Is unintended pregnancy a risk factor for depression in Iranian women?

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هل يمثِّل الحمل غير المقصود عامل اختطار للاكتئاب لدى الإيرانيات؟

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الخلاصة: استهدفت هذه الدراسة التعرُّف على الترابط بين الحمل غير المقصود وبين الاكتئاب السابق للولادة والتالي للولادة، لدى 163 امرأة في مدينة كرمان شاه، بجمهورية إيران الإسلامية. واستُخدم الاستبيان الذاتيُّ الاستكمال المعروف باسم Beck Depression Inventory لتحرِّي الاكتئاب بين النساء المتعلِّمات، وأُجريت مقابلة خاصة مع غير المتعلِّمات، كما تمت دراسة 105 حالات حمل مقصود و58 حالة حمل غير مقصود. وبيَّنت الدراسة أن من بين 58 امرأة حملت بشكل غير مقصود، حاول 43٪ منهن إجهاض الجنين. وكان مستوى الاكتئاب بعد 37 أسبوعاً من الحمل أعلى بشكل طفيف في حالة الحمل غير المقصود بالمقارنة مع مجموعة الحمل المقصود (53.4٪ مقابل 41٪؛ مع اختطار نسبي مقداره 1.3). أما الاكتئاب بعد 10 أيام من الولادة فكان أعلى كثيراً في مجموعة الحمل غير المقصود بالمقارنة مع مجموعة الحمل المقصود (48.7٪ مقابل 25.6٪؛ مع اختطار نسبي مقداره 1.9). ويُوصي الباحثون بتحرِّي الاكتئاب دائماً بين الحوامل بحمل غير مقصود.

ABSTRACT A study was carried out to determine the association between unintended pregnancy and pre- and postpartum depression in 163 women in Kermanshah city, Islamic Republic of Iran. Using the self-administered Beck Depression Inventory for educated women and a special interview for illiterate women, 105 intended and 58 unintended pregnancies were studied. Of the 58 women with unintended pregnancy, 43% reported attempting to abort the fetus. Depression at 37 weeks' gestation was slightly higher in the unintended than the intended pregnancy group (53.4% versus 41.0%; relative risk = 1.3) and depression 10 days postpartum was much higher in the unintended group (48.7% versus 25.6%; relative risk = 1.9). Screening for depression is recommended for pregnant women with unintended pregnancy.

La grossesse non désirée est-elle un facteur de risque de dépression chez les femmes iraniennes ?
RÉSUMÉ Une étude a été réalisée pour déterminer l'association entre la grossesse non désirée et la dépression pré- et post-partum chez 163 femmes dans la ville de Kermanshah (République islamique d'Iran). Au moyen d'un auto-questionnaire pour les femmes instruites – l'Inventaire de la dépression de Beck – et d'un entretien spécial pour les femmes illettrées, 105 grossesses désirées et 58 grossesses non désirées ont été étudiées. Parmi les 58 femmes dont la grossesse était non désirée, 43 % ont déclaré avoir cherché à avorter. La dépression à la 37e semaine de gestation était légèrement plus importante dans le groupe des grossesses non désirées que dans celui des grossesses désirées (53,4 % contre 41,0 % ; risque relatif = 1,3) et la dépression 10 jours après l'accouchement était beaucoup plus importante dans le premier groupe (48,7 % contre 25,6 %; risque relatif = 1,9). Le dépistage de la dépression est recommandé chez les femmes enceintes dont la grossesse n'est pas désirée.

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Introduction

Pregnancies can be divided into two types: intended or unintended. An unintended pregnancy may be unwanted (if it occurs when no children or no more children are desired) or mistimed (if it occurs earlier than desired) [1,2]. In the United States, approximately one third of live births in 1995 were reported to be unintended at the time of conception [1]. Data from the Pregnancy Risk Assessment Monitoring Systems (PRAMS) show considerable variation between states in the proportion of live births that result from unintended pregnancies; in 1999 it ranged from 34% to 52% [2]. Reports from the Islamic Republic of Iran have shown the proportion of unintended pregnancies ranging from 10% to 40% [3,4].

