Brit. J. Psychiat. (1973), 122, 35–45

The Development of Neurosis in the Wives of Neurotic Men

Part I. Symptomatology and Personality

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Several researchers, among them Penrose (1944), Slater and Woodside (1951), Pond *et al.* (1963), Kreitman (1962, 1968) and others, have found that psychiatric disturbance occurs in both members of marital pairs more often than can be expected by chance. It appears that symptoms in the spouse are more evident when it is the husband who is the patient, and that neurosis rather than psychosis is associated with higher levels of disturbance in the spouse (Kreitman, 1962, 1964).

Two theories have been proposed to account for the effects—those of assortative mating and pathogenic interaction. The former theory asserts that there is a tendency for persons of similar constitution to marry, or, in terms of mental illness, a tendency for those constitutionally predisposed to mental illness to marry among themselves. The argument derives indirectly from investigations on normal populations which have supported the assortative mating theory by showing correlations between marital partners for such attributes as intelligence, height and other physical characteristics (Jones, 1930; Slater and Woodside, 1951; Smith, 1946). This theory has been investigated and criticized in some detail and found to be unsatisfactory, at least as regards the neuroses (Kreitman, 1964, 1968). The theory of pathogenic interaction holds that husbands and wives living together tend to influence one another, and the illness of the one may lead to the breakdown of the other. Evidence in favour of this view has been produced by Kreitman (1964, 1970), Buck and Ladd (1965) and Hare and Shaw (1965), all of whom found that with increasing duration of marriage there was increasing concordance between the partners on direct or indirect measures of psychopathology, or that the spouses showed increasing disturbance when compared with matched controls.

The postulated interactional mechanism which results in the spouse becoming ill has not yet been elucidated. Kreitman *et al.* (1970), expanding on former data, questioned whether the changes in the wife were more highly correlated with deviations in the husband's personality, his symptomatology, or his level of incapacity at the time of the assessment. Their findings suggested that the rating of incapacity was of prime importance, while the personality variables had least influence; but they indicated that further investigation was needed. The same authors (1971) pointed out that although they had succeeded in demonstrating differences between groups of married patients and controls they had not always been able to show clear correlations *within* the patient-wife groups between various features of the marriages and the wife's psychological symptoms. Also the kinds and levels of vulnerability in the wives had not yet been studied nor was it yet possible to say which of the various deviations in the patients' marriages were of greatest relevance to the wives' psychological health.

Aims of the Study

In the present study it is intended to look at certain correlations in the total group and then to focus on differential features of the sick wives, in order:

I. To determine if specific symptoms present in a husband who is suffering from a neurotic illness produce specific symptoms in his wife. If the interaction theory is correct and symptoms in the wives result from living with a neurotic husband, two mechanisms may be considered:

(a) that the wife learns or imitates her husband's symptoms, by modelling herself upon

him. In this case a significant association between specific symptoms in husband-wife pairs would be expected.

(b) that the wife reacts to a stress situation in the form of a non-specific stimulus-response reaction, in which case no significant association of specific symptoms in the pairs would be expected.

II. To repeat and extend some of the observations made by Kreitman *et al.* (1971) to define more closely which variables are important in differentiating illness among the wives *within* the patient-spouse group. The variables to be considered are:

(1) the severity of the husband's illness;

(2) vulnerability in the wives shown by previous psychological illness before marriage and exposure to nervous illness during childhood;

(3) duration of marriage and of neurosis in the husband;

(4) personality factors in the husbands and wives;

(5) marital tension;

(6) marital role patterns.

The first four variables are the subject of the present paper.

Method

1. *Definition of cases*

The definition of neurosis was in accordance with the International Classification of Diseases (psychoneurotic diseases 300–300·9). In this respect the present study differs from that of Kreitman *et al.* (1970) which took a broader definition of neurosis and included character disorders, alcoholics and psychopaths. In addition to the diagnosis of neurosis, other selection criteria included only referred male patients cohabiting with their wives, aged 60 years or less at the time of the interview, who were attending either for the first time or after an interval of at least one year and who had not had in-patient treatment in the past year. These additional criteria were used to avoid as far as possible recent psychiatric treatment which might have altered the character of the illness and the marital situation. Referrals for marital problems were excluded unless the husband manifested clear psychiatric symptoms.

