Prevalence of Self-Reported Depressive Symptoms and Associated Social Factors in Mothers in Dunedin

ROB McGEE, SHEILA WILLIAMS, JAVAD H. KASHANI and PHIL A. SILVA

Summary: A large sample of women (n = 899) from Dunedin, New Zealand, completed a self-report questionnaire on depressive symptoms. On this basis, about 8 per cent of the sample were identified as having major depressive disorder. These women tended to have a history of previously reported psychological symptoms and formal treatment for depression. A significantly high proportion of the depressed group had been young at first pregnancy and had since been separated from their partners. The depressed women also reported more behaviour problems in their children, but these reports were not confirmed by teachers' reports or by the children's self-reports, suggesting a response bias in depressed women towards reporting problems.

The prevalence of depressive disorder in general populations is relatively high: Boyd and Weissman (1981), in a review of the available literature, reported prevalences of non-bipolar depression of 3 per cent for men and between 4 per cent and 9 per cent for women. The prevalence of depressive symptoms, however, may be considerably higher, with estimates ranging from about one-tenth to one-fifth of the population in Western societies. Turning to Australasia, Byrne (1980) reported that 5.3 per cent of men and 8.1 per cent of women from a random sample of Canberra residents had borderline depression or worse. Werry and Carlielle (1983) found a prevalence rate of about 10 per cent for a depressive episode over a 12-month period in a sample of women from Auckland, New Zealand. In an earlier study of New Zealand women, Dodge and Silva (1980) found that symptoms of depressed mood, irritability, sleep disturbance and fatigue were reported by more than 10 per cent of their sample of 991 Dunedin mothers.

The present study investigates the prevalence of reported depressive symptoms in the sample of women studied four years ago by Dodge and Silva (1980). It is part of a larger project examining the prevalence and associated features of depression in the nine-year-old children of these women, the initial results of which have been reported elsewhere by Kashani et al (1983). We report here on the prevalence rates for individual symptoms of depression and for depressive disorder as defined by a pattern of symptoms according to the DSM III criteria (American Psychiatric Association, 1980).

Several studies have suggested a number of factors of possible significance in the aetiology of depression: current age, number of children, age at first child (Bromet et al, 1982); unemployment, early loss of own mother, number of young children, lack of a confidant (Brown and Harris, 1978); number of children, mother's age (Dodge and Silva, 1980); early loss of parent, family size, unemployment (Roy, 1978); lack of a confidant (Solomon and Bromet, 1982). Although in some instances the same factors have been identified in different studies, results are not always consistent, and the strength of association between various factors and depression has not always been great. The present study focuses upon some of these variables as predictors of depression.

Previous research has also suggested a relationship between maternal reports of behaviour problems and mental disturbance in the mother (Richman et al, 1975; Sandberg et al, 1980). Sandberg et al point out that depressed mothers may have a response bias towards rating their child's behaviour as deviant; or the child's abnormal behaviour may be a reaction to the mother's mental disturbance; or the child's abnormal behaviour may contribute to the mother's depression. In this study, the relationship between the mother's depression and her reports of behaviour problems in her child is examined in the light of teachers' reports and the child's self-report.

Method

Sample

The sample consisted of 899 women (mean age 34.5 years, SD 5.03) whose nine-year-old children were enrolled in the Dunedin Multidisciplinary Child De-
DEPRESSIVE SYMPTOMS AND ASSOCIATED SOCIAL FACTORS IN MOTHERS IN DUNEDIN

The Dunedin study is a longitudinal investigation of the health and development of a large sample of New Zealand children born between 1 April 1972 and 31 March 1973 (n = 955 at age nine). The children were first assessed at the age of three, then every second year thereafter. The history and characteristics of this sample have been fully described by McGee and Silva (1982). The Dunedin sample tends to be advantaged in socio-economic terms when compared with the remainder of New Zealand (Elley and Irving, 1972). The sample is also under-representative of Maori and Polynesian people; only 2 per cent of those in Dunedin are more than half Maori or Polynesian compared with 10 per cent for New Zealand as a whole (New Zealand Department of Statistics, 1976).

Measures

1. Depression questionnaire

The self-report questionnaire for the mothers is shown in Table I. Questions 1–19 are based upon the DSM III criteria for a major depressive episode (American Psychiatric Association, 1980) Eight of these (Questions 1, 3, 4, 5, 8, 9, 10 and 15) are drawn from the Malaise Inventory of Rutter et al (1970). The others were constructed to assess the presence of other symptoms of depression. Questions 20 and 21 concern past episodes of depression and past treatment for depression. Coefficient a, a measure of the internal consistency of the scale (Nunnally, 1967), was 0.78, indicating a high level of reliability.

