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The Psychiatric Consequences of Spontaneous Abortion

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Sixty-seven women were interviewed four weeks after spontaneous abortion. As determined by the Present State Examination, 32 of these women were psychiatric cases. This rate is four times higher than in the general population of women. In each case the diagnosis was depressive disorder, a finding confirmed by scores on three depression rating scales. Many women showed typical features of grief. Depressive symptoms were significantly associated with a history of previous spontaneous abortion, and less so with childlessness.

Spontaneous abortion is common, occurring in about one pregnancy in five, but there have been few studies of the psychological consequences. Those there are have generally suggested that emotional symptoms are frequent after spontaneous abortion (Simon *et al*, Corney & Horton, 1974; Seibel & Graves, 1980; Leppert & Pahlka, 1984; Oakley *et al*, 1984; Wall-Haas, 1985). However, the findings have been difficult to evaluate because none of the studies used standardised measures to assess psychiatric symptoms, and some obtained information only by postal inquiry (Oakley *et al*, 1984) or by telephone (Leppert & Pahlka, 1984). In some studies the inquiry was made years after the abortion, and several studies were based on samples that were small or atypical (Simon *et al*, 1969; Seibel & Graves, 1980; Leppert & Pahlka, 1984; Oakley *et al*, 1984; Wall-Haas, 1985).

This paper reports a study in which standardised psychiatric measures were used to examine a representative sample of women four weeks after spontaneous abortion.

Methods

The subjects were a consecutive series of women who had been admitted to hospital in Oxford for complete or threatened abortion treated by evacuation of the uterus. Shortly before discharge from hospital, the women were seen by a research psychiatrist (TF) who told them about the study and its purpose. A few days later, the women received a letter from the research team offering an appointment for interview four weeks after leaving hospital.

Interviews were held mainly at the women's local health centres, and occasionally at a local hospital. The interview began with a semistructured inquiry about: previous medical, obstetric and psychiatric history; attitudes towards the index pregnancy; the circumstances of the abortion; care and information received; feelings experienced on discharge from hospital; reactions of the husband and other people; further contacts with the medical profession; and plans for future pregnancies.

Next, the interviewer assessed the patient's mental state using the Present State Examination (PSE; Wing *et al*, 1974), the Montgomery–Åsberg Depression Rating Scale (MADRS; Montgomery & Åsberg, 1979), and the Hamilton Rating Scale for Depression (Hamilton, 1967).

Finally, the women completed four self-rated scales: the Beck Depression Inventory (BDI; Beck, 1967); the Eysenck Personality Questionnaire (EPQ; Eysenck & Eysenck, 1975); the Maudsley Marital Questionnaire (MMQ; Crowe, 1978); and the Modified Social Adjustment Scale (SAS-M; Cooper *et al*, 1982). The latter measures overall social functioning, and functioning in areas such as job, housework, social and leisure activities, marriage, and family.

Analysis of data

Associations of psychiatric disorder with other variables (psychological, social, and obstetric) were examined by comparison of groups using Mann–Whitney *U* tests for continuous variables (for example, total scores on the PSE and neuroticism scores on the EPQ) and using the χ^2 test for categorical variables such as 'caseness'.

Results

Characteristics of the sample

Of 80 women approached, 67 attended for interview. The 13 women who refused were similar to the attenders in social class and obstetric history; five of them (38%) were single as against nine (13%) of the 67 attenders ($\chi^2 = 3.14$; d.f. = 1; NS).

The average age of the interviewed women was 29 years (range 17–42) and of their partners 32 years (range 21–50). In social class, the women resembled women of comparable age from the general population of Oxfordshire. Sixty-one women had their spontaneous abortions in the first trimester of pregnancy, and the remaining six early in the second trimester.

Of the 67 interviewed women, 46 gave no history of previous spontaneous abortion; half of this subgroup (23 women) were childless. Of the 21 women who did give a history of previous spontaneous abortion, 15 reported one previous abortion, three reported two, two reported four, and one reported five. Six of these 21 women had no children. In the full sample of 67 women, 13 gave histories of therapeutic abortions.

Psychiatric morbidity

PSE case status

The PSE relates to the patient's symptoms during the month before interview. When level five and above on the PSE Index of Definition was used to determine psychiatric case status (Wing *et al*, 1978), 32 of the 67 women were found to be psychiatric cases. This rate is about four times higher than that found among women in the general population (see under 'Discussion'). When these 32 PSE cases were allocated to diagnostic categories with the PSE CATEGO program (Wing *et al*, 1974), all were classified as having depressive disorders.

Beck Depression Inventory

The BDI relates to depressive symptoms in the preceding week. Scores on the BDI ranged from 0 to 39, with a mean score of 3.7 (s.d. 3.0) for PSE non-cases, and 15.0 (s.d. 8.2) for PSE cases (Mann–Whitney U test, $P<0.001$). Of the 32 PSE cases, eight could be regarded as having moderate depression (scores of 20 and above) and seven as having mild depression (scores of 15–19) in the fourth week after their abortion. In the group as a whole, the six most common BDI symptoms were: sadness (56%), irritability (55%), tiredness (52%), crying (51%), self-blame (44%), and loss of sexual interest (33%). This finding applied to all the women, and to PSE cases and PSE non-cases separately.