Unintended pregnancy has been linked to a variety of negative outcomes for both mothers and their children [1,2,5–7]. Childbearing is a stressful life event that has been linked to non-psychotic major depression, referred to as postnatal depression. Unwanted childbearing is particularly likely to be associated with depression [1]. Postpartum depression is a mood disorder that occurs in 13% of new mothers [8]. It is diagnosed when a patient reports 2 weeks of dysphoric mood or lack of interest or pleasure in usual activities, a long period with sleep disturbance, guilt, fatigue, impaired concentration, appetite disturbances, psychomotor activation or retardation, low self-esteem, feeling of hopelessness and worthlessness, and suicidal ideation [8,9].

Research has shown that postpartum depressive symptoms were associated with sick leave during pregnancy and a high number of visits to the antenatal care clinic [10]. Complications during pregnancy, such as hyperemesis, premature contractions and psychiatric disorders, are more common in postpartum depressed women [10]. A meta-analysis of 84 studies indicated that risk factors for postpartum depression are low self-esteem, childcare stress, prenatal anxiety, life stress, social support, "maternity blues", marital status, socioeconomic status and unplanned/unwanted pregnancy [9].

Abortion for unintended pregnancies is illegal in the Islamic Republic of Iran. To investigate the psychological consequences of such pregnancies, the present study aimed to determine the association between unintended pregnancy and depression for women attending clinics in Kermanshah city in 2003.

Methods

A study was carried out on 163 pregnant women who were attending for antenatal care at all the clinics in Kermanshah city over a 1-year period (2003). The sample size was established after a pilot study. At the beginning of the study, we invited women to participate, informed them about the aims of study and obtained their written consent. Ten (10) women were excluded who had suffered previous depression or intrauterine death or a life stress during the previous year such as a death within the family.

A questionnaire was designed to determine: the pregnancy type (intended or unintended); demographic variables (mother's age, mother's educational level, mother's income, husband's income, mother's employment, husband's employment); method of contraception before pregnancy; optimal number of children; time of stopping contraception; and if they wanted the new baby or not. Pregnancies that occurred without planning, despite the use of

contraceptive methods and those leading to an attempt to or a desire to induce abortion of the fetus were considered as unintended.

Depression was determined by 2 instruments. A version of the self-administered Beck Depression Inventory, standardized for Iranian people, was used for literate women [11]. Another test was designed for illiterate women (secondary school and below), with 15 items completed by interview. Some items were scored on a 3-point scale (0–2) and some on a 4-point scale (0–3). Total scores on the Beck scale and the constructed test ranged from 0 to 30. A cut-off score 10 or over was used as an indictor for depression. Evaluations were made twice: prepartum depression was assessed at a mean (standard deviation) gestational age of 37 (SD 2) weeks, and postpartum depression was assessed 10 days after the birth of the child. Midwives who worked in the clinics participated in distributing and collecting the Beck questionnaires and carrying out interviews with the women.

To determine its content validity, the specially designed test was distributed to 10 experts along with the aims of the study and their expert opinions were used to modify the instrument. In a pilot study to test for parallel form reliability, the 2 tests were distributed by a psychologist among 10 educated women; the correlation coefficient between the 2 mean scores was 0.7.

Statistical significance was defined as a two-tailed *P* value of 5%. Differences were tested with independent Student's *t*-test and the association was tested with chi-squared and Fisher exact test for nominal variables. McNemar's test was used to test the association between pre- and postpartum depression variables in unintended and intended pregnancies. Relative risk was calculated for pre- and postpartum depression in unintended pregnancy.