2. Mothers’ previous symptom reports

When the children were aged five (1977–8) and when they were aged seven (1979–80) their mothers completed the Malaise Inventory of Rutter et al (1970), a 24-item scale covering a range of psychological symptoms. At the first assessment (1975–6), the mothers had been given the Eysenck Personality Inventory (EPI: Eysenck and Eysenck, 1964) and scores had thus been obtained for neuroticism and extraversion. These three reports together provided an assessment of each woman’s psychological state over the six-year period preceding our study.

3. Background characteristics of the mothers

We obtained information on:
(a) Socio-economic status.
(b) Whether the mother was now a solo parent.
(c) Number of children in the family.
(d) Part-time or full-time work.
(e) Current age.
(f) Age at birth of first child.
(g) Separation from the ‘study’ child’s father, at any time from conception until the child was aged seven.

The choice of these social factors was based upon a review of the literature (e.g. Broquet et al, 1982; Brown and Harris, 1978; Hirschfeld and Cross, 1982).

4. Mother’s perception of the child

At the assessment of the children as nine-year-olds (1981–2), the mothers completed the Rutter Child Scale A (Rutter et al, 1970). This is a 31-item scale containing descriptions of a variety of behaviour problems; the responses allowed are ‘does not apply’ (scored 0), ‘applies somewhat’ (scored 1) or ‘certainly applies’ (scored 2). In addition there is a section with more detailed questions on several specific types of problem behaviour. A total problem score is obtained by summing scores for individual items. Information about the children’s behaviour was also gathered independently of the mothers’ reports, from each child’s teacher, who completed the Rutter Child Scale B (Rutter et al, 1970). Each child also completed a self-report questionnaire, designed primarily to assess depression but also covering a number of other problems: a full description of this questionnaire is provided by Anderson et al (1983).

Statistical analysis

The results were analysed using χ² tests or one-way analysis of variance (ANOVA) where appropriate, followed by post hoc contrasts. Because of the relatively large number of variables, the Bonferroni inequality was used to control for possible inflation of the Type I error for a set of measures (Miller, 1966): thus if a group of seven variables was being examined, each individual measure was tested at P < .007 (.05 divided by 7) to maintain the overall Type I error rate at .05.

A second approach to the analysis involved the use of log-linear modelling procedures (Feinberg, 1978) to investigate further the inter-relationships between depression and several of the background characteristics of the mothers.

Results

1. Prevalence of depression symptoms

Table I shows the prevalence rate for each symptom on the depression questionnaire. The most frequently noted symptoms were weight-loss and weight-gain. Thoughts of suicide were admitted by less than 1 per cent of the sample. About one tenth of the women admitted to often feeling miserable or depressed.

Table I also indicates that nearly 18 per cent of the women admitted to having had some form of treatment for depression (treated prevalence) although for the most part this consisted only of drug therapy of some kind. About 6 per cent reported having received some other kind of treatment, either alone or in combination.
**ROB MCGEE, SHEILA WILLIAMS, JAVAD H. KASHANI AND PHIL A. SILVA**

**Table 1**

*Depression questionnaire, and for each question the percentage of women responding with ‘Yes’ (n = 899)*