2. *Sampling procedure*

The cases were obtained from the out-patient clinics of the Royal Edinburgh Hospital, which draws patients from Edinburgh and the surrounding areas. All cases meeting the criteria during the period December 1969 to July 1970 were included. Ascertainment that the patient fitted the definition of neurosis was made after consultation with the psychiatrist in charge of the patient, perusal of the case notes and psychiatric examination with the neurotic section of the Wing Present State Examination (8th edition). Fifty couples were approached, and forty (80 per cent) completed the interviews. As far as could be ascertained from perusal of the case notes, there was no evidence to suggest that the marriage or the husband's illness in those ten marriages where co-operation was not forthcoming differed from those of the 40 couples who co-operated, and therefore no reason to suppose that their omission biased the sample. The average time which elapsed between the patient's first attendance at the out-patient clinic and his interview was approximately four weeks.

The majority of the pairs lived in Edinburgh City. Fifty per cent came from social class III, 25 per cent from social classes I and II, and 25 per cent from IV and V. These were evenly distributed over the age groups 20 to 59, the mean age of the wives being 28·2.

3. *Interview procedure*

The husbands and wives were interviewed separately, the husband being interviewed first. The interview was carried out on the same day so as to avoid possible discussion between the partners. The interview consisted of the Wing Present State Examination (8th edition, neurotic section), a constructed interview schedule, and psychological tests.

Psychological Tests

The tests used for all subjects were: (1) the Cornell Medical Index; (2) Cattell's 16 Personality Factor Questionnaire (16PF); (3) The Hostility and Direction of Hostility Questionnaire (HDHQ). A modified version of the Wing Present State Examination was also used.

The Cornell Medical Index

This has been widely used as a screening test for the incidence of psychiatric illness and is a checklist of 185 symptoms covering many areas of physical function represented by A to L and mental function represented by M to R. Culpan, Davies and Oppenheim (1960) found it to be a good discriminator between normals and neurotics. Experience has shown that patients with AR scores of 30 or more are nearly always neurotic, and patients with scores between 16 to 30 often are (Hamilton, Pond and Ryle, 1962).

The Cattell 16 Personality Factor Questionnaire

This test aims to give a wide coverage of personality traits, and is composed of sixteen first-order factors, four second-order factors and a number of criterion measures including one of neuroticism.

The first-order factors, four second-order factors and the neuroticism scale (calculated from given formulae) were used in this study. The handbook gives an account of the design and rationale of the 16PF (Cattell and Eber, 1965).

The Hostility and Direction of Hostility Questionnaire (HDHQ)

This is designed to measure a wide range of possible manifestations of aggression, hostility or punitiveness. The development of the questionnaire has been described in detail by Foulds (1965).

The Wing Present State Examination, 8th Edition, Neurotic Section

Account of the PSE is given by Wing (1970). This schedule covers symptoms present over the past month prior to interview. The neurotic section is composed of the following areas. The numberings of the areas do not correspond to those on the Wing Schedule. Each symptom item can be rated on a three point scale—0, 1 or 2.

Area. (1) Physical health—muscular and nervous tension and worry (symptom items 1–10); (2) Anxiety, subjective and autonomic accompaniments (11–18); (3) Thinking and concentration (19–22); (4) Depressed mood (23–27); (5) Self and others (28–33); (6) Appetite, sleep, retardation, libido (34–39); (7) Irritability (40).

Since possible scorings on certain sections—expansive mood and ideation, obsessional symptoms, derealization and depersonalization, other perceptual disorders and sensorium—were found to be rare, these areas were subsequently omitted. Area 1, symptoms 1–10, was divided into four parts: (a) subjective evaluation of physical illness—1; (b) presence of physical illness—2; (c) worry—3, 4, 9; (d) nervous muscle tension—5, 6, 7, 8, 10. Thus ten areas in all were analysed.

Scoring. The symptom cluster score *for each section* was obtained by adding the respective symptom ratings. To obtain a total symptom score a cut-off point was taken in each section, a score of 2 or more being designated 'plus'. The total score was obtained by summing the pluses.

Although a positive correlation of about 0·5 was found between the symptoms measured on the CMI and the Wing PSE, this was not considered to be of sufficient degree to make them synonymous.

Results

I. *Assessment of symptomatology in the husband-wife pairs*

In order to investigate the first aim of the study, namely to discover if specific symptoms present in a husband suffering from neurotic illness produced specific symptoms in his wife, it was necessary to determine:

(1) The probability of association in husband/wife pairs of a particular symptom being present in the wife when the same or other symptom was present or absent in the husband.