Montgomery–Åsberg Depression Rating Scale

Scores ranged from 0 to 36. The mean score was 4.1 (s.d. 3.3) for PSE non-cases, and 16.2 (s.d. 7.3) for PSE cases (Mann–Whitney U test, $P<0.001$). On the MADRS severity scale derived by Snaith *et al* (1986) from a study of psychiatric patients with depressive illness, the 32 PSE cases in the present study were divided into: recovered, 1; mild, 24; moderate, 6; and severe, 1.

Hamilton Rating Scale for Depression

Scores ranged from 0 to 25. The mean score was 3.1 (s.d. 2.6) for PSE non-cases, and 11.4 (s.d. 5.3) for PSE cases (Mann–Whitney U test, $P<0.001$). Five patients (7.5%) scored 17 or over, which is often taken as a cut-off for inclusion in antidepressant drug trials.

Features of grief

Many women showed features typical of the grief that commonly follows bereavement (Parkes, 1972). For example, in the first few days after abortion, 40 of the women had feelings of emotional numbness. In the next few days this numbness was followed by being 'very upset' in half the women. Several women likened the distress to that following the death of a family member. Two women took overdoses and one attempted to cut her wrists.

Twenty-five women reported feelings of guilt at having had an abortion, and 11 women rated these feelings as moderate or severe. Severity of guilt was significantly associated with PSE case status ($\chi^2=4.2$; d.f. = 1; $P<0.05$). Many of these women were distressed by thoughts that they might have caused the miscarriage in some way, typically by physical overactivity.

Twenty-four women had feelings of still being pregnant, and had to keep reminding themselves that they were no longer pregnant. Some women believed there had been a mistake in diagnosis and that they were still pregnant or had been carrying twins and lost only one of them. These thoughts of continuing pregnancy were comforting rather than distressing.

Forty-one of the women were distressed by seeing other people's young babies, and 45 by seeing pregnant women. These women found it difficult to reconcile feelings of jealousy with not wishing to harbour bad feelings.

Among women who reported a previous spontaneous abortion, many described a recurrence of the same emotions, particularly sadness, as experienced previously.

Contact with doctors

In the four weeks since leaving hospital, 46 of the women had consulted their general practitioner. Over half these women did so for emotional distress (12 with complaints of low mood, anxiety and difficulty in sleeping, and the rest with concerns about the reasons for the miscarriage).

Social functioning

Relationships with partner

On the MMQ (on which higher scores indicate worse adjustment), the overall mean score was 1.0 (s.d. 0.5) for PSE non-cases, and 1.7 (s.d. 0.9) for PSE cases (Mann–Whitney U test, $P<0.01$).

On direct inquiry, of the 63 women with partners, 31 reported their relationship as better since the abortion, 9 as worse, and 23 as unchanged. Twenty-five of the women described their partners as 'very upset' after the abortion; they believed this distress was more often evoked by the woman's physical experience than by the loss of the pregnancy. Fifty-one women reported received a great amount of support from their partner after the abortion.

Modified Social Adjustment Scale

Sixty-five women completed the SAS-M (on which higher scores indicate worse adjustment). The mean score was 1.6 (s.d. 0.3) for PSE non-cases, and 2.2 (s.d. 0.5) for PSE cases (Mann–Whitney U test, $P<0.001$).

Factors associated with psychiatric morbidity

Marital status

Psychiatric case status on the PSE was more frequent in single women (seven of nine, 78%) than in married women (25 of 58, 43%) ($\chi^2=3.8$; d.f. = 1; $P<0.05$). This difference was unrelated to childlessness or previous spontaneous abortion.

Psychological factors

(a) *Neuroticism*. The mean score on the neuroticism scale of the EPQ was significantly higher among women who

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TABLE I
Previous spontaneous abortion — association with psychiatric state

Psychiatric measure (total scores)	*Previous spontaneous abortion (n = 21)*		*No previous spontaneous abortion (n = 46)*		*Mann–Whitney U*	
	Mean	*s.d.*	*Mean*	*s.d.*	z	P
PSE	16.76	11.17	8.57	7.06	−3.19	<0.005
Beck	13.19	9.72	7.19	6.83	−2.65	<0.01
Hamilton	10.09	5.96	5.74	5.26	−2.94	<0.005
Montgomery–Åsberg	14.95	8.49	7.57	7.05	−3.55	<0.001

TABLE II
Childlessness with previous spontaneous abortion — association with psychiatric state

Psychiatric measure (total scores)	*No previous spontaneous abortion and no children (n = 23)*		*No previous spontaneous abortion and children (n = 23)*		*Mann–Whitney U*	
	Mean	*s.d.*	*Mean*	*s.d.*	z	P
PSE	10.69	7.88	6.43	5.52	−1.84	NS
Beck	8.57	7.73	5.83	5.62	−1.36	NS
Hamilton	7.57	5.49	3.91	4.42	−2.51	<0.05
Montgomery–	9.48	6.63	5.65	7.09	−2.30	<0.05

were PSE cases (mean 14.1, s.d. 4.6) than among those who were not (mean 9.6, s.d. 3.3) (Mann–Whitney U test, $p<0.001$).

