Psychological sequelae of miscarriage: a controlled study using the general health questionnaire and the hospital anxiety and depression scale

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SUMMARY. This study was carried out to assess whether psychiatric morbidity after a miscarriage is higher than that associated with early pregnancy. A total of 60 consecutive women admitted to a Swansea hospital with a miscarriage were compared with 62 consecutive women who attended an antenatal clinic at the same hospital, using the 28-item general health questionnaire and the hospital anxiety and depression scale. These were completed both at initial contact and six weeks later. Women who had had a miscarriage were found to be significantly more anxious and scored higher on the subscale for severe depression than the pregnant women, both at initial assessment and six weeks later. At the six week assessment more somatic symptoms were also experienced by the group who had had a miscarriage.

This study highlights the psychological disturbance associated with miscarriage. The primary health care team and hospital staff need to take this into consideration when organizing follow up for women who have had a miscarriage.

Keywords: spontaneous abortion; psychiatric morbidity; health status measurement; comparative studies.

Introduction

MORRIS has commented on the paucity of clinical research regarding the emotional consequences of miscarriage, despite an estimated 400 000 miscarriages occurring annually in England and Wales.[1] Several studies have suggested that increased rates of psychiatric morbidity might occur after miscarriage,[2-5] but most of these studies suffered from methodological difficulties.[3-5] However, studies have also shown a higher prevalence of psychiatric symptoms among women in early pregnancy than among the general population.[6-8] It is therefore possible that the emotional problems associated with miscarriage may be similar to those associated with early pregnancy.

The aims of this study were to compare the degree and nature of emotional disturbance among women who had had a spontaneous abortion with that among pregnant women; to assess whether emotional disturbance was sustained; and to note whether any demographic or obstetric factors were associated with higher emotional disturbance among the women who had had a spontaneous abortion. The study was approved by West Glamorgan health authority ethical committee.

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Method

Sample

This study was carried out at the obstetric unit of a district general hospital in Swansea over a period of nine months in 1989. The study group consisted of 63 consecutive women who had been given a diagnosis of spontaneous abortion and subsequently underwent an evacuation of the uterus under anaesthesia. The control group consisted of 63 consecutive pregnant women who registered at the antenatal clinic at the same hospital.

Assessment

At initial contact (within 24 hours of evacuation of the uterus or registration at the antenatal clinic) a semistructured interview and two self rating questionnaires were administered. The interview was used to ascertain demographic details and a brief medical, psychiatric and obstetric history. The questionnaires used were the 28-item general health questionnaire[9] and the hospital anxiety and depression scale.[10] The 28-item general health questionnaire consists of subscales which measure somatic symptoms, anxiety and insomnia, social dysfunction and severe depression. Each item on this questionnaire is scored as zero if there has been no change or an improvement in that symptom recently, and is scored as one if the symptom has been worse recently. The hospital anxiety and depression scale scores anxiety and depression separately. Both questionnaires have been widely used in non-psychiatric settings.[11-13] The same questionnaires were posted to both groups six to eight weeks after the initial contact.

Statistics

Data were analysed by the Mann Whitney *U* test and the chi square test as appropriate. The *Confidence interval analysis* microcomputer programme was used. Statistical significance is quoted at the 5% level.

Results

At the initial assessment three women who had had miscarriages and one woman attending the antenatal clinic refused to participate in the study. The initial samples therefore consisted of 60 women in the miscarriage group and 62 women in the antenatal group. Fifty one of the 60 women (85%) in the miscarriage group responded to the postal questionnaire compared with 52 of the 62 women in the antenatal group (84%). In both groups, respondents did not differ significantly from non-respondents in terms of scores on the general health questionnaire or the hospital anxiety or depression scales, or in sociodemographic, medical and obstetric details.

Slightly more of the women in the miscarriage group were unmarried and in lower social classes than women in the antenatal group but the differences were not large enough to reach statistical significance — 33% and 23% were unmarried, respectively and 37% and 29% were in social classes 4 and 5. The mean age of the two groups was the same (26 years) and similar proportions in each group had had a previous miscarriage

(23% in miscarriage group versus 19% in antenatal group), had children (57% versus 63%), had a psychiatric history (8% versus 6%) and had planned their pregnancy (60% versus 56%). The two groups were less well matched in terms of duration of gestation (data unavailable for one woman in the antenatal group) — less than 12 weeks, 52% versus 16%; 12–16 weeks, 38% versus 48%; more than 16 weeks, 10% versus 36%; $\chi^2 = 19.5$, 2 df, $P<0.001$.

