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Neurosis and Marital Interaction: I. Personality and Symptoms

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This paper is the first in a series reporting a study of the effects of neurosis on the patient's marriage and marital partner, in which we repeated and extended observations made in a previous inquiry (Kreitman, 1964) and tested certain hypotheses arising from these data.

Studies variously based on psychiatric in-patients (Penrose, 1944, Slater *et al.*, 1951, Gregory, 1959), out-patient referrals (Kreitman, 1962, 1964, Nielsen, 1964) and general practice (Pond *et al.*, 1963) have all demonstrated that psychiatric disturbance occurs in both members of marital pairs substantially more often than would be expected by chance. The question of interest is how this concordance comes about. Of the different theories proposed, the two most convincing are that of assortative mating and that of pathogenic interaction. It was found in our previous study, in which only psychometric indices of personality and health were used, that for patients and their spouses there was no evidence in favour of the assortative mating theory, since patient-spouse correlations in the early years of marriage were approximately zero. Moreover the patients' spouses were indistinguishable from control subjects as regards their average amount of 'pathology' in the early years of marriage, but showed an increasing level of disturbance as the duration of marriage increased; further, patient-spouse couples showed a rising correlation between the partners, while control couples showed a declining correlation. These results were interpreted as consistent with the interactional view. Our first aim in the present inquiry was to ascertain if these effects were present in a larger and more homogeneous sample and could be shown by clinical as well as psychometric assessments of disability. This is the section of the investigation that will be presented here, together with a general account of the methods used.

We had some evidence from the earlier study that 'spouse effects' were more clearly seen when the patient was the husband, and that neurosis rather than psychosis was associated with higher levels of disturbance in the spouse. Accordingly, all the patients in the present series are males with neurosis, including character disorders, as detailed below. Fuller statements of the hypotheses, the assumptions involved and the methods used are given in the appropriate sections.

Method

Sampling procedure

The *patients* admitted to this study were male out-patients at the clinics maintained by the Chichester and District Psychiatric Service and the Horsham and Crawley Psychiatric Service, each being virtually the sole psychiatric agency in their respective areas of West Sussex. All the patients were under 60 at interview, and were married and cohabiting with their wives, and all had received a diagnosis of neurosis, including reactive depression, or of character disorder, including alcoholism or psychopathy, from both the consultant in charge of the out-patient department and from the one of us (N.K.) using the case notes: thus marriage guidance referrals were excluded unless a formal psychiatric diagnosis had also been made. Only patients attending over a period of at least six weeks were included, since we wished to avoid the crisis situation often attendant on referral, and since Grad and Sainsbury (1968) have shown that the immediate stresses on the family are materially relieved within four weeks of contact with the Service; the delay of six weeks or longer would thus enable us to assess the sub-acute or chronic situation. Further stipulations were that the patient had had no more than four months in-patient treatment in the preceding twelve months, and had been out of hospital for at least two months, though these considerations rarely arose. Apart from occasional omissions due to pressure on research time, all cases meeting our criteria from June 1964 to January 1966 were included.

Once a patient was ascertained as suitable, the

out-patient psychiatrist was asked to request a home interview to include both the patient and his wife. Sometimes this was presented as a routine P.S.W. visit, while on other occasions the research aspect was mentioned. Patient co-operation appeared to be similar with both approaches.

Five cases where the Service psychiatric social worker was currently giving casework help, or where the consultant felt there was some other contra-indication to home visiting, were excluded. Of 72 patients asked, 12 (17 per cent) declined to co-operate either overtly or by repeatedly postponing their appointments. Reasons for refusal given by the patients were commonly expressed as reluctance to distress the wife by involving her in the patient's difficulties. However, from the clinician's knowledge it seemed probable that in many of these cases the marriage was particularly stormy. Indeed in one case, counted as a refusal, the patient had agreed to a joint interview but the wife declined for fear of her husband's violence should she divulge more than he wished.

It should be noted that the patients investigated were on the whole only moderately ill (at least three were quite well by the time of interview) and that the effect of excluding those currently under active P.S.W. care as well as—inevitably—the refusals, was probably to bias the sample towards those with less disturbed marriages.

The *controls* consisted of normal married couples. For each patient-wife pair a control pair was sought from the street in which the patient lived, thus effecting an approximate match for social class. The electoral register was consulted to ascertain the occupants of the tenth dwelling up the street.* If these appeared to be a married pair, the records of the area psychiatric service were consulted to see if the husband had been referred at any time since the service began (eight years earlier in Chichester, three years in Horsham). Providing he had not, at least three calls and often many more were then paid to the house to confirm that the house contained a married couple, to ascertain that both partners were under 60 years of age and that the husband had not received psychiatric treatment at other hospitals. The aims of the study were then explained in simple terms, and a joint interview was arranged in the subjects' home. The series of patient and control interviews were run concurrently.