Using the cut-off point of a symptom score of 2 or more, each husband and each wife was classified as positive or negative on the 10 areas of the modified Wing schedule. A contingency table was then constructed for each symptom in the husband against the same and each other symptom in the wife. This resulted in 100 tables. In only two instances were particular symptoms in the husband/wife pairs significantly associated (as determined by χ^2 or Fisher's exact probability test).* However, in a series of 100 tables these results could occur by chance and a negative conclusion is drawn. In part, this may be due to the fact that the cut-off point scores were not sufficiently discriminative.

(2) The degree of association or correlation between husband/wife pairs for each of the symptom cluster scores of the Wing PSE.

This was computed using the Kendall Rank Correlation Coefficient Tau, and significant correlations were found on muscle and nervous tension ($p < 0{\cdot}01$) and irritability ($p < 0{\cdot}01$) (Table I).

In this particular sample the findings do not support the general hypothesis that the specific symptoms develop in the wives as a result of a modelling process. An important exception is muscle and nervous tension and irritability, on which the husband/wife pairs significantly correlated.

* Feelings of physical ill health were more frequently present in the wife when the same symptom was present in the husband ($p < 0.01$) than when it was not. The wife's concentration was more likely to be impaired when the husband showed somatic symptoms, that is, impaired sleep, appetite, etc., than when he did not suffer these symptoms ($p < 0.05$).

https://doi.org/10.1192/bjp.122.1.35 Published online by Cambridge University Press

TABLE I

Husband and wife correlations on Symptom Clusters Wing Scale

Kendall Rank Correlations Coefficient Tau)

Symptom cluster	Z	Probability (2 tailed test) is significant
Subjective evaluation physical illness	1·11	
Presence of physical illness ..	0·53	
Worry	1·42	
Nervous tension	2·70	p 0·0070
Anxiety	0·54	
Thinking and concentration	0·72	
Depressed mood	0·93	
Self and others	0·68	
Somatic (appetite, sleep) ..	0·99	
Irritability	2·93	p 0·0034

II. *Factors differentiaing illness within the patient-spouse pairs*

The second part of the study was concerned with defining more closely which variables are important in differentiating illness among the wives.

In order to examine further the disturbance in the wives they were divided according to their scores on the CMI. Wives who scored either 20 or more on the total CMI and/or 10 or more on the M-R section were classified as 'ill' and the remainder as 'well'. This division resulted in 21 'ill' and 19 'well' wives.

TABLE II

Severity of symptomatology in the wives on total CMI, M-R, and Wing

	Ill wives (N = 21)		Well wives (N = 19)		t	Significance of difference *p*
	Mean	S.D.	Mean	S.D.		
Total CMI score	34·90	12·53	13·15	4·27	7·19	<0·001
M-R score	13·38	7·52	2·05	1·84	6·38	<0·001
Wing score	5·19	2·22	3·05	2·16	3·08	<0·01

Table II shows that the 'ill' wives as a group were well within the criteria found on the CMI to differentiate normals and neurotics, and demonstrates that the 'ill' group carried a high burden of morbidity.

In an attempt to discover which factors were relevant in contributing to the higher level of disturbance in the 'ill' wives, the following were considered:

(1) *Severity of the husband's symptoms*

Dividing the husbands' scores in accordance with the classification of their wives as 'ill' or 'well' showed that the husbands of the two groups of wives did not differ significantly in the severity of their symptoms.

TABLE III

Husbands' symptomatology scores on CMI, M-R, and Wing (husband group divided according to wives symptom scores on CMI)

	Husbands of ill wives (N = 21)		Husbands of well wives (N = 19)		t	Significance of difference
	Mean	S.D.	Mean	S.D.		
Total CMI score	43·85	20·79	34·36	14·14	1·66	n.s.
M-R score	16·76	9·40	12·10	6·55	1·80	n.s.
Wing score	6·33	1·73	6·05	1·61	0·53	n.s.

On none of the measures did the overall scores of the wives correlate significantly with overall scores of the husbands (though all the correlations were positive).

Thus the severity of symptoms as measured on the Wing PSE and CMI did not appear to be a factor differentiating the 'ill' from the 'well' wives.

(2) *Vulnerability in the wives*

This was investigated by (a) previous psychological illness, before marriage; (b) exposure to nervous illness during childhood.

(a) *Previous psychological illness before marriage.* Information was asked concerning the first nervous breakdown and whether it had occurred before or after marriage. Breakdown consisted of either psychiatric treatment or treatment from their general practitioner for a recognized nervous illness. More 'ill' than 'well' wives had suffered a breakdown at some time in their lives ($p < 0·05$—Table IV).