Questionnaire scores at initial assessment

At the initial assessment the median scores of the miscarriage group were significantly higher than those of the antenatal group on both anxiety scales, and the general health questionnaire subscale for severe depression (Table 1). The median score of the antenatal group on the subscale for somatic symptoms was significantly higher than that of the miscarriage group.

The scores were then examined by gestational length (Table 2). Among the women whose gestational period was 16 weeks or less the score for the miscarriage group was significantly higher than that of the antenatal group on both the hospital anxiety and depression scales. However, among the women whose gestational period was more than 16 weeks, no significant differences were found between the two groups, although there were only six miscarriages among those women. For this gestational period there was a non-significant trend for the women in the antenatal group to score higher on both hospital anxiety and depression scales.

Questionnaire scores at six weeks

Table 1 also shows the scores for both groups at six weeks. The miscarriage group still had significantly higher scores than the antenatal group on the anxiety scales and the general health questionnaire subscale for severe depression but by this stage the miscarriage group also had a significantly higher score on the somatic symptom subscale.

Change in scores over six weeks

The change in scores from the initial assessment and that at six weeks was compared for the two groups. The only significant difference found was for somatic symptoms. The median difference in the score on this general health questionnaire scale was −1 (confidence interval −2 to 0) for the miscarriage group and 0 (0 to 1) for the antenatal group ($P<0.001$).

Associated factors

Table 3 shows the median scores for the miscarriage group at the initial assessment according to sociodemographic and obstetric categories. Women who had had a previous miscarriage had a significantly higher score on the hospital anxiety scale than women who had not had a previous miscarriage. Women who did not have children had significantly higher scores on the general health questionnaire and both hospital anxiety and depression scales than women who already had children, and women who had had an unplanned pregnancy had higher scores on the general health questionnaire and hospital depression scale than women who had planned their pregnancy.

Discussion

The results of this study should be interpreted with caution as a large number of statistical comparisons were carried out and one might therefore expect one or two of the results to be significant by chance. The choice of control group was influenced by several factors. A number of studies have shown that normal pregnancy can be associated with significant psychiatric morbidity.[6-8] Women who have had miscarriages therefore come from a population that is at increased risk of psychological

Table 1. Scores on the general health questionnaire (GHQ) and hospital anxiety and depression scale (HAD) for the miscarriage and antenatal groups at the initial assessment and at six weeks.

	Median score (95% CI) at initial assessment		Median score (95% CI) at six weeks	
	Miscarriage group ($n=60$)	Antenatal group ($n=62$)	Miscarriage group ($n=51$)	Antenatal group ($n=52$)
GHQ 1 (somatic symptoms)	1(0 to 2)	3(2 to 3)*	3(2 to 4)	2(0 to 2)*
GHQ 2 (anxiety and insomnia)	2(1 to 4)	1(1 to 2)*	3(2 to 5)	1(1 to 2)**
GHQ 3 (social dysfunction)	2(1 to 4)	1(1 to 2)	1(0 to 3)	1(0 to 2)
GHQ 4 (severe depression)	0(0 to 0)[a]	0(0 to 0)[b]***	0(0 to 1)[c]	0(0 to 0)[d]**
GHQ total	6(3 to 10)	6(4 to 8)	10(5 to 12)	4(2 to 5)**
HAD anxiety	9(6 to 10)	4(4 to 7)***	9(7 to 11)	6(4 to 7)**
HAD depression	5(3 to 6)	4(2 to 6)	4(3 to 5)	4(2 to 5)

CI = confidence interval. n = number of women in group. [a] 20 of 59 scored >0. [b] 6 of 62 scored >0. [c] 19 of 51 scored >0. [d] 7 of 52 scored >0. * $P<0.05$. ** $P<0.01$. *** $P<0.001$.

Table 2. Scores on the general health questionnaire (GHQ) and the hospital anxiety and depression scale (HAD) for the miscarriage and antenatal groups at the initial assessment by gestational stage.

	Median score			
	16 weeks gestation or less		More than 16 weeks gestation	
	Miscarriage group ($n=54$)	Antenatal group ($n=39$)	Miscarriage group ($n=6$)	Antenatal group ($n=22$)
GHQ total	6	6	5	5
HAD anxiety	9	4***	6	9
HAD depression	5	3**	3	5.5

n = number of women in group. ** $P<0.01$. *** $P<0.001$.