Results

Out of the 163 women recruited, 58 reported that the pregnancy was unintended and 105 that it was intended. The demographic profile of the 2 groups of women with intended and unintended pregnancy is shown in Table 1. There were no significant differences between the groups in terms of mean income of mothers or fathers. The group with unintended pregnancy were significantly older (*P* < 0.001), of higher gravidity (*P* < 0.001) and had more children (*P* < 0.001) (both girls and boys) than the group with intended pregnancy.

There were no significant differences between the intended and unintended groups in the proportion of mothers who were housewives (92.2% versus 86.2%), educated up to secondary school level (32.0% versus 41.5%) and husbands educated up to high school (diploma) level (36.8% versus 32.8%). Of the 58 women with unintended pregnancy, 76% (*n* = 44) had contemplated aborting the fetus and 43% had made an unsuccessful attempt to abort.

Table 2 shows the proportion of women in both groups with depression during pregnancy. No association was found between intentionality of pregnancy and prepartum depression: 53.4% with unintended pregnancy versus 41.0% with intended pregnancy had depression during pregnancy (*P* = 0.09). Table 2 also shows the results of the postpartum assessment; not all the participants completed the depression scale postpartum (90 in the intended and 39 in the unintended pregnancy group). Significantly more of the women with unintended pregnancy had depression scores than those with intended pregnancy (48.7% versus 25.6%) (*P* < 0.02). In the unintended pregnancy group, the relative risk of depression pre- and postpartum

Table 1 **Demographic characteristics of women with intended or unintended pregnancy**

Variable	Intended pregnancy (*n* = 105)	Unintended pregnancy (*n* = 58)	*P*-value
	Mean (SD)	**Mean (SD)**	
Mother's income[a] (rials)	97 390 (347 030)	160 000 (408 430)	NS
Husband's income[a] (rials)	1 492 500 (1 047 930)	1 424 040 (631 720)	NS
Mother's age (years)	27.44 (5.75)	31.69 (6.09)	< 0.00l
Gravidity (No.)	2.12 (1.21)	3.23 (1.10)	< 0.001
Children (No.)	0.96 (0.73)	1.86 (1.06)	< 0.001
Girls (No.)	0.43 (0.56)	0.84 (0.67)	< 0.001
Boys (No.)	0.53 (0.62)	1.03 (0.76)	< 0.001
Enough children (No.)	1.86 (0.54)	1.95 (0.60)	NS
Previous miscarriages (No.)	0.29 (0.80)	0.37 (0.52)	NS
	%	**%**	
Mother's occupation housewife	92.2	86.2	NS
Mother's education up to secondary school	32.0	41.5	NS
Husband's education up to high school (diploma)	36.8	32.8	NS
Attempted to abort current pregnancy	0	43.0	

[a]*Monthy income. US $1 = 7900 rials.*
SD = standard deviation.
NS = not significant.
n = *number of participants.*

were 1.3 and 1.9 respectively. There was also an association between depression pre- and postpartum in the unintended pregnancy group (*P* < 0.004).

Table 3 shows the demographic variables of non-depressed and depressed women postpartum. Depressed women had a significantly higher mean number of children than non-depressed women [1.5 (SD 1.0) versus 1.0 (SD 0.84)] (*P* < 0.02), had significantly more boys (*P* < 0.02) and were of higher gravidity (*P* < 0.03). The mean age of depressed mothers was higher than non-depressed mothers [(28.9 (SD 5.5) versus 27.0 (SD 5.0)] (*P* < 0.001).

Discussion

The study found an association between depression and unintended pregnancy in women in Kermanshah city, Islamic Republic of Iran. The risk of postpartum depression was higher in women with unintended pregnancies compared with those with intended pregnancies. These findings are similar to those reported in meta-analyses of research studies [*8,9*]. Josefsson et al. in Sweden mentioned pregnancy complications as risk factors for postpartum depression [*10*] and Reardon suggested a relationship between depres-

Table 2 **Self-assessed prepartum and postpartum depression in women with intended or unintended pregnancy**

Category	Intended pregnancy		Unintended pregnancy	
	No.	%	No.	%
Prepartum depression[a]				
No	62	59.0	27	46.6
Yes	43	41.0	31	53.4
Total	105	100.0	58	100.0
			Relative risk = 1.3	
Postpartum depression[a]				
No	67	74.4	20	51.3
Yes	23	25.6	19	48.7
Total	90	100.0	39	100.0
			Relative risk = 1.9	

[a]*Beck Depression Inventory scale score > 10.*

sion and unintended pregnancy among American youth, with the risk of depression increasing the longer the pregnancy continued [*12*].

