

Social Relationships During the Onset and Remission of Neurotic Symptoms A Prospective Community Study

A. S. HENDERSON and P. A. P. MORAN

Summary: In a prospective study of a community sample, we examined changes in social relationships accompanying the onset and remission of neurotic symptoms. For those who developed symptoms in the course of 12 months, no decrease was found in the availability or reported adequacy of either close or diffuse ties, compared to those who remained symptom-free. For those having a remission, an increase in the adequacy of social relationships and a decrease in rows was observed only in those who improved later on, at the 12-month interview. But with either the onset or remission of symptoms, the availability of relationships remained unchanged. These observations cannot establish the direction of causality, but suggest that neurotic symptoms are more associated with the perception of social relationships than with the structure of personal networks.

Evidence has been presented in earlier publications that, contrary to common assumptions, lack of social relationships is not a causal factor in the onset of neurotic symptoms (Henderson *et al*, 1981). Persons who subsequently develop symptoms do not differ from normals in the availability of either close or diffuse relationships, but are characterised by viewing these as less adequate for their needs, particularly in the face of adversity. Here, we consider two different hypotheses: first, that the onset of neurotic symptoms is accompanied by a drop in both the availability and reported adequacy of social relationships; and second, that remission of neurotic symptoms is accompanied by an increase in their availability and reported adequacy.

When symptoms appear, it has been unclear what changes should be expected in social relationships. The symptoms themselves, or the social behaviour associated with them, might have a repelling effect on others, or be accompanied by social withdrawal. But the symptoms might also have a care-eliciting effect, causing recruitment to the personal network. The two effects might both be present, cancelling each other out. Blazer (1983) has reported possible evidence for the care-eliciting effect in a longitudinal study of elderly persons with depression: the 24 depressed persons in his community sample of 275 were more likely to have improved their social supports when re-examined 30 months later, compared to those who were not depressed. But since depression was not

reassessed at re-examination, the improvement in social support may have followed the remission of depressive symptoms. What happens specifically to relationships remains unclear from that study.

When individuals recover from neurotic symptoms, one would intuitively expect their social relationships to improve. Such a hypothesis seems plausible, and some information is available from studies of the social effects of psychotherapy or drug treatment of depression. Weissman *et al* (1979, 1981), in comparing the effect of psychotherapy and antidepressants on depression, found that the differential effect of the former on social functioning (not symptoms) took six to eight months to develop; there was no effect after four months of treatment. The improvement in social functioning took place some months after improvement in symptoms.

Data from a prospective longitudinal study of a general population sample in Canberra have afforded an opportunity to test both of the above hypotheses. Although such data from a community are demanding and expensive to obtain, they provide information on the natural history of neurotic symptoms, unfounded by psychiatric treatment.

Method

The design of the survey has already been reported in some detail (Henderson *et al*, 1981). Following a cross-sectional examination of a larger sample drawn from the electoral register, a representative sub-

sample of 230 persons was interviewed a further three times at intervals of four months. This provided four sets of measures over a year, in Waves 1 to 4. Neurotic symptoms were assessed by the 30-item General Health Questionnaire (GHQ) (Goldberg, 1972). Specifically depressive symptoms were examined with the Zung Self-Rating Scale (Zung, 1965). Social relationships were assessed by the Interview Schedule for Social Interaction (ISSI) (Henderson *et al.*, 1980, 1981). This provides scores for an individual on the following indices: the availability of close affectional ties (AVAT); the perceived adequacy of these (ADAT per cent); the availability of more diffuse ties (AVSI); the adequacy of these (ADSI); and the number of close persons with whom there has recently been rows or unpleasantness (ATTROWN).

Becoming ill

To examine the social changes accompanying the appearance of symptoms, we consider those individuals who had a GHQ score of 5 or less at Wave 1, but a score of 6 or more at four, eight or twelve months later, in Wave 2, 3 or 4 respectively. We did not separately consider persons who had symptoms at two or more of the follow-up interviews. For depressive symptoms, we considered those who had a Zung score ≤ 34 in Wave 1, but ≥ 35 in Waves 3 or 4. (No Zung scale was used in Wave 2).