There was no significant difference in the number of 'ill' and 'well' wives breaking down

https://doi.org/10.1192/bjp.122.1.35 Published online by Cambridge University Press

TABLE IV

Psychological breakdown in the wives in relation to marriage

	Ill wives	Well wives	Total
Previous psychological breakdown:			
Before marriage	3	2	5
After marriage	9	3	12
No previous psychological breakdown	9	14	23
Total	21	19	40

χ^2 (difference between the wives previous breakdown/no previous breakdown) = 3·99 df = 1 $p < 0{\cdot}05$.

Fisher's Exact Probability Test (difference between the wives onset before and after marriage) not significant.

before marriage. The symptom scores in those 5 wives who broke down before marriage revealed that only 2, both 'ill' wives, showed scores in excess of the whole group. Duration of neurosis and marriage in these 5 were distributed evenly throughout, and it was considered their removal would not in any way have altered the general findings. In those 12 wives whose first breakdown occurred after marriage the mean onset after marriage was 7·8 years, and it is suggested that the marriage was probably instrumental in bringing about their breakdown.

(b) *Exposure to nervous illness during childhood.* Eleven (27·5 per cent) of the wives had been exposed to nervous illness in a nuclear family member during their childhood. There was no significant difference between the two groups of wives, although more of the 'ill' wives (8) than the 'well' wives (3) had such a family member. The mean total CMI score of the wives exposed to nervous illness in childhood (24·18) did not differ from the mean of the rest of the group (24·72). Thus there was no reason to suppose that childhood exposure predisposed to higher CMI scores.

(3) *Duration of marriage and neurosis in the husband*

(a) *Duration of marriage.* The mean duration of marriage in the 'ill' and 'well' wives were 14·23 and 17·15 years respectively, there being no significant difference between them. Duration of marriage effects were investigated by dividing the whole sample into those who had been married for 0 to 15 years and those married for 16 years and over. Attempts at finer subdivisions yielded subgroups too small for conclusions to be drawn. Correlation of the husband/wife scores in the two subgroups revealed a higher correlation in the longer married couples on all measures, but on none did either the correlation or the difference between them reach significance.

(b) *Duration of neurosis in the husbands.* An attempt was made to estimate the duration of neurosis by ascertaining the time of the first medical consultation and treatment, whether symptoms had persisted since then in greater or lesser degree and whether there had been periods of freedom from symptoms. When questioning about the symptoms the husband's present symptoms were used as a discussion point. Where the first breakdown had occurred before marriage and the symptoms persisted, duration of neurosis was equated with duration of marriage. In instances where breakdowns had been followed by periods of freedom from symptoms, the duration of neurosis was taken from the time of the current illness. This proved to be a difficult exercise, and as retrospective data has to be treated with caution it is probable that the duration of neurosis was an underestimate in some instances.

The mean durations of neurosis in the husbands of the 'ill' and 'well' wives were 8·20 years and 7·52 years respectively, there being no significant difference between them. The sample was divided into two subgroups according to the duration of the husband's neurosis, short, 0–5 years, and long, 6+ years. Correlation of husband/wife scores in the two subgroups showed no higher correlation in respect of the total CMI and M-R scores in relation to long duration of neurosis, and although a higher correlation was obtained in respect of the Wing this was not significant.

(4) *The combined effect of severity of husband's symptoms and duration of marriage and neurosis in the husbands*

Although neither duration of marriage, duration of husband's neurosis or the severity

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of his symptoms had been found separately to relate to the wife's symptoms it was conceivable that together they might exert an accumulative effect. However, further testing failed to produce acceptable evidence for such an effect.

(5) *Personality factors*

These were assessed using the 16PF and HDHQ questionnaire.

The husbands' profiles. Table A in the Appendix shows that the husbands of the 'ill' wives are emotionally unstable (C−), sensitive (H−), apprehensive (O+), self-sufficient (Q2+) and tense (Q4+). The husbands of the 'well' wives differ from the average only on conservatism (Q1−) and self-sufficiency (Q2+).

However, the two groups of husbands differ significantly on three factors, the husbands of the 'ill' wives being more expedient (G−) ($p < 0{\cdot}02$), more dependent (I+) ($p < 0{\cdot}01$) and more irresponsible in practical matters (M+) ($p < 0{\cdot}05$).

These differences are summarized on the second-order factors, the husbands of the 'ill' wives being significantly more troubled by pervasive emotionality, as shown by their low scores on the tough poise factor ($p < 0{\cdot}01$), and significantly more anxious ($p < 0{\cdot}05$) than the husbands of the 'well' wives. Both groups of husbands are introverted and neurotic, and do not differ in these respects.

