Male child preference: Is it a risk factor for antenatal depression among Iranian women?

Abstract

Background Male child preference is a phenomenon in decline in Asian women. However, it continues to exert hidden pressure on childbearing women in developing countries to dispose them to depression during pregnancy.
Aims This study assessed the prevalence of antenatal depression and hypothesised that maternal perception of a family's male child preference was an independent risk factor for depression.
Methods This was a cross-sectional study of 780 pregnant women who attended routine antenatal appointments and were assessed using the Iranian version of the Edinburgh Postnatal Depression Scale (EPDS). The questionnaire investigated sociodemographic characteristics and some possible risk factors, including maternal perception of male child preference in the family. Analysis was done using χ^2 tests to assess the relationship between variables.
Findings The prevalence of antenatal depression was 20.1%. Maternal perception of male child preference was common and was associated with antenatal depression. Husbands and their families were found to prefer to have a male child.
Conclusions Consideration of the male child preference as an independent risk factor is important for health care providers to prevent depression.

Keywords

Antenatal | Depression | Male child preference | EPDS | Iran

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Depression is increasingly recognised as a serious, worldwide public health concern and a cause of disability (Klainin et al, 2009). It is well known that pregnancy and the postpartum period may be windows of elevated susceptibility to depression (Dhillon et al, 2010). Prevalence of depression is more common during pregnancy than after delivery but there is a trend for depression to decrease during the postpartum period (Dhillon et al, 2010).

Antenatal depression is generally defined as any symptoms of depression during pregnancy (Lee et al, 2007). The prevalence of antenatal depression in the world is 7–30%, depending on the timing and scale of data collection (Abujilban et al, 2014), while the prevalence of depression during pregnancy in Iranian women is estimated to be 20–30.6% (Modabernia et al, 2009). It has been demonstrated that antenatal depression has a fundamental effect on the mother's health, and the growth and development of the newborn (Klainin et al, 2009).

There has been growing interest in antenatal depression screening and the early identification of recognisable risk factors during pregnancy. Most studies in the field of antenatal depression have focused on sociodemographic aspects, such as unwanted pregnancy, life satisfaction, family relationships and income, help from husbands, poor quality of help, previous female child, conflict with mother in law and dissatisfaction with previous pregnancy (Klainin et al, 2009). It is also said that there may be sociocultural factors, such as family support, that may protect women in low and middle income countries from depression (Klainin et al, 2009).

One of the identified cultural issues, which originate from 'psychological, cultural, economic, sociological, traditional and religious factors' (Iseri et al, 2012: 165) is defined as gender preference, 'a desire for a male child' (Dhillon et al, 2010: 257). Although the preference for boys over girls is not necessarily as strong as in Western cultures (Pham et al, 2013), it is still common in South Asia, Africa and the Middle East, including China, Turkey,

India and South Korea (Xie et al, 2007; Lagerberg et al, 2012; Yasmin et al, 2013). The effect of gender preference and sex-selected abortions of female fetuses has been suggested as the cause of the unequal male to female ratio in India (Dhillon et al, 2010), and in China, the 'one-child policy' has led to a preference for boys over girls, as it is presumed that male children will take over the family business, be responsible for ancestor worship, continue the family name and support the previous generation (Mao et al, 2016: 163). In contrast, a female child represents a shift in familial responsibility, as she will belong to the groom's family (Klainin et al, 2009).

Literature reviews of Asian countries affirm that the birth of a girl increased the risk for postpartum depression in women (Goldbort, 2006). However, few studies have drawn associations between male child preference and antenatal depression (Chandra et al, 2010; Dhillon et al, 2010; Sylvén et al, 2011; Pham et al, 2013). Although research has been carried out on antenatal depression in Iran (Abbaszadeh, 2013; Kheirabadi et al, 2010; Modabernia et al, 2009), male child preference and antenatal depression have not previously been examined together. The aim of this study was firstly to evaluate the prevalence of antenatal depression among women living in Mahabad and secondly to investigate the possibility of an association between maternal perception of desire for a male child and antenatal depression.

Method

This was a cross-sectional study conducted in Mahabad, West Azerbaijan province, with a convenience sample of 780 Iranian Kurdish women aged 18–42 years old, who attended health care centres for routine antenatal care in their third trimester. Men were not included in this study. Women were recruited from May to August 2014.