The relationship between life events and the onset of depression is well-established.

Pregnancy and childbirth are often regarded as stressful life events in their own right and this may lead to depression. However, some researchers have studied the effects of additional stressful life events that women experience during pregnancy and the

Table 3 **Demographic characteristics of women with or without postpartum depression**

Variable	Non-depressed (*n* = 87) Mean (SD)	Depressed[b] (*n* = 42) Mean (SD)	*P*-value
Mother's income[a] (rials)	68 670 (274 500)	263 320 (53 370)	NS
Husband's income[a] (rials)	1 352 240 (660 660)	1 236 760 (841 110)	NS
Mother's age (years)	27.0 (5.80)	28.9 (5.50)	< 0.001
Gravidity (No.)	2.10 (1.15)	2.74 (1.55)	< 0.03
Children (No.)	1.00 (0.84)	1.50 (1.03)	< 0.02
Girls (No.)	0.45 (0.59)	0.58 (0.64)	NS
Boys (No.)	0.53 (0.62)	0.92 (0.85)	< 0.02

[a]*Monthly income. US $1 = 7900 rials.*
[b]*Beck Depression Inventory scale score > 10.*
n = *number of participants.*
SD = *standard deviation.*
NS = *not significant.*

puerperium [*13*]. Some clinicians believe that life events play a primary or principal role in depression [*13*]. Bearing an unwanted child is particularly likely to be associated with depression [*1*]. Of course, unplanned pregnancies are not always unwelcome. However, the woman still has to cope with the ramifications of an unplanned event that will affect the rest of her life [*9*].

Undiagnosed postpartum depression is an affliction on both the woman and her family and it is important to identify women who need counselling, treatment and hospitalization. Screening for postpartum depression using self-administered screening tools assists the medical profession in identifying and diagnosing women who do not present with depression when there is limited time available for patients [*14*]. It is recommended all mothers with risk factors for postpartum depression are investigated with self-administered screening tools.

It might be expected that economic factors would be important in unintended pregnancy; a pregnancy may be unwanted because the woman feels unable to support further children. Studies have also suggested socioeconomic factors as risk factors for postpartum depression [*8,9*]. However, we found no relationship between income, educational level or employment and unintended pregnancy or depression postpartum. These findings confirm the findings of Josefsson et al. in Sweden [*10*]. The significant factors for postpartum depression were higher gravidity, higher number of children and older mother's age. Nielsen Forman et al. also showed a relationship between the number of children and postpartum depression in Denmark [*15*]. This finding implies that any woman can be at risk of an unintended pregnancy at any stage during her reproductive life.

In conclusion, this study suggests that women with unintended pregnancies may be more at risk of postpartum depression than women with intended pregnancies. It is recommended to screen all women with unintended pregnancies to diagnose depression early.

Acknowledgements

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***The medical eligibility criteria for contraceptive use* – available in Arabic**

The medical eligibility criteria for contraceptive use is one of WHO's two evidence-based guidelines on contraceptive use. The document reviews the medical eligibility criteria for use of contraception, offering guidance on the safety of use of 19 different methods for women and men with specific characteristics or known medical conditions. The recommendations are based on systematic reviews of available clinical and epidemiological research. This document is intended to be used by policy-makers, programme managers and the scientific community, and aims to support national programmes in the preparation of service delivery guidelines. This publication is available in Arabic and can be accessed on line at: http://www. emro.who.int/rhrn/