<table>
<thead>
<tr>
<th>Question</th>
<th>‘Yes’ response (%)</th>
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<tbody>
<tr>
<td>1. Do you often feel miserable and depressed?</td>
<td>10.7</td>
</tr>
<tr>
<td>2. Have you lost interest in activities that previously were pleasurable for you? (social gatherings, music, sex, etc.)</td>
<td>7.4</td>
</tr>
<tr>
<td>3. Do people often annoy and irritate you?</td>
<td>16.0</td>
</tr>
<tr>
<td>4. Are you easily upset or irritated?</td>
<td>15.3</td>
</tr>
<tr>
<td>5. Is your appetite poor?</td>
<td>1.7</td>
</tr>
<tr>
<td>6. Have you lost 4 or more pounds during the last month, or 10 or more pounds during the last year?</td>
<td>22.6</td>
</tr>
<tr>
<td>7. Have you gained 4 or more pounds during the last month, or 10 or more pounds during the last year?</td>
<td>16.3</td>
</tr>
<tr>
<td>8. Do you feel tired most of the time?</td>
<td>14.3</td>
</tr>
<tr>
<td>9. Do you usually have great difficulty in falling asleep or staying asleep</td>
<td>9.2</td>
</tr>
<tr>
<td>10. Do you usually wake unnecessarily early in the morning?</td>
<td>5.6</td>
</tr>
<tr>
<td>11. Have you found that you need more sleep than previously?</td>
<td>12.8</td>
</tr>
<tr>
<td>12. Have you lost interest in your job or housework?</td>
<td>7.3</td>
</tr>
<tr>
<td>13. Do you find it difficult to concentrate or focus on what you are doing?</td>
<td>4.7</td>
</tr>
<tr>
<td>14. Is it difficult for you to make decisions quickly?</td>
<td>10.3</td>
</tr>
<tr>
<td>15. Are you constantly keyed up and jittery?</td>
<td>3.4</td>
</tr>
<tr>
<td>16. Do you feel that you have slowed down and are moving slowly?</td>
<td>8.2</td>
</tr>
<tr>
<td>17. Have you been thinking about hurting yourself?</td>
<td>0.8</td>
</tr>
<tr>
<td>18. Do you often blame yourself excessively when things go wrong?</td>
<td>7.7</td>
</tr>
<tr>
<td>19. Do you feel guilty for minor mistakes you make?</td>
<td>10.0</td>
</tr>
<tr>
<td>20. Did you ever have a period of 2 or more weeks when you were depressed (unhappy, bored, unable to enjoy yourself)</td>
<td>15.2</td>
</tr>
<tr>
<td>21. Have you ever received any of the following treatments for depression? If yes, circle the appropriate answer</td>
<td></td>
</tr>
<tr>
<td>(a) drugs</td>
<td>Yes 17.8</td>
</tr>
<tr>
<td>(b) hospitalization</td>
<td>Drugs only 12.0</td>
</tr>
<tr>
<td>(c) psychotherapy</td>
<td>*3.9</td>
</tr>
<tr>
<td>(d) electroconvulsive treatment</td>
<td>*1.6</td>
</tr>
</tbody>
</table>

*Hospitalization, psychotherapy and ECT were often reported in various combinations*

Although self-report measures must be regarded as limited indicators of clinical depression (Myers and Weissman, 1980), our figures suggest a total of 74 women (8.2 per cent of the sample) who could be tentatively identified as ‘currently depressed’ (*current point prevalence*) on the basis of symptoms reported. Our criterion for a diagnosis of ‘current depression’ was a ‘Yes’ response to any Question 1–4, indicating depressed mood, irritability or loss of interest (DSM III Group A symptoms), plus four of the following Groups B symptoms:

- (a) Sleep disturbance.
- (b) Poor appetite, or weight change.
- (c) Fatigue.
- (d) Loss of interest.
- (e) Poor concentration or decision-making.
- (f) Motor agitation or retardation.
- (g) Self-blame or guilt.
- (h) Suicidal thoughts.

As there were no time criteria for the current symptoms, the duration of this ‘current depressive
episodes' is unknown. Of the 74 depressed women, 38 (4.2 per cent of the sample) reported having had a period of depression lasting two or more weeks. This being so, the women identified as depressed were separated into two groups; those who were currently depressed and admitted to past depression (Group I, \( n = 38 \)) and a second group (Group II, \( n = 36 \)) who were currently depressed but did not admit to past depression. These two groups did not differ significantly in terms of total number of Group A symptoms admitted (Questions 1–4) \((t <1.0, \ d.f. = 72, \ P >.05)\), but they did differ in the number of Group B symptoms reported (Questions 5–19): Group I reported an average of 5.2 and Group II an average of 4.6 B symptoms \((t = 2.73, \ d.f. = 72, \ P <.05)\).

2. Previous symptom reports

Table II gives the mean scores for the malaise inventory (Rutter et al, 1970) completed two and four years earlier, and the extraversion and neuroticism scales of the EPI completed six years earlier. These results were compared for Group I, Group II and the remainder of the sample (Group III, those not indicating current depression) using one-way ANOVA, as shown in Table II.

All ANOVAs were significant and post hoc Scheffe contrasts indicated that both the malaise inventory scores and the neuroticism score were significantly higher in the two groups of depressed women than in the remainder of the sample. The two depressed groups did not differ significantly from each other on these measures. We conclude that the group of 74 women identified as currently depressed had a history of reports of poorer mental health extending back at least six years.

The measure of extraversion showed a different pattern of results. Those women who admitted past depression tended to be more introverted than the non-depressed women \((P <.05)\), while those in Group II did not differ significantly from those in Group III. It should be noted, however, that this difference in extraversion was recorded six years previously and may not have been stable over time.

The three groups were also compared in terms of reports of treatment. Table II shows the proportion of women in each group who reported undergoing hospitalisation, psychotherapy or ECT for treatment of depression. The overall \(X^2\) test was significant, and post hoc comparisons (Everitt, 1977) of each depressed group with the remainder of the sample were also significant \((P <.05)\), indicating more reports of formal (non-drug) treatment in the two depressed groups than in the non-depressed group.