All women who were asked agreed to participate in the study. They were invited to participate if they met the following inclusion criteria: past and present history of good health including pregnancy, no pregnancy restrictions concerning activity or diet, an absence of past psychiatric disorders, no prescribed medications except prenatal vitamins, and carrying a singleton fetus. The participants were assessed by midwives during their routine antenatal care in the third trimester. All questionnaires were completed in a separate room, in comfortable conditions, and participants responded to the questionnaire unaccompanied. They returned questionnaires to a box at the health centre reception to maintain anonymity. The response rate was 90%.

Confidentiality was guaranteed. The questionnaire was self-completed, with midwives remaining present to answer questions if clarification was needed. Permission to perform the study and ethical approval was obtained

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from the Nursing and Midwifery College of Azad University, Mahabad Branch, and the West Azerbaijan District Health Centre. After providing written informed consent, participants were given an anonymous two-part questionnaire to complete. The first part included questions on risk factors identified in previous studies such as age, educational attainment, employment status, family income, number of previous pregnancies, number of previous births, number of planned pregnancies, awareness of fetus sex, and number of other children (Klainin et al, 2009; Dhillon et al, 2010).

Information regarding the desire for a specific a child was also collected. To understand the desire for a specific gender of the child, the women were asked 'What sex do you want your child to be?', 'What sex is preferable for your husband, your husband's family and your family?' Answers were limited to male or female.

The Edinburgh Postnatal Depression Scale (EPDS) was developed as a screening device for perinatal depression (Klainin et al, 2009). EPDS is a self-reporting research tool of proven validity and reliability. It has 10 questions on perinatal depression, which inquire about the maternal mood in the past days, rated on a four-point scale (not at all/hardly ever/sometimes/very often). The study used the Iranian version of the EPDS, designed for population-based screening (Montazeri et al, 2007).

The sample size used in this study was based on 25% prevalence of antenatal depression (Rouhi et al, 2012) and a precision level of ±4% around the prevalence rate, with a confidence interval (CI) of 95%. The sample size was also calculated to investigate the risk factors for antenatal depression.

Data analysis was conducted using SPSS version 19. Descriptive statistics were used to summarise the sociodemographic and clinical characteristics. For univariate analyses, the risk of antenatal depression according to the presence or absence of the risk factors was assessed and the risk ratios were calculated with 95% confidence intervals. $P<0.05$ was accepted as statistically significant. For categorical variables, χ^2 tests were used for the associations between antenatal depression and the individual putative risk factor.

Table 1. Sociodemographic and obstetric characteristics			
Variable	**n (%)**	**Variable**	**n (%)**
Age (years)		**Gravidity**	
<19	47 (6.0)	1	324 (41.4)
20-29	474(60.8)	≥2	456 (58.5)
>30	259 (33.2)	**Parity**	
Woman's education		0	408 (52.3)
Primary school	522 (66.9)	≥1	372 (47.7)
Secondary school	157 (20.1)	**Abortion**	
University	101 (12.9)	0	612 (78.5)
Husband's education		≥1	168 (21.5)
Primary school	525 (67.3)	**Family income**	
Secondary school	167(21.4)	Good	516 (66.2)
University	88 (11.3)	Poor	264 (33.8)
Work/role		**Planned pregnancy**	
Housewife	630 (80.8)	Yes	431 (55.3)
Outside	150 (19.2)	No	349 (44.7)

Table 2. Distribution of family gender preference among depressed mothers (*n*= 157)				
Variable	**Female child preference**		**Male child preference**	
Depressed mothers	*n*	%	*n*	%
Women	95	60.5	62	39.5
Husband	34	21.7	123	78.3
Husband's family	39	24.8	118	75.5
Woman's family	96	61.1	61	38.9

Results

A total of 780 women (median age 27.59±5.8 years) completed the questionnaire between May and August 2014. The median gestational age was 32±3.69 weeks. The questionnaire was completed independently by 91% of women, while 9% required assistance from midwives. Most of the women (80.8%) were housewives. Most of the women and their husbands (66.9% and 67.3%, respectively) had primary level education (*Table 1*).

Among the 780 women who completed the antenatal assessment, 157 (20.1%) were categorised as depressed based on the EPDS. As can be seen in the *Table 2*, among the women who were shown to be depressed, husbands and their families preferred to have a male child, while the preferences of women and their families were for female children.

While 37.3% (*n*=291) of women in our study desired to have a male child, 71.7% (*n*=559) of their husbands wanted to have a male child. A husband's preference for male children (OR=1.552; 95% CI 1.023–2.354; *P*=0.038) and a husband's family's preference for male children (OR=0.289; 95% CI 0.189–0.416; *P*=0.001) were associated with antenatal depression among women. The results showed no significant relationship between depression and women (OR=0.891; 95% CI 0.622–1.275; *P*=0.580) or their families (OR=1.236; 95% CI 0.864–1.767; *P*=0.142) preferring a specific gender (*Table 3*).