Subjects were omitted from the control series for a number of reasons. Occasionally we failed to get any reply at the designated dwelling: these instances have been called 'no contact'. If the household did not meet our criteria it was labelled 'unsuitable'. Lastly, there were 'refusals' where co-operation was withheld. In any of these eventualities, the whole procedure was then repeated at the next dwelling further away from the patient.

In arranging appointments a clear interval of 7 days was left from any public or annual holiday, as our intention was to assess the customary pattern of household activity. Brief spells of inactivity due to physical illness were similarly treated, but periods of prolonged incapacity (over three months) were accepted as the current norm.

To collect the controls, over 370 calls were made, by J.C. and B.N., usually in the evenings. The outcome was as follows:

No contact	7 pairs
Unsuitable	103 pairs
Refusals	35 pairs
Interviewed	60 pairs

Thus of 95 suitable couples the refusal rate was 36·8 per cent. This high figure is disturbing, but it will be recalled that co-operation from *both* partners was required. (Refusal appeared to be less likely if both partners were seen at first contact, as by an evening visit.)

Some of our control males were discovered to have received psychiatric care from their general practitioners, while others displayed appreciable, though untreated, psychological disabilities. They were nevertheless included despite the resulting overlap between groups.

Interview procedure

The interview was always conducted by the P.S.W. with both husband and wife present simultaneously throughout, and was held in the subjects' own home. It had two functions. One was to elicit information about the composition of the household, the allocation of family roles, occupational and allied activities, the social contacts of each spouse, their current health and that of any children. A detailed time-budget was also drawn up for each informant over the preceding seven days. The interview was semi-structured; certain pre-specified items were always elicited and subsequently entered in a precoded schedule.

The second function was to attempt to measure the mutual interaction of the spouses, using special rating scales. Details will be given in a later paper.

Each interview lasted approximately 2 to 2½ hours. A second interview was occasionally required

* In rural areas where electors are arranged alphabetically, controls were chosen by adding 50 to the patient's number on the list and thereafter proceeding as above.

to complete the data collection, but behavioural ratings were always based on the first session only. A tape recorder was invariably used and materially lightened the strain imposed on the interviewer by her dual function, as well as enabling counts to be made, e.g. of interruptions, for rating purposes. Accounts of our experience of the research and possible therapeutic utility of this type of interview have been published elsewhere (Collins and Nelson, 1966; Nelson, 1966).

After the interview, both partners completed the Cornell Medical Index and the Maudsley Personality Inventory (Eysenck, 1959).

Reliability studies

The inter-observer reliability of the data-gathering and rating procedures was assessed over a series of interviews by having both interviewers present, one of whom remained a silent observer throughout. Each subsequently completed the full schedule independently, both having access to the tape recording.

The first reliability study was on 16 patient-spouse pairs (including some female patients and their husbands) and was carried out immediately prior to the main investigation. Items of unsatisfactory reliability were deleted from the final form of the schedule, and others were sometimes slightly modified in an attempt to improve them. The second study, involving the same interviewers as the first, was again based on 16 pairs (8 patient-spouse amd 8 controls), chosen at random from among the last 20 patients and controls of the main series. All items were found to have maintained acceptable levels of reliability.

The two sets of reliability data, relating to the initial and final stages of the investigation, enabled us to assess changes over time as consistency improved or declined. In practice it is probable that our average level of reliability was higher than these data suggested, since difficulties arising during the study were discussed in detail by the three of us. (N.K., J.C. and B.N.). Details will be given only where they affect the interpretation of results.

Reliability and validity of the health ratings

As mentioned in the Introduction, one aim of the study was to determine the degree of morbidity in the patients' spouses, using clinical assessments of health in addition to standard psychometric techniques. Rather to our surprise, the ratings of health, or more strictly of incapacity due to illness, have provided some of the most consistent and clear-cut results in the study. A five-point scale was used, based on objective evidence of limitation of function; the details will become apparent in the results section.

The agreement between the interviewers during the two reliability studies was:

	Initial study	Final study
Exact ..	81%	84%
± 1 point ..	94%	100%

These indicate adequate reliability. The validity of the ratings can, in part, be assessed by their correlation with other measures of morbidity which were:

	Males (N = 118)	Females (N = 120)
M.P.I. N scale ..	·57	·32
*M–R score (C.M.I.) ..	·59	·30
*Total C.M.I. ..	·64	·43

* Correlations based on logarithmic transformation, ln (x + 1)

All these correlations, which are based on the combined patient and control samples, are significant beyond the ·001 level of probability, implying that the ratings have concurrent validity, but they are low enough to suggest that they are not simply replicating the standard measurements.