The wives' profiles. From Table B in the Appendix, the 'ill' wives show an essentially normal personality profile apart from Q2+ (self-sufficiency), while the 'well' wives tend towards serenity (O−), composure (Q4−) and self-sufficiency (Q2+). They differ from the 'ill' wives in being more adaptable (L−) ($p < 0{\cdot}05$) as well as confident (O−) ($p < 0{\cdot}02$) and relaxed (Q4−) ($p < 0{\cdot}05$).

The second-order factors essentially reflect the normality of the 'ill' wives, apart from marginal anxiety, and the 'super-stable' character of the 'well' wives, who fall below average on anxiety and neuroticism. Both groups of wives are introverted.

Hostility and direction of hostility

Husbands: Both groups of husbands score above average on general hostility, extrapunitiveness and intropunitiveness, but there is no significant difference between the two groups on any of the hostility measures.

Wives: The 'ill' wives show very little deviation from average and can be considered to be within the normal range, while the 'well' wives are below average in general hostility, extrapunitiveness and intropunitiveness, differing significantly from the 'ill' wives in each of the hostility measures. This again reflects the 'super-stability' of the 'well' wives.

Physical aggression in the husbands

Discreet questioning of the wives revealed that significantly more of the 'ill' wives (9) had suffered physical aggression at the hands of their husbands than the 'well' wives (2) ($\chi^2 = 5{\cdot}229$, $p < 0{\cdot}025$).

The relationship of neuroticism in the husbands to the wives' symptomatology

The husbands' neuroticism scores were divided into two groups using a cut-off point of 7·6 (Kear-Colwell, 1965), and the wives' symptomatology scores were divided according to the husbands' neuroticism scores. The mean scores of the wives on the total CMI, M-R and modified Wing PSE scale were calculated for each of the sub-groups. There was a significant difference on the total CMI ($p < 0{\cdot}01$) and the M-R ($p < 0{\cdot}05$), but not on the Wing PSE. These results indicate that symptomatology in the wife is related to the degree of neuroticism in the husband as measured on the 16PF.

TABLE V

Wives mean CMI, M-R and Wing scores in relation to severity of husbands' neuroticism factor 16PF

Wives' score	Husbands' neuroticism factor 7·5− (N = 19)		Husbands' neuroticism factor 7·6+ (N = 20)		t	Value of *p* if significant
	Mean	S.D.	Mean	S.D.		
Total CMI	19·25	9·49	30·89	16·31	2·70	<0·01
M-R	4·95	4·78	10·32	9·08	2·29	<0·05
Wing	3·85	2·62	4·68	2·03	1·11	

https://doi.org/10.1192/bjp.122.1.35 Published online by Cambridge University Press

The relationship of neuroticism and other second-order factor findings to:

1. *Duration of marriage.* In those pairs married for less than 15 years, husband/wife correlations were significant only on anxiety ($p < 0.02$). However, there were significant correlations in those married for 16 years and over on tough poise ($p < 0.05$) and neuroticism ($p < 0.05$).*

TABLE VI

Husband-wife correlates, 2-order factors on dimension of neuroticism, 16PF and duration of marriage and duration of neurosis

Husband-wife correlates 2nd order factors	Duration of marriage		Duration of neurosis	
	0–15 yrs N = 20 pairs	16+ yrs N = 19 pairs	0–5 yrs N = 19 pairs	6+ yrs N = 20 pairs
Anxiety	0·52***	0·36	0·38	0·52***
Extraversion/ introversion	0·25	0·26	0·26	0·24
Tough poise..	0·40	0·46*	0·12	0·58**
Independence/ dependence	0·43	−0·23	0·56***	−0·25
Neuroticism	0·14	0·49*	−0·05	0·50*

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.02$.

2. *Duration of neurosis.* Where the husband's neurosis had lasted for five years or less, husband/wife correlations reached significance only on the independence/dependence factor ($p < 0.02$). Investigations in normal couples have shown there is a tendency for the pair to be more dependent in the early years of marriage and thereafter to develop along relatively independent lines (Kelly, 1955; Slater and Woodside, 1951). Where the neurosis had lasted for six years or longer, husband/wife correlations reached significance on anxiety ($p < 0.02$), tough poise ($p < 0.01$) and neuroticism ($p < 0.05$)†. Thus, of the five measures used three show higher correlations in the longer duration group and a fourth no change, while only one shows a fall.

