table 4 Correlation between depressed scores and Intimate Bond Measure subscale scores**

| EPDS total (N=61)         | IBM care | IBM control |
|---------------------------|----------|-------------|
| Pearson's correlation     | -0.269   | -0.006      |
| Significance (two-tailed) | 0.036    | 0.961       |

EPDS, Edinburgh Postnatal Depression Scale; IBM, Intimate Bond Measure.

that men suffer from anxiety and depression during pregnancy, and, according to their studies, more than during the postpartum period. Ramchandani *et al.* (2008b) were the first to report on anxiety during pregnancy as a risk factor of depression in men after birth, although this has been reported previously for women (Milgrom *et al.*, 2008; Skouteris *et al.*, 2009).

It is noteworthy that the results highlight some cultural considerations, namely, suicidality and crying. Suicidality was the most negated item by both groups (81.5% of the depressed group and 100% of the nondepressed group), followed by crying (96.6% of the nondepressed group and 44.4% of the depressed group). This seems to be in agreement with the low suicide rate reported in our country of 0.1 per 100 000 (WHO, 2009). In addition, it seems that the notion that 'men do not cry' has an influence on reporting crying or allowing it.

Using the EPDS to screen for depression, one-third of the studied participants were scored as depressed, which is in agreement with the recent literature reporting that fathers are at an increased risk of depression during the antenatal period (Condon *et al.*, 2004, Escribà-Agüir *et al.*, 2008, Van Den Berg *et al.*, 2009).

According to Paulson and Bazemore's (2010) systematic review, studies in USA revealed higher rates of prenatal and postpartum depression (14.1%) than those reported internationally (8.2%). They reported an overall meta-analytic rate of 10.4% for paternal depression between the first trimester and 1 year postpartum. Buist *et al.* (2003), using a score of greater than 10 on the EPDS, showed that 12% of their sample of 294 men were distressed at 26 weeks of pregnancy and 8.7% at 36 weeks of pregnancy. However, Ramchandani *et al.* (2008a), using a cut-off score of 12, reported a lower prevalence of 2.3%. As such, the rates in this study are considerably high, whether it is the 31.8%, derived using the widely used cut-off score of nine of 10 as suggested by Cox and many other researchers, or the 16.5%, derived using the cut-off score of 12, which was used by Ramchandani *et al.* (2008a) and suggested by Ramchandani *et al.* (2008b) as being likely to identify a diagnosis of major depressive disorder in women. In addition, compared to the suggested national rate of 4.6% for depression in men by Hamdi *et al.* (personal communication), the rates of this study stand out as meaningfully high. This indicates that paternal prenatal depression represents a significant public health concern.

### Sociodemographic and pregnancy-related correlates

The desired and the expected sex of the foetus were the only correlates significantly related to being depressed. It would be worth investigating in further studies whether expectant fathers, because of their depression, want a boy to support them or whether the expectation of a boy is more of a burden, and whether this will apply when studying larger samples.

It is noteworthy that, although 82.9% of expectant fathers stated that it was a planned pregnancy, a higher percentage (97.5%) stated that it was an unplanned

one. This applied to both the depressed and nondepressed group, which might reflect a social norm of accepting a pregnancy even if not planned. In addition, this is in contrast to the finding reported by Schumacher *et al.* (2008), who found unplanned pregnancies to be among the factors associated with elevated paternal depressive symptoms or a diagnosis of clinical depression after birth of the child.

In their recent systematic review, Wee *et al.* (2011) reported that the most common correlate of paternal depressive symptoms before and after birth was having a partner with elevated depressive symptoms or depression and poor relationship satisfaction. Table 3 shows that the depressed group reported a significantly higher percentage (35 vs. 19.5% of the nondepressed group) of fathers perceiving their relationship as lacking intimacy. The more depressed the participants, the more they viewed their partners as noncaring as there was a significant negative correlation between the care component of the IBM and depression, but not the control (Table 4). This finding is in contrast to that reported by Wilhelm and Parker (1988), who found that the care scale score was not significantly influenced by the improvement in the depression of the participants they studied. However, there was a change in the perceived control, that is, participants viewed their partners as more critical when they were depressed than when not depressed.