Table II also gives the proportion of each group, excluding those otherwise treated, who reported use of drugs for depression. Once again the overall \(X^2\) test was significant, although post hoc comparisons indicated significantly greater reported use of drugs only in Group I \((P <.05)\).

3. Background characteristics

Table III summarizes the background characteristics of the three groups of women. The initial analysis of these variables was performed using \(X^2\) tests, the results of which are also shown in the table. Two factors were found to be significantly associated with depression;
namely, being 20 or younger at the birth of the first child, and early separation from partner. Socioeconomic status and current age, significant at the nominal P < .05 level, failed to reach statistical significance in the \( \chi^2 \) analysis corrected for Type I errors.

One difficulty with this univariate analysis was that many of the background characteristics might be expected to be intercorrelated to some degree. In order to find out which factors were most important when all were considered simultaneously, a step-wise logistic regression analysis was carried out (Feinberg, 1978), for which the two depressed groups were combined into a single group (\( n = 74 \)). Like the first, this analysis also identified the two variables important in predicting depression as age at birth of first child and separation from partner. There was no evidence of any statistical interaction between these two main effects. The maximum likelihood estimates for the model based upon these two main effects are shown in Table IV. The ‘goodness of fit’ test for this model was \( \chi^2 \) (1 d.f.) = 0.66, P > .05, indicating that it adequately represented the data.

Attempts were made to fit the data to models which included additional main effects and some first-order interaction effects, but these effects failed to reach significance.

### 4. Mother’s perception of the child

The mean total problem scores on the Rutter questionnaires completed by the parent and the teacher, and the self-report score of the child, are shown in Table V. These results were analysed by one-way ANOVA. Only the questionnaire completed by the mother indicated significant differences between the groups: post hoc analysis with Scheffe contrasts showed that the mean total problem scores of mothers in the two depressed groups were significantly (\( P < .05 \)) higher than in the remainder of the sample, but not significantly different from each other. Neither the teachers’ questionnaire nor the children’s self-reports revealed any parallel differences between the groups.

### Discussion

The results of this study confirm other reports (e.g. Boyd and Weissman, 1981) of a relatively high current point prevalence of major depressive disorder in women. Over 8 per cent of the sample were identified as depressed on the basis of the pattern of their...
reported symptoms. While this figure is within the range of estimates reported by Boyd and Weissman, it may be an over-estimate of the true prevalence, based as it is on a self-report measure (Myers and Weissman, 1980). Furthermore, the women in the present study were relatively young (a mean age of about 34 years) and all were mothers: the findings cannot be assumed to hold good for women of all ages, with or without children. About 18 per cent of the sample reported having received some form of treatment for depression (treated prevalence). For nearly 6 per cent this took the form of psychotherapy, hospitalization, or ECT.

The depressed women identified in this study (Groups I and II) had a history of reports of more psychiatric symptoms and were five times more likely than the remainder (Group III) to have had formal treatment for depression (ignoring drug therapy). Two groups of currently depressed women were defined; those admitting to a past depressive episode (Group I) and those, admitting only current depression (Group II). It is unclear whether this distinction represents a true difference in chronicity, as both groups had reports of previous symptoms. This may be due, at least in part, to some ambiguity in the question relating to a past period of depression (see Table I, Q.20); namely whether the '¿2 weeks' refers to a current or past depressive episode. This questionnaire is now being completed again by the sample of women, after a 2-year interval, with the question amended to read: 'If you feel depressed at present (unhappy, bored, unable to enjoy yourself), how long have you felt this way? a. less than 2 weeks b. 2 weeks or more.' This should provide clearer information regarding duration of depressive episodes.

Previous studies have suggested a variety of social factors which may be associated with depression. We applied both univariate analyses and a multivariate modelling procedure to our data, and both indicated that two factors were associated with an increased risk of depression: (a) being relatively young (less than 21) at the birth of the first child, and (b) being separated from the child's father. We found that socio-economic status, solo parenting, number of children, employment and current age were not associated with current depression. The differences in results between this report and previous ones may be due to the kinds of methodological differences noted by Solomon and Bromet (1982), e.g. differences in the setting of the sample, in sampling procedures and in assessment of depression. However, Werry and Carlielle (1983) report results consistent with ours in a study of a different New Zealand sample, in that they found no relationship between depression and socio-economic status, age, or size of family.

The present study found a strong association between a mother's depression and her reports of behaviour problems in her child. However, the mother's behavioural reports were not confirmed by those of the teacher or the child itself, suggesting that the association is probably a result of the mother's response bias rather than a truly causal relationship. This should caution us against an exclusive reliance on a mother's report of behaviour problems in the absence of information about her mental health or independent evidence of the child's behaviour.

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