These findings suggest that neuroticism in the wives may be more closely allied to duration of illness in the husbands than to duration of marriage. It seems that with increasing exposure to the husband's illness there is a tendency for the wives to become more emotionally unstable.

DISCUSSION

In this study, the use of single interviews with both partners might have led to a halo effect, but in fact few positive correlations were found and the matter is not relevant. Kreitman *et al.* (1970) drew attention to the possibility of an interpersonal modelling process—described by Bandura and Walters (1963)—as one of the mechanisms underlying the symptoms in the patient's wife. In this study, it was hypothesized that if this were so and the wife developed her symptoms by learning or imitating those of her husband, a significant association between specific symptoms in the husband/wife pairs would be expected. In this sample, the results did not support the general hypothesis, an important exception being irritability and nervous muscle tension, on which the husband/wife pairs did correlate significantly. It seems possible that here the wife may be reacting to a stress situation in the form of a non-specific reaction.

Dividing the wives according to their CMI scores revealed that approximately half (53 per cent) of the sample were 'ill' and the remainder 'well'. This is of the same order of magnitude as in other studies (Kreitman *et al.*, 1970). The wives could not be differentiated on the basis of inherent vulnerability, as shown by psychological breakdown before marriage, or childhood exposure to nervous illness in the nuclear family, important factors in favour of the interaction and against the assortative mating hypothesis. Neither could they be distinguished on the grounds of severity of illness in the husbands, as in both groups the husbands exhibited equally severe symptoms. With increasing duration of marriage or increasing exposure to their husband's neurosis the wives did not show progressively increasing symptom scores on any of the measures. The combination of duration of

* The 'ill' wives were distributed about equally between the two sub-groups—11 (52.4 per cent) and 10 (47.0 per cent) respectively as were the 'well' wives—10 (52.6 per cent) and 9 (47.4 per cent).

† It is of note that 13 (62 per cent) of the 'ill' wives were in the six years and over neurosis group, compared with 7 (36 per cent) of the 'well' wives, although this difference did not reach significance.

https://doi.org/10.1192/bjp.122.1.35 Published online by Cambridge University Press

marriage or duration of neurosis in the husband and the severity of his symptoms exerted no cumulative effect.

Consideration of the profiles of the husbands of the 'ill' wives on the primary-order factors reveal that they have several of the characteristics of the neurotic profile described by Cattell and Eber (1965), namely, C−, H−, O+ and Q4+. Moreover, they differ significantly from the husbands of the 'well' wives on G− (expendiency), I+ (dependency) and M+ (carelessness in practical matters). These factors are essentially basic personality traits which together give a picture of a group who show poor regard for moral standards. They are undependable, labile, emotionally irresponsible, especially in practical matters, with a tendency to dramatize events. Periods of irresponsibility alternate with childish dependent behaviour and inability to exercise self control. Further evidence of their poor control has been shown in the greater tendency for this group to show physical aggression to their wives compared with the husbands of the 'well' wives. The traits C− and H− show a tendency to be dissatisfied with life, to be easily frustrated and changeable in their attitudes, together with feelings of shyness, inferiority and a dislike of personal contact. Traits O+ and Q4+, which are exaggerated by illness, in combination indicate that they are anxious, tense, given to periods of moodiness and irritability, to worry irrationally and suffer from feelings of worthlessness. Factor Q2, on which they are high, together with H− and G−, point to their antisocial tendencies. These traits become evident in their active confinement of their wives' leisure activity which will be discussed more fully in a later paper. The husbands of the 'well' wives show few neurotic traits. They incline towards conservatism and temperamental tolerance (Q1 −), a trait which has been noticed to run low in neurotics by Cattell (1965). In common with the husbands of the 'ill' wives, they are high in Q2, indicating that they too tend to be self-sufficient and aloof, but in the absence of H− and G− are less anti-social. The second-order factors summarize the greater anxiety and higher emotionality of the husbands of the 'ill' wives compared with those of the 'well' wives.

The results have shown that, although both groups of husbands were neurotic, the level of neuroticism in the husbands, as measured on the neuroticism factor of the 16PF, was the important factor in determining the level of symptomatology in the wives. It is concluded, therefore, that the husband's personality is more important than this symptomatology in producing illness in his wife.

The personality profiles of the 'ill' wives show that they are essentially normal while those of the 'well' wives are exceptionally stable, differing particularly from the 'ill' wives on L−, O− and Q4−. Although O and Q4 are subject to change by illness, the 'ill' wives are within the normal range on these factors, while the 'well' wives score below normal, i.e. these traits reveal them as tough, placid, cheerful, confident and resilient, generally tolerant, adaptable and trusting. The normality of the 'ill' wives and the excessive stability of the 'well' wives is further summarized in their second-order factors and on the HDHQ where they are particularly low in hostility on all three measures.