(b) *Consultation*. A history of past consultation with the general practitioner for psychiatric problems was reported more frequently by women who were PSE cases (14 of 21, 67%) than by those who were not (18 of 46, 39%) ($\chi^2=4.4$; d.f. = 1; $P<0.05$).

Obstetric factors

(a) *Pregnancy unplanned*. There were seven PSE cases (44%) among the 16 women who said that the index pregnancy was unplanned as against 25 cases (49%) among the 51 who said it was planned ($\chi^2=0.14$; d.f. = 1; NS).

(b) *Infertility*. There were two PSE cases among the seven women with a previous history of consultation for infertility, as against 30 cases among the 60 women with no such history.

(c) *Previous therapeutic abortion*. Thirteen women reported a previous therapeutic abortion. There was no significant association between such a history and PSE case status.

(d) *Previous spontaneous abortion*. There were 16 PSE cases (76%) among the 21 women with a history of previous spontaneous abortion, as against 16 cases (35%) among the 46 women with no such history ($\chi^2=9.9$; d.f. = 1; $P<0.01$). Table I shows the mean total scores on the measures of mental state (PSE) and depression (BDI, Hamilton; MADRS). On all four measures, mean scores were significantly higher among the 21 women with a history of previous abortion than among the 46 women with no such history.

(e) *Childlessness*. Of the 67 women, 38 had children and 29 had none. There were no significant differences between these two groups on any of the four psychiatric measures.

(f) *Previous spontaneous abortion v. childlessness*. Amongst the 21 women with a history of previous abortion, 15 had children and six had none. No significant association was found between childlessness and any of the four psychiatric measures.

(g) *No previous abortion v. childlessness*. Table II shows the findings for women who had had no previous abortion ($n=46$) divided into those with children ($n=23$) and those without ($n=23$). For the childless group, mean total scores were significantly higher on the MADRS and the Hamilton scale, but non-significantly higher on the PSE and BDI scales.

Future pregnancies

Fifty women said they had been given medical advice to wait at least three months before trying to conceive again. Twelve women reported that fear of a further spontaneous abortion made them uncertain whether they would attempt to conceive again. Among 33 women who had decided to try to conceive again, 16 had decided to wait longer than the period suggested by their doctors.

Discussion

The main conclusion from this study was that levels of emotional distress were high during the four weeks after spontaneous abortion. This conclusion was indicated by the finding that 48% of the women were psychiatric cases as defined by level five and above on the PSE Index of Definition. From other studies (Wing, 1976; Surtees *et al*, 1983; Gath *et al*, 1987) it is known that, using this measure, rates of psychiatric case status are 10–12% among women in the general population and about 95% among psychiatric patients. A notable finding was that, on CATEGO analysis, all the psychiatric cases were classified as having had depressive disorders during the four weeks covered by the PSE. However, the three depression rating scales (which were administered in the last of these four weeks) showed relatively mild depression, suggesting that many of the patients were already recovering.

Many of the women attributed their symptoms to the experience of profound loss. This attribution is consistent with other findings. Thus many of the women reported symptoms typical of the grief that commonly follows bereavement. Symptoms were increased in women who had experienced previous spontaneous abortions, and this increase could be

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due to the cumulative effects of repeated losses. Moreover, many women were fearful of experiencing the loss of any future pregnancy.

In addition to the sense of loss, other factors may have contributed to the development of depressive symptoms. The experience of the abortion itself may have been traumatic. There is evidence that hospital admission and minor surgery can induce psychiatric symptoms (Levy, 1987). Moreover, the endocrine changes associated with spontaneous abortion may cause emotional symptoms, and here there is a parallel with childbirth.

Apart from previous spontaneous abortion several factors seem to have made women more vulnerable to these stressful experiences. Psychiatric disorder was more frequent, for example, in single women. The reason for this is uncertain, but it may have been lack of a supportive partner. As in most studies of adverse events, psychiatric disorder was found to be significantly associated with neuroticism and with a previous history of psychiatric consultation. Psychiatric symptoms were also more frequent in childless women (as might be expected), but this association applied only to women with no previous history of spontaneous abortion.

All these findings relate to assessment four weeks after spontaneous abortion. It is important to know whether in some women high levels of distress persist after four weeks. In the case of stillbirth, for example, psychiatric morbidity can persist for many months (Savage, 1988). It is also important to discover whether spontaneous abortion influences the wish for further pregnancy. These questions are being examined in a two-year follow-up study.

It is difficult to comment on indications for treatment until the findings of the follow-up study are known. However, in a study of stillbirth (Forrest *et al*, 1982) it was shown that the duration of the bereavement reaction was appreciably shortened by support and counselling which were fairly intensive. After spontaneous abortion not all women may require counselling of this intensity. However, most women visit their primary care team after an abortion, and this could provide the opportunity for explanation, advice, and reassurance, which might be beneficial in many cases.

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