Table 3. Scores on the general health questionnaire (GHQ) and hospital anxiety and depression scale (HAD) at the initial assessment for the women in the miscarriage group by sociodemographic and obstetric categories.

	Median score (95% CI)		
	GHQ total	HAD anxiety	HAD depression
Age (years)			
<25 (*n* = 27)	8(3 to 14)	8(6 to 12)	6(3 to 7)
25+ (*n* = 33)	4(1 to 10)	9(6 to 11)	5(1 to 6)
Social class			
1–3 (*n* = 38)	5(1 to 17)	10(5 to 14)	4(1 to 7)
4 and 5 (*n* = 22)	6(3 to 10)	8(6 to 10)	6(4 to 6)
Marital status			
Married (*n* = 40)	4(2 to 9)	9(6 to 10)	5(2 to 6)
Unmarried, divorced, separated (*n* = 20)	7(2 to 17)	9(6 to 11)	5(3 to 7)
Previous miscarriage			
Yes (*n* = 14)	9(0 to 12)	11(5 to 14)	6(2 to 7)
No (*n* = 46)	5(3 to 10)	8(6 to 10)*	5(2 to 6)
Children			
Yes (*n* = 34)	3(1 to 9)	7(5 to 9)	3(1 to 6)
No (*n* = 26)	9(4 to 15)*	10(8 to 14)**	6(5 to 8)**
Planned pregnancy			
Yes (*n* = 36)	3(1 to 9)	7(6 to 10)	4(2 to 6)
No (*n* = 24)	9(6 to 14)**	10(7 to 11)	6(5 to 7)*
Length of gestation (weeks)			
⩽16 (*n* = 54)	7(3 to 13)	9(6 to 10)	5(3 to 6)
>16 (*n* = 6)	4(1 to 11)	8(6 to 12)	5(2 to 7)

CI = confidence interval. *n* = number of women in group.
* $P<0.05$. ** $P<0.01$.

distress. In order to control for this as well as for age and sex a control group of pregnant women was used.

The results show that women who have had a miscarriage experience a significant degree of anxiety both at initial interview and six weeks later compared with a control group. The findings for depression were less clear. Although significantly higher rates of depression were found among the miscarriage group than the antenatal group on the general health questionnaire, both initially and at six weeks, no such differences were found on the hospital depression scale. However, among the women whose length of gestation was less than 16 weeks the miscarriage group was found to be significantly more depressed on the hospital depression scale. Too few women had had miscarriages at 16 weeks or later for a valid comparison to be made for this group.

Previous reports have focused on depression rather than anxiety after miscarriage.[2-5] Friedman and Gath used a semistructured psychiatric interview and found that 48% of women who had a miscarriage met criteria for 'psychiatric caseness'.[2] All of them were classified as having depressive disorders. Anxiety did not appear to be a significant problem. This may have been because anxiety rating scales were not used and stringent psychiatric diagnostic criteria were applied. However, the authors commented that some of the women consulted their general practitioners with symptoms of anxiety.

Three groups of women seem especially at risk of emotional disturbance after a miscarriage: women who had had a previous miscarriage, women who did not have children and women who had not planned their pregnancy. Friedman and Gath found that 'psychiatric cases' after miscarriage were more often unmarried women and had more often had a previous miscarriage.[2] Further studies are needed in order to address in more detail the question of which factors are associated with high psychiatric morbidity after a miscarriage.

Women who have had a baby are followed up by the midwife, health visitor and the general practitioner while pregnant women are seen at antenatal clinic and may derive support at antenatal classes. However, there is normally no planned follow up for women who have had a miscarriage. In one study a follow-up clinic was arranged and it was found that 74% of women who had had a miscarriage attended, and all found that contact helpful.[14] Ideally, follow up should be offered to all women after a miscarriage, by the general practitioner, the health visitor or the hospital.

Many women consult their general practitioner following a miscarriage[2] suggesting that follow up can often be provided on an opportunistic basis. The findings of increased anxiety and psychosomatic symptoms not only immediately after a miscarriage but also some weeks later are of especial interest in that these may be common presenting features in a primary care setting. These symptoms may also be less easily recognized sequelae of a miscarriage than depression. The general practitioner can thus play an important role in recognizing emotional disturbance as well as in providing explanation, reassurance, relevant information and the address of the Miscarriage Association.

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Useful address

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