Table 4 shows participants' EPDS depression categorisation according to maternal demographic characteristics. The demographic risk factors found to be associated with antenatal depression were: women

Table 3. Relationship between gender preference and antenatal depression in mothers

Characteristic	Not depressed (*n*=623) n (%)	Depressed (*n*=157) n (%)	OR (95%CI)	Significance (*P*≤0.05)
Woman's preference				
Female	394 (63.2)	95 (60.5)	0.891 (0.622–1.275)	0.580
Male	229 (36.8)	62 (39.5)		
Husband's preference				
Female	187 (30.0)	34 (21.7)	1.552 (1.023–2.354)	0.038
Male	436 (70.0)	123 (78.3)		
Woman's family's preference				
Female	274 (44.0)	61 (38.9)	1.236 (0.864–1.767)	0.142
Male	349 (56.0)	96 (61.1)		
Husband's family's preference				
Female	337 (54.1)	39 (48.2)	0.289 (0.189–0.416)	0.001
Male	286 (45.9)	118 (51.8)		

aged 20–29 years (χ^2=5.884, *P*=0.053), women educated to primary level (χ^2=32.107, *P*= 0.001), husbands educated to primary level (χ^2=25.975, *P*=0.001), multigravidous women (OR=1.680; 95% CI 1.159–2.435; *P*=0.004), multiparous women (OR=2.510; 95% CI 1.742–3.618; *P*=0.001), poor family income (OR=2.563 95% CI 1.793–3.66; *P*=0.001) and previous female child (OR=0.374; 95% CI 0.217–0.642; *P*=0.001). There was no relationship between antenatal depression and the woman's occupation, or between antenatal depression and awareness of the sex of the fetus (*Table 4*).

Discussion

To the authors' knowledge, this is one of the largest studies of depression during pregnancy that examined the maternal perception of the male child preference within the family.

The study found a prevalence of antenatal depression in 20.1% of participants. This finding is comparable with rates of antenatal depression in other countries where the reported incidence of antenatal depression is 7–30% (Dhillon et al, 2010). However, a lower prevalence has previously been reported in Iranian studies (Modabernia et al, 2009). This variation in reported rates of depression rates could be explained by different cultural backgrounds or the use of alternative methods to assess and record depression (Dhillon et al, 2010). It may also be ascribed to the fact that a large number of women endure minimal to mild depression during pregnancy (Karacam et al, 2009), a fact that might have been overlooked by previous authors, who may have regarded it as clinically non-significant (Carroll et al, 2005).

This study assessed male child preference and its association with antenatal depression as a risk factor. Most of the women in our study desired to have a female child, and the preferences of the husband and his family to have male children were associated with antenatal depression among these women. Baby gender is an important element for certain cultures (Goldbort, 2006), and these results match those observed in earlier studies, which showed that male child preferences are more pronounced in Asian and African countries (Kitamura et al, 2006; Xie et al, 2007; Chandra et al, 2010; Kheirabadi et al, 2010; Binh 2011). Several studies have identified non-preferred baby gender as a risk factor for depressive states in the mother (Dhillon et al, 2010; Pham et al, 2013).

The preference for boys may be explained by understanding cultural backgrounds. Many cultures believe that boys are a source of strength for the family, contribute more to family income, and play an essential role in old-age support, agricultural production, ancestor worship and lineage perpetuation (Al-Akour, 2008; Ahmad Al-Akour et al, 2009; Guilmoto, 2012). Conversely, in the same cultures, female children are considered a financial drain through dowry charges and their inability to contribute financially to the maternal family after marriage (Klainin et al, 2009).