Having defined movement from being well to ill in these ways, we compared the ISSI indices for persons when they were well with when they had developed neurotic or depressive symptoms. But any change in social relationships reaching statistical significance in a paired t-test has to be compared with any simultaneous change shown by normal members of the sample; that is, persons who were well at both Wave 1 and the corresponding subsequent Wave. For this, we used a t-test to compare the mean differences in each ISSI index for those becoming ill between two time-periods with those remaining well. For example, if those becoming ill between Waves 1 and 2 showed a mean increase of 5 points in a given index, while those remaining well showed a mean increase of 8, the significance of the difference in this mean increase was assessed by a t-test. We recognise that this can only be approximate, because the distribution of all the indices is highly non-normal (Henderson *et al.*, 1981).

The remission of symptoms

Here we considered those who had a GHQ score of 6 or more at Wave 1, but who subsequently recovered to have a score of 5 or less at one of the subsequent examinations. No analysis was conducted for changes in Zung scores because the numbers showing remission were too small.

Results

Persons without symptoms at both times

Some had no symptoms at Wave 1 and, separately and independently, none at either Waves 2, 3 or 4. We refer to these as 'normals'. They showed a statistically significant increase at each subsequent wave in the adequacy of both close and diffuse relationships and a decrease in rows; but there was no significant change in the reported availability of relationships. We note this but have no satisfactory explanation.

Becoming ill

For those developing neurotic symptoms during the year, the mean GHQ scores are shown in Table I. These make it clear that the level of fresh morbidity was not trivial. Very few persons had an increase of only 1 or 2 points to take them across the arbitrary threshold. As we have reported previously, persons who will subsequently develop neurotic symptoms have less adequate close and diffuse social relationships than normals at Wave 1 (Figs 1 and 2), but here we report what subsequently happens to their social relationships. Between Wave 1 and each of the subsequent waves, in only one ISSI index was the change significantly different from the corresponding change in those remaining symptom-free. This was found only after 8 months at Wave 3, where there was an increase in the index for rows with close others (ATTROWN) (Fig 3) from a score of .21 (sd .42) to .58 (sd .84). This change was greater than in the normals, who dropped from .26 (sd .54) to .20 (sd .49). To test the significance of this, we calculated the standard errors of the difference in means at Waves 1 and 3 for individuals who became ill and for normals. Since the underlying distributions were not very normal, no attempt was made to use a Behrens-Fisher test. But a t-value of -2.349 could, in the circumstances, be reasonably regarded as suggesting a significance at least at the 5 per cent level. It is important to note that there was no statistically significant change in any of the other ISSI indices, when compared to the corresponding change in the normals; close and diffuse relationships continued with

TABLE I
Persons developing neurotic symptoms. GHQ means (and standard deviation)

| | Wave 1 | Wave 2 | Wave 3 | Wave 4 |
|--------|--------------|---------------|--------------|---------------|
| N = 12 | 1.3 (1.7) | 10.0 (3.6) | | |
| N = 19 | 1.7 (1.7) | | 9.4 (2.9) | |
| N = 12 | 1.9 (1.6) | | | 10.4 (3.3) |



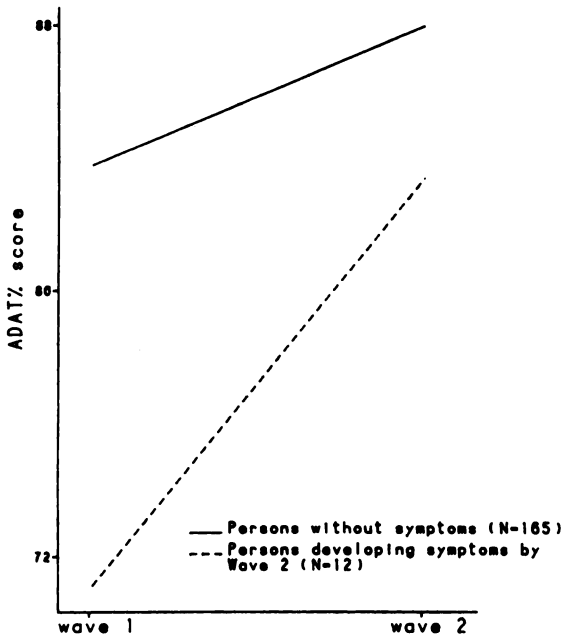


FIG 1.—Social accompaniments of developing neurotic symptoms: adequacy of attachment (ADAT per cent).