Regarding depression of wives in this study, although a higher percentage of mothers scored at least 10 (60 vs. 31.8% of fathers) and at least 12 (44 vs. 16.5%), the correlation was nonsignificant ( $r = 0.083$ ,  $P = 0.455$ ).

The course of depression during pregnancy might be different for men and for women (Matthey *et al.*, 2000). Initial analyses of the data from Matthey and colleagues' study of depression during the transition to parenthood found only a small but significant relationship between depressive symptoms of men and women antenatally and postpartum. However, further analyses revealed that although the risk of depression in men and their partners was unrelated in the antenatal period, at 6 and 12 months postpartum, there was a greater risk of depression in men whose partners were depressed. In addition, the risk factors for depression during the postpartum period in men and women included antenatal mood and relationship between partners. As noted by Matthey *et al.* (2000), it may be that as a couple adjusts to parenthood, partner support becomes more salient and therefore has a greater impact on mood. This may explain the increased association between depression in men and women postpartum (Wee *et al.*, 2011).

### Clinical implications

Healthcare providers in general and mental healthcare providers, in particular, need to be aware of the importance of screening for anxiety and depression in expectant fathers. Detection of both depression and anxiety has important implications with regard to adjustment to a new life event (pregnancy), stability of marriage and postnatal development of depression in fathers and perhaps mothers.

### Research implications

In future research, clinical assessment of depression is needed to delineate the type of depression and its severity using diagnostic tools.

Longitudinal prospective studies that measure depression and anxiety throughout pregnancy and the postpartum period at different time points are needed to evaluate the course of depression and its predictors in expectant fathers, given that the prevalence of elevated depressive symptoms during the time of pregnancy for men is as high as the prevalence of elevated depressive symptoms after birth.

In addition, a longitudinal study to follow up the offspring of fathers who were antenatally depressed should be carried out to determine how it might affect their mental health.

### Limitations

This study included a convenient sample from private clinics, and as such a higher proportion of literate participants and those of a higher socioeconomic status compared with the general population. Thus, the results cannot be generalized. In addition, the screening was not validated with a clinical assessment. However, these results should be considered preliminary, pointing to the importance of monitoring depression among expectant fathers and not only among mothers.

To the best of our knowledge, this is the first study in Egypt on this subject; thus, both the public and the medical professionals should be made aware of the results as, although expectant mothers are seen regularly by members of the medical profession, nobody in the medical profession is the nominated attendee to expectant fathers. Parenthood could be a stressful time as it is filled with new challenges that require considerable adjustments (Condon, 2006). It should not be regarded as a pure process of joy or as an instinct that requires no learning or effort (Brockington, 1996).

---

### Acknowledgements

#### Conflicts of interest

There are no conflicts of interest.

---

### References

- Brandon AR, Trivedi MH, Hynan LS, Miltenberger PD, Labat DB, Rifkin JB, *et al.* (2008). Prenatal depression in women hospitalized for obstetric risk. *J Clin Psychiatry* 69:635–643.
- Brockington IF (1996). *Motherhood and mental health*. Oxford, UK: Oxford University Press.
- Buist A, Morse CA, Durkin S (2003). Men's adjustment to fatherhood: implications for obstetric health care. *J Obstet Gynecol Neonatal Nurs* 32: 172–180.
- Condon JT, Boyce P, Corkindale CJ (2004). The First-Time Fathers Study: a prospective study of the mental health and wellbeing of men during the transition to parenthood. *Aust N Z J Psychiatry* 38:56–64.
- Condon J (2006). What about dad? Psychosocial and mental health issues for new fathers. *Aust Fam Physician* 35:690–692.
- Cox JL, Holden JM, Sagovsky R (1987). Detection of postnatal depression: development of the 10-item Edinburgh Postnatal Depression Scale. *Br J Psychiatry* 150:782–786.