Comparison of patient-spouse and control pairs

The patient-spouse and control couples were compared in a number of variables likely to affect the interpretation of the clinical, psychiatric, interactional or social data. Details are given in Table I. The matching procedures proved successful in that there are no significant differences on background variables between the groups. Typical of both is a 40-year-old husband with a wife of 36 who have been married for 13 years, and who live in a country town with at least one child, usually aged under 16. Social class III is the one most commonly represented.

There was a significant difference ($p < ·05$) between the groups for the husbands' current occupation status. All 60 controls were working, as compared with 54 (90 per cent) of the patients, though the latter were not necessarily at their best pre-illness level: the remaining 6 were off work or unemployed. These figures accord with the observation made above that in general the patients were not seriously handicapped.

Many patients had chronic forms of neurosis, or a personality disorder, the onset of which was often impossible to date with any accuracy. Instead, Table I shows the interval between the date of the current referral and the research interview, which in about one-third of the patients was after six months of out-patient attendance.

TABLE I

Comparison of patient and control groups

	Patient pairs (N = 60)	Control pairs (N = 60)
Age of husband—M ± S.E.	40·0±1·2	39·7±1·3
Age of wife—M ± S.E.	37·3±1·3	36·6±1·2
Duration of marriage—M ± S.E.	12·9±1·0	13·9±1·1
Area of residence—per cent		
Country town	78	76
Village	22	22
Isolate	0	2
Social class—per cent		
I and II	32	38
III	45	48
IV and V	23	13
Number offspring—per cent		
0	12	10
1	17	18
2	40	32
3	22	30
4 and over	10	10
Number of children under 16—per cent		
0	25	27
1	25	27
2	32	20
3	15	17
4 and over	3	10
Number of adults in household—per cent*		
2	80	72
3	12	18
4 and over	8	10
Occupational status of husbands†—per cent		
Self-employed	3	10
Employee	87	90
Temporarily off work	3	0
Unemployed	8	0
Referral-interview interval—per cent		
3 months	30	—
4–6 months	38	—
7–9 months	10	—
10–12 months	10	—
1 year and over	11	—

* Adults here includes offspring age 17 or over.

† Comparing currently working/not working, $p < \cdot 027$, by Fisher's exact probability test.

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Results

Illness in spouse

A number of criteria were used to assess the health of the spouse.

(a) *Clinical assessment*

At interview all individuals were questioned about their health over the preceding week, and the replies were categorized on a five-point scale of disability, as shown in Table II. It can be seen that among the patients over a third had only minor disability by the time of interview. The most striking finding is that the patients' wives show a fivefold excess of appreciable incapacity (categories 3 and 4 combined) compared with the control wives ($p < \cdot 01$), 17 or 28 per cent of the former group being so classified.

In the interview setting it was not possible to distinguish psychological from physical disability with any certainty, though on an impressionistic basis and from the nature of the symptoms elicited the former seemed much commoner. However, the wives were also asked about earlier psychological symptoms, with particular attention to dates and any help that had been sought. The data were then reviewed by the team and classified as shown in Table III. A third of the patients' wives had a clear history of psychological illness, treated or untreated, which was twice as common as the controls ($p < \cdot 05$). Only 20 per cent (in both groups) of those with a positive history had first become ill before marriage.

(b) *Psychometric indices*

Three criteria of pathology were available from the psychometric tests, namely the N scale of the Maudsley Personality Inventory (Eysenck,

Table II

Current health of patient-spouse and control couples

Category*	Husbands patients	Husbands controls	Wives of patients	Wives of controls
1. Perfectly fit	2	33	19	25
2. Some symptoms, not affecting activities	20	21	24	32
3. Disabilities affect leisure or other activities, but able to do unprotected job	30	6	15	3
4. Occupation influenced by medical recommendation, or leisure and work activity severely curtailed	7	0	2	0
5. Unable to work	1	0	0	0
	60	60	60	60
	$\chi^2 = 50 \cdot 75$, df = 2, $p < \cdot 001$		$\chi^2 = 11 \cdot 76$, df = 2, $p < \cdot 01$	

* Detailed definitions available on request. For χ^2 calculations, data grouped into categories 1, 2 and the remainder.