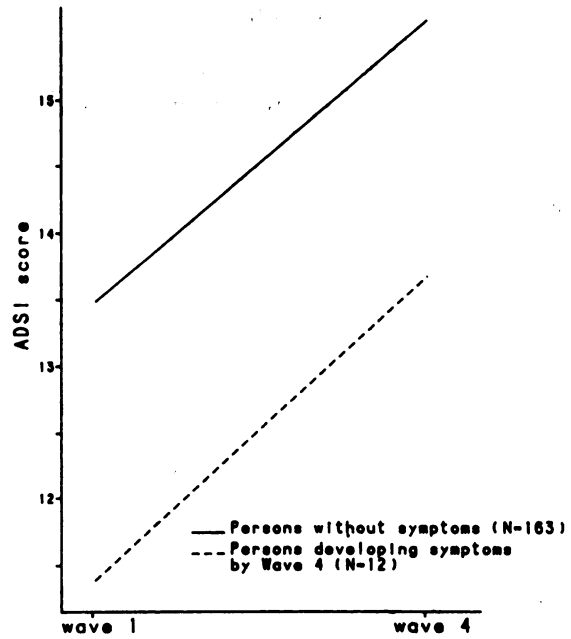


FIG 3.—Rows with close others Waves 1 to 3.

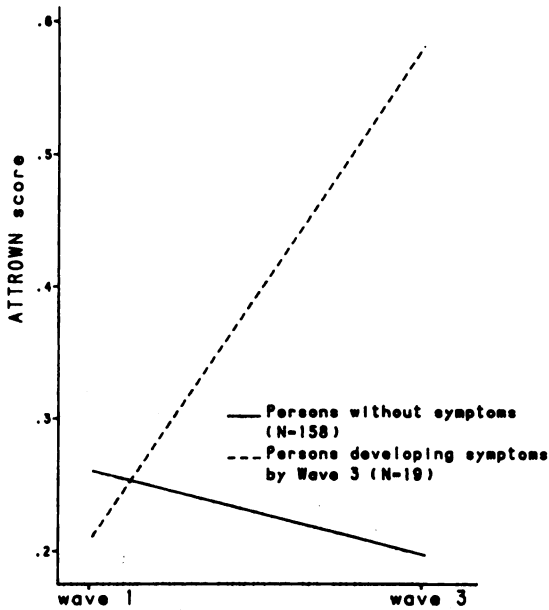


FIG 2.—Adequacy of social integration (ADSI) Waves 1 to 4.

no change throughout the year in their availability or perceived adequacy, despite the marked increase in symptoms. The increase in rows only at 8 months cannot easily be explained, except as a coincidental finding. For persons developing specifically depressive symptoms on the Zung scale by Waves 2, 3 or 4 ($n = 12, 12$ and 9 respectively), none of the ISSI indices showed a statistically significant change at any of the later waves.

The remission of symptoms

The GHQ means and standard deviations are shown in Table II for persons whose symptoms remitted by Waves 2, 3 or 4. For persons whose symptoms remitted by Waves 2 or 3, no statistically significant change was found in any of the ISSI indices. But persons whose remission came later, by Wave 4, showed an increase in the adequacy of both close and diffuse relationships (ADAT per cent and ADSI); and a decrease in rows (ATTROWN). This is shown in Figs 4 to 6. These graphs show a consistent trend: there is a shift towards perceiving social relationships as improved with each Wave, but it reaches statistical significance only at twelve months, and only for these three social indices.