- Escribà-Agüir V, Gonzalez-Galarzo MC, Barona-Vilar C, Artazcoz L (2008). Factors related to depression during pregnancy: are there gender differences? *J Epidemiol Community Health* 62:410–414.
- Figueiredo B, Conde A (2011). Anxiety and depression in women and men from early pregnancy to 3-months postpartum. *Arch Women Ment Health* 14:247–255.
- Fletcher RJ, Matthey S, Marley CG (2006). Addressing depression and anxiety among new fathers. *Med J Aust* 185:461–643.
- Flynn HA, Sexton M, Ratliff S, Porter K, Zivin K (2011). Comparative performance of the Edinburgh Postnatal Depression Scale and the Patient Health Questionnaire-9 in pregnant and postpartum women seeking psychiatric services. *Psychiatry Res* 187:130–134.
- Lai BPY, Tang AKL, Lee DTS, Yip ASK, Chung TKH (2010). Detecting postnatal depression in Chinese men: a comparison of three instruments. *Psychiatry Res* 180:80–85.
- Matthey S, Barnett B, Kavanagh DJ, Howie P (2001). Validation of the Edinburgh Postnatal Depression Scale for men and comparison of item endorsement with their partners. *J Affect Disord* 64:175–184.
- Matthey S, Barnett B, Ungerer J, Waters B (2000). Paternal and maternal depressed mood during the transition to parenthood. *J Affect Disord* 60:75–85.
- Milgrom J, Gemmill AW, Bilszta JL, Hayes B, Barnett B, Brooks J, *et al.* (2008). Antenatal risk factors for postnatal depression: a large prospective study. *J Affect Disord* 108:147–157.
- Paulson JF, Bazemore SD (2010). Prenatal and postpartum depression in fathers and its association with maternal depression: a meta-analysis. *J Am Med Assoc* 303:1961–1969.
- Ramchandani PG, O'Connor TG, Evans J, Heron J, Murray L, Stein A (2008a). The effects of pre- and postnatal depression in fathers: a natural experiment comparing the effects of exposure to depression on offspring. *J Child Psychol Psychiatry* 49:1069–1078.
- Ramchandani PG, Stein A, O'Connor TG, Heron J, Murray L, Evans J (2008b). Depression in men in the postnatal period and later child psychopathology: a population cohort study. *J Am Acad Child Adolesc Psychiatry* 47:390–398.
- Schumacher M, Zubaran C, White G (2008). Bringing birth-related paternal depression to the fore. *Women and Birth* 21:65–70.
- Seimyr L, Sjögren B, Welles-Nyström B, Nissen E (2009). Antenatal maternal depressive mood and parental-fetal attachment at the end of pregnancy. *Arch Women Ment Health* 12:269–279.
- Skouteris H, Wertheim EH, Rallis S, Milgrom J, Paxton SJ (2009). Depression and anxiety through pregnancy and the early postpartum: an examination of prospective relationships. *J Affect Disord* 113:303–308.
- Van Den Berg MP, Van Der Ende J, Crijnen AAM, Jaddoe VVW, Moll HA, Mackenbach JP, *et al.* (2009). Paternal depressive symptoms during pregnancy are related to excessive infant crying. *Pediatrics* 124:e96–e103.
- Wee KY, Skouteris H, Pier C, Richardson B, Milgrom J (2011). Correlates of antenatal and postnatal depression in fathers: a systematic review. *J Affect Disord* 130:358–377.
- Weobong B, Akpalu B, Doku V, Owusu-Agyei S, Hurt L, Kirkwood B, *et al.* (2009). The comparative validity of screening scales for postnatal common mental disorder in Kintampo, Ghana. *J Affect Disord* 113:109–117.
- WHO (2009). Suicide rates (per 100 000), by gender, Egypt, 1974–2009. Available at: [http://www.who.int/mental\\_health/media/egypt.pdf](http://www.who.int/mental_health/media/egypt.pdf) [Accessed 30 December 2011].
- Wilhelm K, Parker G (1988). The development of a measure of intimate bonds. *Psychol Med* 18:225–234.