Table III

Previous mental illness of wives

History of psychiatric illness		Patients' wives	Control wives
None		40	50
Positive—with psychiatric referral	11	20	3 9
—without psychiatric referral	9		6
Uncertain		0	1
		60	60

$\chi^2 = 5 \cdot 27$, df = 1, $p < \cdot 05$

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1959), which measures a semi-stable personality dimension, and the M-R and total score of the Cornell Medical Index (Brodman and Wolff, 1956), which measures current symptoms, being especially sensitive to those of psychological origin. (These three measures were significantly intercorrelated.)

Table IVa shows the mean scores obtained by the patients and male controls, and IVb those by their respective wives. As would be expected, all three scales show marked differences between the patients and male controls. The remarkably low score of the normal males on the N scale is of some interest, and raises the possibility of defensiveness in the context of the study.

All these measures yielded higher mean scores for the patients' wives than the controls, but the difference is significant ($p<\cdot05$) only for the M-R scores.*

Redefined groups

Comparison of any clinic sample with a control group is almost certain to reveal some overlap between the two, whatever criterion is applied: some patients present with trivial symptoms while some non-patients, though severely handicapped, do not seek aid. It seemed appropriate, therefore, to redefine the groups using objective criteria, and to examine the characteristics of the wives of these reconstituted samples.

To effect the redefinition, the patient and control groups were combined and the pooled sample then dichotomized as close as possible to the median health rating of the husbands. Thereafter the other available criteria—the N scale, M-R, and total C.M.I. scores—were similarly used one at a time.† Each criterion thus yielded a set of low-scoring and one of high-scoring husbands and their wives.

The general effect of this reclassification was to sharpen the differences between the wives: for example, the difference in average C.M.I. score now became statistically significant ($p<\cdot05$). Nevertheless, the increase in differentiation was not very dramatic, despite the reclassification of an appreciable proportion of husbands (from 18 per cent for the N scale to 23 per cent for the health ratings). It is therefore possible that the status of the husband, as patient

* This accords with our observation that disability among patients' wives was primarily due to psychological symptoms.

† These values were, for the N scale 17/18, for the M–R scale 7/8, and for the total C.M.I. 21/22.

TABLE IV

Mean N scale and C.M.I. scores for (a) patients and male controls (b) patients' wives and control wives

(a)	Patients (N = 60)	Controls (N = 58)	Diff. ± S.E.	t
N scale—M	27·1	11·8	15·32±1·70	9·01‡
C.M.I.—M-R—M	14·8	3·1		
l_M (x+1)	2·58	0·96	1·62±0·15	10·69‡
Total—M	35·4	13·5		
l_M (x+1)	3·50	2·47	1·03±0·34	3·00†

(b)	Patients' wives (N = 60)	Control wives (N = 60)		
N scale—M	17·2	16·7	0·43±2·05	0·21
C.M.I.—M-R—M	10·1	7·0		
l_M (x+1)	1·98	1·65	0·33±0·14	2·34*
Total—M	27·6	21·2		
l_M (x+1)	3·10	2·85	0·25±0·14	1·79

* $p<\cdot05$, † $p<\cdot01$, ‡ $p<\cdot001$

or non-patient, has an appreciable influence on the wives' scores, irrespective of the husbands' level of incapacity. (See discussion.)

The effect of duration of marriage

Next, the data were examined to determine if the discrepancies between the clinical and control groups varied with duration of marriage. For this purpose, marriages of up to 9 years were classified as 'short', those of 10 to 16 years as 'medium', and those of 17 or more years as 'long'. This division gave sub-groups of 22, 21 and 17 respectively for the patients and their wives, and of 20, 20 and 20 for the control pairs. The clinical assessments of health were examined first (Table V).

Among the patients, the mean level of morbidity was roughly constant, but the greatest difference from the controls was at the 'short' duration, since the rather higher level of incapacity in the long-married—and hence older—controls reduces the gap between the groups.

The patients' wives showed a significantly increasing mean level of morbidity, progressing from 1·68 in the short to 2·35 in the long sub-group, and their divergence from the controls increases steadily.

The data can be viewed in another way. Grade 3 of the clinical rating denotes objectively demonstrable impairment of activity: the proportion of subjects in each sub-group scoring 3, 4 or 5 thus gives an index of 'conspicuous' morbidity. Figures 1 and 2, for husbands and wives respectively, illustrate these proportions. The short-married patients appear in Figure 1 as the most handicapped sub-group, while the control husbands show a small rise with increasing time: the greater deviation from normal of the short-married patients, as previously noted, is clear. Nevertheless, the wives (Fig. 2) reflect a marked duration of marriage effect: there is little difference between the groups in the early years, but for long-married patients' wives nearly 50 per cent show conspicuous morbidity as compared with 5 per cent of the controls. The differences between the groups in the proportion affected becomes progressively more significant.