In all probability these qualities of stability enable them to withstand their husbands' illness with equanimity. However, as already discussed, their husbands' personality profiles show lesser degrees of emotionality and neurotic deviance than those of the 'ill' wives. In the light of the findings that the severity of the husbands' symptoms did not differentiate the two groups of wives, it seems likely that a wife can tolerate her husband's symptoms but that the behaviour deviance resulting from a certain level of neurotic personality disturbance is another matter, unless she is endowed with qualities of excessive stability. Nevertheless, there are indications from the data presented that with increasing duration of marriage and increasing exposure to their husbands' neurosis there is a tendency for wives to become increasingly emotional and neurotic. There is also a suggestion that increasing exposure to the husbands' neurosis might be more important than duration of marriage.

In conclusion, those variables which differentiated the patient-spouse group from controls in other studies did not distinguish 'illness' within the patient-spouse group in this study. It

is conceivable that the method of sampling may be important, and that different effects may be produced by the inclusion of personality disorders, e.g. psychopaths, as in the study by Kreitman *et al.* (1970). Further research is required to elucidate this point.

Factors in favour of the interaction rather than the assortative mating hypothesis were found in relation to increasing concordance between the husband-wife pairs on neuroticism with increasing exposure to the husbands' neurosis and duration of marriage, and also by failure to differentiate 'illness' in the wives on the basis of inherent vulnerability before marriage.

The interactional mechanism which results in the wife becoming ill still remains unknown, but in the light of the present findings it seems possible that the husband's neurotic personality deviance creates a situation of marital tension which fluctuates with exacerbations of his illness at which times his behavioural traits will be accentuated. In this situation his wife will tend to react with symptoms of irritability and nervous tension, the degree depending upon the tension level in the marriage and her personality stability, particularly her qualities of tolerance and adaptability. Possibly stable wives will be able to handle the situation in ways which minimize conflict. It has been show that qualities of 'super-stability' are needed to maintain psychological well-being.

Summary

1. A group of 40 male psychoneurotics and their wives were examined. It was hypothesized that if the interaction theory is correct and symptoms in the wives result from living with a neurotic husband two possible mechanisms may be considered: (1) that the wife imitates her husband's symptoms by modelling herself upon him, whereupon a significant association between specific symptoms in the husband/wife pairs would be expected; (2) that the wife reacts to a stress situation in the form of a non-specific reaction, whereupon no significant association of specific symptoms in the pairs would be expected. The Wing PSE was used to assess symptomatology. In this particular sample the findings did not support the general hypothesis that the specific symptoms develop in the wives as a result of a modelling process; an important exception was irritability and nervous muscle tension, on which the husband/wife pairs significantly correlated ($p < 0{\cdot}01$).

2. Dividing the wives at a CMI score of 20 total CMI and/or 10 on the M-R section revealed that there were 21 (52·5 per cent) 'ill' wives and 19 (47·5 per cent) 'well' wives. Neither exposure to nervous illness during childhood nor previous psychological illness prior to marriage differentiated the 'ill' from the 'well' wives. Illness in the wives was not related to either duration of marriage, duration of the husbands' neurosis, or the severity of the husbands' symptoms. The combination of duration of marriage or duration of neurosis in the husband and the severity of his symptoms exerted no cumulative effect.

3. Although both groups of husbands showed neurotic personality profiles on the 16PF, the husbands of the 'ill' wives were significantly more expedient, dependent and emotionally irresponsible, in addition to being more physically aggressive to their wives. On the HDHQ, their scores did not differ significantly.

4. The degree of the husbands' neuroticism was found to be an important factor in determining the level of symptomatology in the wives.

5. The personality profiles of the 'ill' wives were essentially normal, while those of the 'well' wives showed above average stability.

6. With increasing duration of marriage and increasing duration of neurosis in the husbands, the husband/wife pairs correlated significantly on tough poise and neuroticism. These findings are in accord with the interaction hypothesis.

7. It is concluded that the severity of the husband's neurotic personality deviance and the stability of the wife's personality are important factors differentiating the 'ill' and 'well' wives. Those variables, particularly duration of marriage, which had differentiated the patient-spouse group from controls in other studies did not distinguish 'illness' *within* the patient-spouse groups in this sample.