Here, there is a problem in interpretation. These changes in the ISSI indices could be due to regression to the mean. It is known that an association exists between a high GHQ score and low adequacy indices or a high score for rows. In our cross-sectional study on

TABLE II
GHQ means (and standard deviations) for persons recovering from neurotic symptoms by Waves 2, 3 or 4

| | Wave 1 | Wave 2 | Wave 3 | Wave 4 |
|--------|---------------|--------------|--------------|--------------|
| N = 33 | 10.3 (3.9) | 1.2 (1.3) | | |
| N = 37 | 10.4 (3.7) | | 1.3 (1.5) | |
| N = 43 | 11.1 (4.2) | | | 1.4 (1.5) |

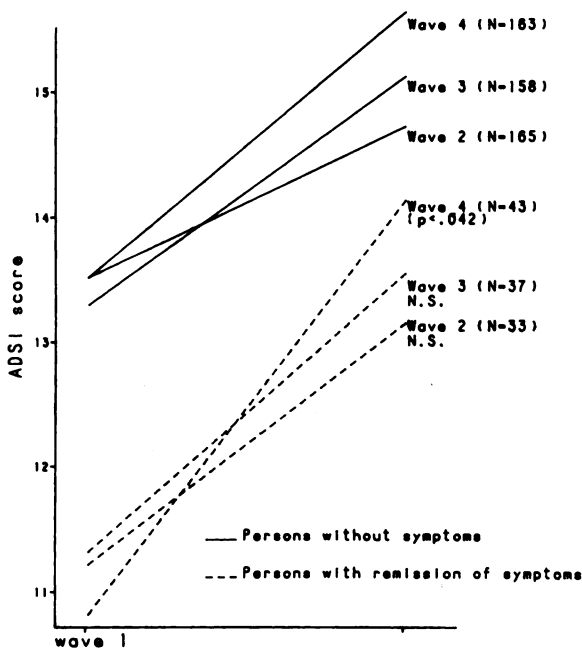


FIG 4.—Social accompaniments of remission of neurotic symptoms: adequacy of attachment (ADAT per cent).

754 persons (Henderson *et al*, 1981), the correlations were respectively $-.294$ for the adequacy of attachment, $-.280$ for the adequacy of social integration and $.314$ for rows. If one deliberately starts at Wave 1 with symptomatic persons, their adequacy and rows scores will necessarily be away from the means for these indices. Over time, the scores will tend to move back towards the mean. We must therefore ask if this alone can explain the improvement in ISSI scores for those with symptoms.

This was investigated by regressing the three Wave 4 scores on those at Wave 1, doing this first for the 43 persons whose symptoms had improved by Wave 4,

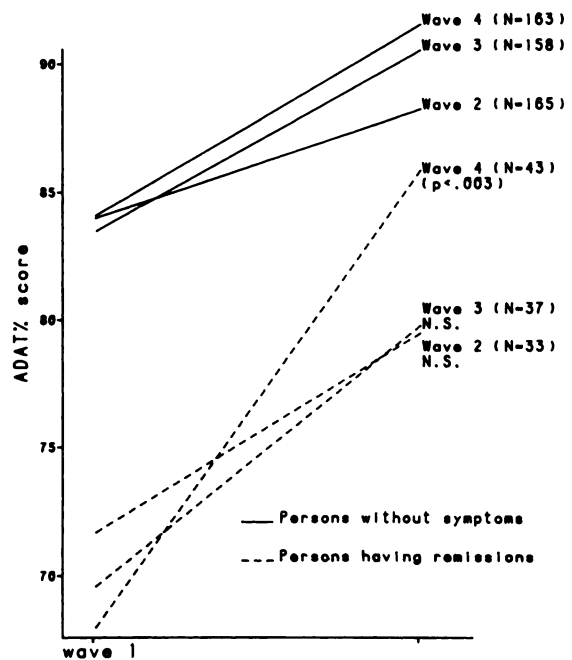


FIG 5.—Social accompaniments of remission of neurotic symptoms: adequacy of social integration (ADSI).

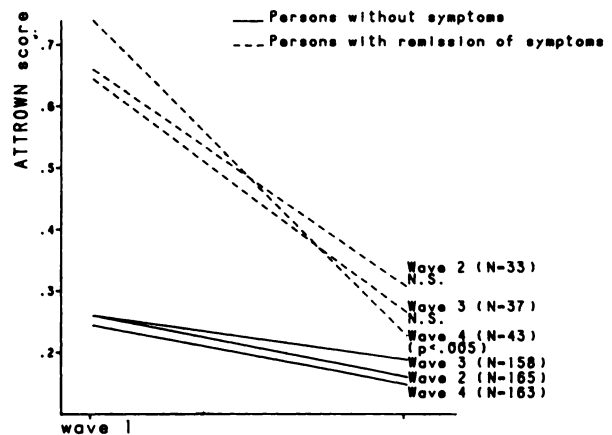


FIG 6.—Social accompaniments of remission of neurotic symptoms rows with close others (ATTROWN).