For the C.M.I. data the small numbers in the sub-groups, and the erratic distribution of scores within them, complicate the interpretation of the means, and the proportions scoring above predefined criteria (Culpan *et al.*, 1960) may be more informative. In general the C.M.I. findings offer partial confirmation

TABLE V

Mean ratings of current health by duration of marriage

Duration of marriage	(a) Patients		(b) Controls		Difference (a—b)	t
	(N)	M	(N)	M		
Short	22	2·82	20	1·40	1·42	7·15‡
Medium	21	2·62	20	1·50	1·12	4·92‡
Long	17	2·82	20	1·75	1·07	3·83‡

	(c) Patients' wives		(d) Control wives		Difference (c—d)	
	(N)	M	(N)	M		
Short	22	1·68	20	1·70	—·02	·01
Medium	21	2·05	20	1·50	·55	2·59†
Long	17	2·35	20	1·70	·65	2·48†
$F_{2,57}$		3·32*		<1·0	2·64	

* $p<·05$; † $p<·02$; ‡ $p<·001$

N.B. The F ratio for the difference (c—d) column is based on 2, 114 d.f.

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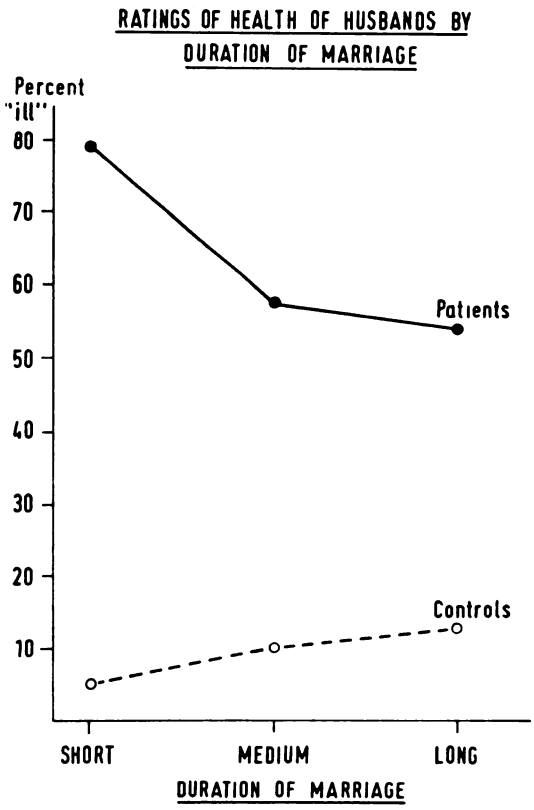

FIG. 1.

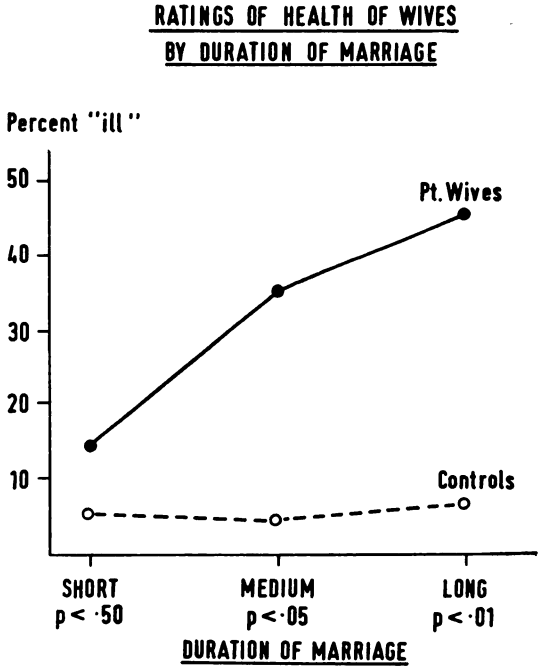

FIG. 2.

of the clinical assessments. For husbands it was again found that on mean scores the patients with short marriages were more deviant. Their wives (Table VIa) do not show a progressively increasing mean score (on either M-R or total C.M.I.) with increasing duration of marriage, but the difference between the patients' wives and the controls is appreciably greater at the intermediate and long durations than in the early years. This is true for both the M-R and total C.M.I. scores. Using the criterion method (Table VIb) the M-R data yield no significant findings, but for the total C.M.I. scores the significance of the difference between the groups increases with duration of marriage, from $p < \cdot 10$ to $p < \cdot 01$. Note that among the long-married wives of the patients 12 out of 17 (71 per cent) have total C.M.I. scores of 30 or more, as compared with 4 out of 20 (20 per cent) of the controls.