Acknowledgements

I wish to express my sincere thanks to the medical and secretarial staff at the Royal Edinburgh and Craig House Hospitals for their helpful co-operation during the

collection of the case material, and also to the staff of the M.R.C. Unit for their constructive criticism. Special thanks are due to Dr. N. Kreitman for his interest and invaluable assistance throughout the study; to Dr. A. E. Philip for his guidance with the psychological material and to Pat Dugard for her statistical advice.

APPENDIX

TABLE A

Scores of husbands on 16PF and HDHQ

	Husbands of ill wives (N = 21)		Husbands of well wives (N = 18)*		t	Value of p if significant
	Mean	S.D.	Mean	S.D.		
First order factors A	5·90	1·26	5·16	2·21	1·30	
B	7·00	1·65	7·70	1·81	1·26	
C	4·38	2·01	4·94	1·61	0·95	
E	4·76	1·71	5·27	1·69	0·93	
F	4·47	1·46	4·50	1·64	0·06	
G	4·57	1·96	6·05	1·64	2·53	<0·02
H	4·19	1·67	4·50	1·83	0·55	
I	6·14	0·99	5·27	0·98	2·75	<0·01
L	5·90	1·84	5·16	2·00	1·20	
M	6·52	1·46	5·50	1·64	2·05	<0·05
N	4·71	2·07	5·33	2·10	0·93	
O	7·23	1·82	6·22	1·95	1·67	
Q1	5·19	1·78	4·38	1·70	1·45	
Q2	7·52	1·43	6·90	2·52	0·96	
Q3	4·90	2·23	6·00	2·17	1·55	
Q4	7·42	1·76	6·44	1·95	1·65	
Second order factors and neuroticism dimension						
Anxiety	7·47	1·94	6·11	1·96	2·17	<0·05
Introversion/ extraversion	3·52	1·43	3·83	2·00	0·56	
Tough poise	4·00	1·19	5·50	1·67	3·26	<0·01
Dependence/ independence	5·95	1·21	5·55	1·77	0·83	
Neuroticism	7·23	1·71	6·50	1·46	1·42	
HDHQ						
Total hostility	7·61	1·78	7·21	1·76	0·70	n.s.
Extrapunitiveness (sum E)	7·09	1·74	6·63	1·69	0·84	n.s.
Intrapunitiveness (sum I)	7·09	1·97	6·26	2·22	1·24	n.s.

* One husband failed to complete the 16PF.

APPENDIX

TABLE B

Scores of wives on 16PF and HDHQ

	Ill wives (N = 21)		Well wives (N = 19)		t	Value of p if significant
	Mean	S.D.	Mean	S.D.		
First order factors A	5·47	1·40	5·10	1·97	0·69	
B	7·23	1·47	7·26	1·91	−0·05	
C	4·60	1·75	5·47	1·42	−1·71	
E	5·04	1·36	4·90	1·53	0·30	
F	4·57	2·19	4·70	2·69	−0·17	
G	4·61	2·21	5·26	2·26	0·92	
H	4·57	1·36	5·00	1·62	−0·91	
I	5·57	1·84	5·15	1·63	0·76	
L	6·00	1·82	4·63	2·22	2·14	<0·05
M	5·66	1·52	5·89	1·48	−0·48	
N	5·95	2·21	6·00	1·68	−0·08	
O	6·04	2·01	4·47	1·69	2·66	<0·02
Q1	5·61	1·32	5·70	1·61	−0·19	
Q2	6·90	1·44	7·15	1·49	−0·54	
Q3	5·38	1·91	6·15	2·27	−1·16	
Q4	5·38	1·36	4·05	2·27	2·27	<0·05
Second order factors and neuroticism dimension						
Anxiety	5·95	1·75	4·42	1·49	2·96	<0·01
Introversion/ extraversion	3·80	1·25	4·05	2·25	−0·44	
Tough poise	5·00	1·60	5·52	1·35	−1·10	
Dependence/ independende	5·90	1·15	6·00	1·55	−0·23	
Neuroticism dimension	6·04	1·70	4·95	1·46	2·16	<0·05
HDHQ						
Total hostility	5·57	1·70	3·68	1·52	3·69	<0·001
Extrapunitiveness (sum E)	5·85	1·67	4·57	1·60	2·47	<0·02
Intrapunitiveness (sum I)	4·95	1·96	3·15	1·59	3·17	<0·01

https://doi.org/10.1192/bjp.122.1.35 Published online by Cambridge University Press

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A synopsis of this paper was published in the August, 1972 *Journal*.

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(Received 1 October 1971)