then for the rest of the sample who did not fulfill the criteria of being ill at Wave 1 but well at Wave 4 ($n = 188$). Because all the indices have highly non-normal distributions, the regressions were not carried out by the usual calculation of second-order moments. Instead, we considered firstly those 188 persons (231-43) who did *not* satisfy the criterion of being ill at Wave 1

and well at Wave 4. We then set out the joint frequency distribution for each pair of ISSI index (eg ADAT at Waves 1 and 4) and calculated the averages over the rows for the scores at Wave 4 for each value at Wave 1. Using these as weights, we then calculated the mean expected value for this index at Wave 4 for the 43 persons undergoing remission, conditional on their observed values at Wave 1. Surprisingly, the values of the predicted means were almost identical to the observed means for ADAT, ADSI and ATROWN at Wave 4. That is, if we predict, say, ADAT at Wave 4 from a knowledge of ADAT at Wave 1, the extra information that the individuals are ill or well does not have any effect on the accuracy of the prediction. The observed changes in social relationships can therefore be explained by regression to the mean rather than being due to an active process related to recovery.

Discussion

For the normal persons observed over a year, we cannot satisfactorily explain the improvement in scores in the two adequacy indices and the decrease in rows. It is unlikely that the general population is steadily improving in this way. Either the observation is an artefact from changes in response set to the ISSI interview over four administrations, in which respondents present themselves more favourably; or the research interviews themselves have some beneficial effect through the personal stocktaking they may encourage. We have found a similar improvement in the GHQ score, and are currently investigating the possible causes.

For the onset and remission of symptoms, no conclusion on the causal ordering of the changes in symptoms and social relationships can be stated from these data. With such a design, there is no way one can be certain whether it is the symptoms or the social relationships which are the first to change. There is no statistically significant difference between normals and new cases of neurosis in the observed change in the availability of relationships, either close or diffuse, and there is no change in the self-reported adequacy of these relationships. The number of new cases was necessarily modest in such a sample studied for one year. At present, we know of no other data with which to compare these findings in a population sample. They show that it may not be necessary to omit symptomatic individuals when analysing prospective data, for fear that the development of symptoms may distort reporting of the availability or adequacy of relationships. We deliberately omitted such symptomatic persons in all of our prospective analyses when looking for causal factors in the onset of neurosis (Henderson *et al*, 1981, page 139). Whilst it remains

methodologically safer to do this, the present findings indicate that it may be unnecessary. For clinical practice, the significance of the finding is that the development of neurotic symptoms is not accompanied by any major change in socialisation. The social network does not change in size or quality, at least with the untreated neurotic and affective states seen in this community sample. It is acknowledged that this finding may not apply to the more severe states of formal neurotic illness seen in clinics. That requires a separate and technically difficult study, with prospective observations before and after the onset of the illness.

For the remission of symptoms, the consistency of the pattern is impressive. There are no statistically significant differences between the social relationships of normals and of changes in those whose remission comes within eight months or less. Only those whose symptoms last longer show a significant change by twelve months; but their adequacy and row scores were more abnormal to begin with. These changes are likely to be due to regression to the mean and not to some active process associated with the remission of symptoms.

We conclude that when neurotic symptoms arise, there is no evidence that the social network is affected, but rows with close others increase. When neurotic symptoms improve, there are no statistically significant changes in social relationships at four and eight months; and the changes at 12 months can be explained as regression to the mean. This finding holds for an untreated community sample, where the severity of symptoms is likely to be less than in a clinical sample. It suggests the need for a similar study on neurotic patients to determine the part played by social relationships in the onset and remission of symptoms.

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A. S. Henderson, M.D., F.R.A.C.P., M.R.C.P., F.R.A.N.Z.C.P., M.R.C.Psych., *Director, N.H. and M.R.C. Social Psychiatry Research Unit*

P. A. P. Moran, Sc.D., F.R.S., *Professor, Department of Statistics, Institute of Advanced Studies
The Australian National University, Canberra 2600, Australia*

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