In this study, women who had had a girl from the previous pregnancy were more likely to experience depression during this pregnancy. A parallel study of women in Lahore, Pakistan, illustrated that depression was more common in those who already had a girl showed (Gul et al, 2013). Patel et al (2002) explained that women may be criticised for having a female child

Table 4. Relationship between demographic/maternal characteristics and antenatal depression				
Characteristic	**Not depressed (*n*=623) n (%)**	**Depressed (*n*=157) n (%)**	**OR (95% CI)**	**Significance (*P*≤0.05)**
Awareness of fetus sex				
Yes	517 (83.0)	129 (82.2)	1.059 (0.669–2.675)	0.444
No	106 (17.0)	28 (17.8)		
Previous child*				
Female	136 (48.5)	52 (69.3)	0.374 (0.217–0.642)	0.001
Male	161 (54.2)	23 (30.7)		
Age group (years)				
≤19	44 (7.1)	3 (1.9)		0.053
20-29	374 (60.0)	100 (63.7)		
≥19	205 (32.9)	54 (34.4)		
Wife's education				
Primary school	437 (70.1)	85 (54.1)		0.001
High school	100 (16.1)	57 (36.3)		
College	86 (13.8)	15 (9.6)		
Husband's education				
Primary school	394 (63.2)	131 (83.4)		0.001
High school	155 (24.9)	12 (7.6)		
College	74 (11.9)	14 (8.9)		
Wife's occupation				
House wife	498 (79.9)	132 (84.1)	0.755 (0.471–1.208)	0.143
Outside work	125 (20.1)	25 (15.9)		
Gravid				
1	274 (44.0)	50 (31.8)	1.680 (1.159–2.435)	0.004
2≤	349 (56.0)	107 (68.2)		
Parity				
0	354 (56.8)	54 (34.4)	2.510 (1.742–3.618)	0.001
1≤	269 (43.2)	103 (65.6)		
Family income				
Good	440 (70.6)	76 (48.4)	2.563 (1.793–3.66)	0.001
Poor	183 (29.4)	81 (51.6)		
*multiparous women were selected				

when the family expected a boy, and therefore that the risk of criticism may be linked to antenatal depression (Patel et al, 2002). Another explanation could be existing family values, and cultural or societal expectations of having a boy (Ekuklu, 2004). Women living in families whose members have strong male gender preferences may therefore be at risk of depression if the pregnancy results in the birth of a female child (Lagerberg et al, 2012).

The study found that a large number of women preferred a girl over a boy, despite not being dissatisfied with the likelihood of having a boy. In some cultures,

it is believed that a daughter might be more docile and supportive of the family and might be more amenable to caring for her parents when they get old (Kheirabadi et al, 2010; Siu et al, 2012). Many Asian families have clung to the cultural belief that women are a drain on the family or will belong to the groom's family after marriage (Patel et al, 2002; Xie et al, 2007). Similarly, some studies have found that residents in western countries such as the United States, Hungary or Germany also preferred the birth of a son to the birth of a daughter; however, this preference has not been tied to maternal depression (Pham et al, 2013).

In line with other studies, this study showed that women who were younger had higher rates of depression (Rouhi et al, 2012). Younger women were less likely to have the experience to cope with depression and therefore, may be more likely to show symptoms (Dennis et al, 2004). Furthermore, financial hardship or poverty, unwanted pregnancy, low level of education are causal of factors for antenatal depression (Klainin et al, 2009). It has been suggested that a higher level of education among women enables them to access relevant and necessary information more readily (Rouhi et al, 2012).

Limitations
This study had several limitations. Chief among these is the reliance on self-reported screening of symptoms, rather than a clinician diagnosis. Although the EPDS has been validated on a broad range of populations, it remains possible that cultural and/or economic factors may have caused women to over- or under-report depressive symptoms. Additionally, men were not included in this study and results were based only on women's perception of male child preference in herself, her family and that of her husband..

Conclusion
In this setting, the rate of antenatal depression was similar to other studies in Iran. Results showed that a large number of women preferred a girl over a boy. The percieved familial preference for a male child was common and was associated with antenatal depression. Previous studies have demonstrated that antenatal depression has negative effects on the course of pregnancy, fetal development and neonatal adaptation, and the identification of high-risk pregnant women at risk of gender-based antenatal depression should be a clinical and research priority. In developing countries, where many women deal with inequalities and male child preferences are common, health care providers must include male gender preference as a risk factor for antenatal depression.

Further research to evaluate the effects of cultural stressors on women during pregnancy is recommended,

Key points
- This study set out to examine the link between sociodemographic characteristics and rates of antenatal depression in women in Iran
- With the birth of a girl, mother may be subjected to blame, criticism and hostility from the family or from her husband
- Boys are seen as the source of strength to the family, said to carry the family's name, contribute more to family income and play and essential role in old-age support
- Women may be criticised for having girl child when the family expected a boy, therefore the risk of criticism may be linked to antenatal depression
- In this study, women and their families were more likely to express a preference for a girl, whereas the women surveyed believes that their husbands and their in-laws were more likely to prefer a boy.

as such efforts may prove important in early diagnosis and treatment in other cultural groups. **BJM**

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