On the other hand, the N scores failed to show any similar trend among patients' wives with duration of marriage.

The effects of duration of marriage were also investigated in some detail using various re-defined groups of husbands classified by their health ratings or psychometric scores, instead of the patient and control basis. In general the results with both systems are so similar that detailed findings will not be presented. As mentioned previously, it would seem as though the patient status of the husband is about as relevant as his pathology as a correlate of the incapacity of the wife.

Husband-wife correlations

The interspouse correlations were examined to test three predictions derived from earlier investigations as summarized in the Introduction. These were:

(i) that in the early years of marriage husband-wife correlations among the patients and their spouses would be lower than among control couples;

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(ii) that as the marriage progressed patients and their wives would show a rising correlation, while control couples would show a decreasing correlation;

(iii) that the husband-wife correlations for the two groups, taking all durations of marriage together, would be approximately equal.

The data are given in Table VII for the short-duration sub-groups. The patients and their wives have zero or even negative correlations on all four psychometric scores, while the concordance in health ratings is similarly low: all the control group have positive correlations on the various indices and high concordance on health ratings. The differences are statistically significant on three of the five comparisons (one-tail tests). The first hypothesis is thus generally supported.

TABLE VI

Cornell Medical Index scores for wives by duration of marriage, as (a) means and (b) proportions scoring above criteria

(a) *Means*

Section M-R	Patients' wives	Control wives	Difference	t
Duration of marriage+				
S	8·4	7·3	1·1	0·54
M	11·8	7·5	4·3	0·99
L	10·3	6·2	4·1	1·51
Total score				
S	23·8	23·7	0·1	0·28
M	32·8	21·4	11·4	1·35
L	26·1	18·4	7·7	1·52

(b) *Proportions above criteria*

				χ_1^2
Section M-R: Percentage scoring 10 +				
S	32	30	2	—
M	48	35	13	—
L	41	25	16	—
Total score: Percentage scoring 30 +				
S	59	30	29	3·58
M	57	20	37	5·94*
L	71	20	51	9·58†

* $p < \cdot 02$
† $p < \cdot 01$
\+ Ns as for Table V

TABLE VII

Husband-wife correlations for marriages of short duration

	Patient pairs (N = 22)	Control pairs (N = 20)	Significance of difference (p, one-tail)
M.P.I. E scale	·03	·64*	< ·025
N scale	−·10	·27	
C.M.I. M-R score	−·33	·31	< ·05
Total score	−·01	·24	
Health rating (% concordance)	32%	90%	< ·001

* $p < \cdot 01$

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The subsequent trends with duration of marriage are much less clear: they are illustrated in Figures 3, 4 and 5. With one exception, the change in correlation between the short and intermediate groups is in the predicted direction on all variables and for both groups. The subsequent change between the intermediate and long-married sub-groups reverses that trend, with the exception of the health ratings. The overall picture is one of rather erratic variation, and the safest conclusion would be to consider the second hypothesis (ii) as unsubstantiated.

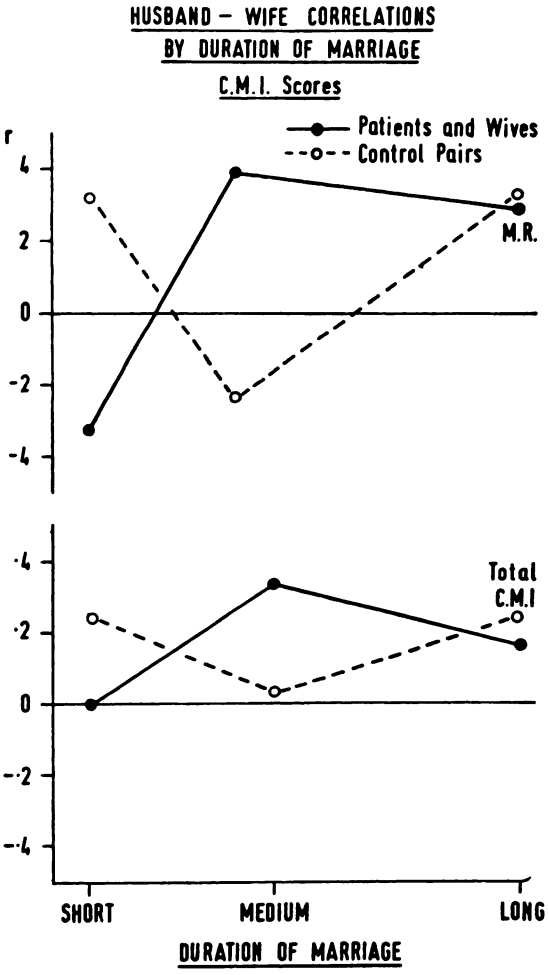

Fig. 3.

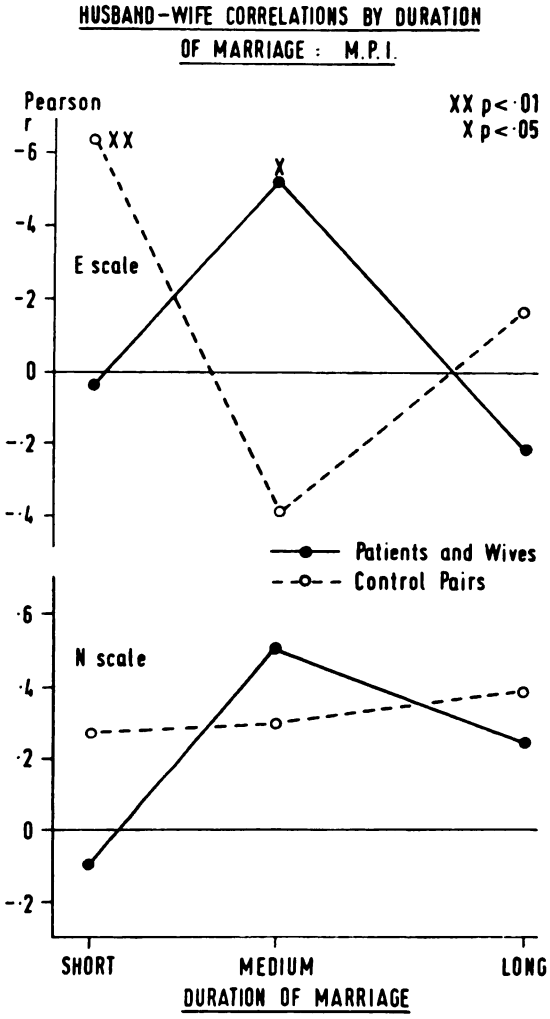

Fig. 4.

As for the overall correlation between spouses, with all durations of marriage pooled, Table VIII shows that the coefficients for the psychometric indices are generally low and approximately equal, with no significant differences between the groups. The final hypothesis is thus supported for these measures, but on health ratings the concordance* is significantly higher ($p < \cdot 01$) in the control group.

* The concordance measure employed throughout is that of 'total concordance', i.e. the number of pairs whose members are similar in being both 'healthy' (categories 1 and 2) or 'sick' (categories 3, 4 and 5) divided by the total number of pairs.

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TABLE VIII

Husband-wife correlations (r) for patient-spouse and control groups

	Patients and wives (N = 60)	Control pairs (N = 58)
M.P.I. E scale	·22	·15
N scale	·24	·31*
C.M.I. M-R score ..	·16	·16
Total	·16	·19
Health ratings (concordance)	47%	85%

* $p < ·05$

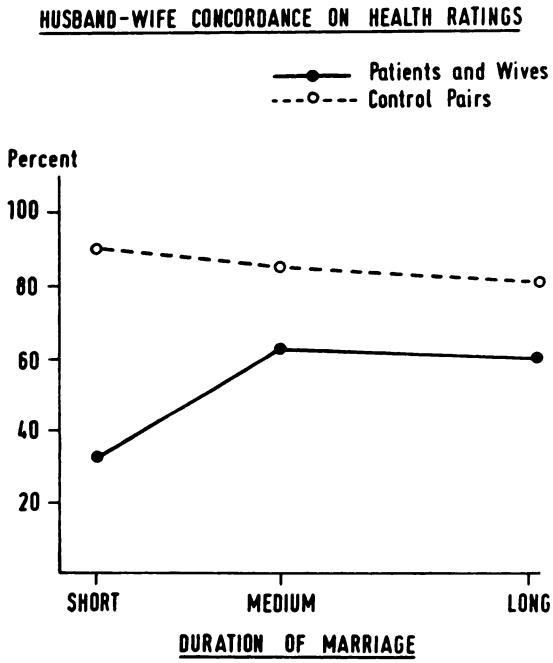

FIG. 5.

DISCUSSION

It will be recalled that, for the reasons given in the Introduction, our patient sample was likely to be biased towards those with less severe illness and those with less disrupted marriages. Our findings for the patient group are therefore probably an underestimate of the true situation. For the control pairs whom we approached the 37 per cent refusal rate has already been quoted, and it is not possible to specify what bias, if any, this high proportion may reflect: caution in generalizing from our findings is therefore necessary. Our sampling method ensured minimal bias in identifying control subjects, but ran the risk of a high rate of refusal. Alternative methods seemed to us likely to increase the initial bias in selection, even if lower refusal rates had been obtained. The ideal method for sampling normal pairs has yet to be found.

The interview technique we used requires some comment regarding the possibility of biasing the data. The interviewers were aware of which group any given couple were members, and it is possible that they probed for information more penetratingly with one group than the other. This is unlikely, since the psychometric tests which were completed by the subjects independently in general confirm the interview findings. It is also possible that the controls were less willing than the patient-wife pairs to divulge information. Our distinct impression was that reticence among the controls was not a problem; indeed the commonest difficulty encountered with the control series was that of terminating the session. More cogently, however, we would stress that the health categories we used (and which are the only measurements at issue in this paper) were based on current occupational and social function, which could be objectively specified. An hour by hour account of each informant's activities over the previous seven days was elicited to construct time budgets (see next paper), and it is extraordinarily unlikely that any appreciable degree of incapacity could be concealed in the face of such detailed questioning.

We may now consider the results. As a group, the patients' wives, in comparison with the control wives, had significantly greater incapacity as assessed by the health ratings, a significantly more common history of treated psychological illness, and a small but statistically significant excess on the M-R section of the C.M.I.: they also scored more highly on the total C.M.I. Previous studies (*v. supra*) using heterogeneous patient groups have established beyond reasonable doubt that the spouses of identified patients have a greater degree of psychiatric morbidity than would be expected

from general population estimates, and the present study illustrates this general finding for male neurotics and their spouses.

An interesting negative result was that classifying the husbands into 'sick' and 'well' according to their scores on the various measures of morbidity, rather than by whether or not they were 'patients', resulted in little increase in the differences between the wives. It would appear that any possible pathogenic influence of the husbands on the wives is associated as much with patient status as with symptoms or personality abnormalities. Many writers have speculated on how the privileges of patient status may operate in the social network around the patient (reviewed by Mechanic, 1966). Critical assessment of the relative magnitude of the effects due to patient status and to morbidity would, however, require a specially designed study.

Duration of marriage effects, on both the mean levels of the morbidity measures of the wives and on husband-wife correlations, have been examined in some detail, since such an analysis might help clarify the relative contribution of homogamy (assortative mating) and pathogenic interaction. The results for *mean* scores were uniform for all measures in one important respect: for the early years of marriage there were no significant differences between the two groups of wives. Thus there was no support for the homogamy theory in so far as this predicts that the wives of male neurotics would themselves be neurotic at the time of marriage (or as close to that time as it is practicable to investigate).

Subsequent changes in the 'course' of marriage differed for the different criteria of illness. Thus those for health ratings (Fig. 1) clearly support our earlier study, showing that although in short-duration marriages the two groups of wives are similar, in later years morbidity is very much greater ($p < \cdot 01$) in the patients' wives, of whom approximately half show an appreciable degree of objectively-demonstrable incapacity. The high proportion deserves note. The findings for the two C.M.I. measures also suggest that the patients' wives have higher mean scores than the controls in the later years of marriage, but the trend of increasing differentiation is not uniform, and the differences do not reach statistically significant magnitude. At the same time the difference between the patient and control groups in the proportion of wives scoring above the accepted criterion for the total C.M.I. is increasingly marked (and increasingly significant). Thus there is some evidence from the C.M.I., short of complete confirmation, in agreement with the health ratings. On the other hand, the N scale scores show no trend at all.

The *correlational* data, in general reflect those for the means. On all measures the interspouse correlations for the patient group in the *early years* of marriage are zero or even negative. For this group then, there is again no evidence for the assortative mating theory in so far as this predicts a positive correlation. It has already been suggested (Kreitman, 1964) that patients' marriages are characterized precisely by the absence of assortative mating. In the control group all the correlations are positive, and the difference between the correlations in the two groups was significant in three out of five measures. The subsequent changes with time have been presented in the section on results.

In assessing the findings for means and correlations in relation to duration of marriage from the interaction viewpoint, a major difficulty arises in that the most severely disturbed patients were those with relatively short marriages. The concentration of sicker husbands in this sub-group must confound the time trend postulated for the wives, since morbidity in the wives is also linked to the level of morbidity in the husbands. It is all the more noteworthy that time trends have in fact emerged on some of the measures. Some attempt was made to isolate duration of marriage effects by stratifying the patients for degree of illness and duration of marriage simultaneously, but this could not be done satisfactorily owing to the small numbers that resulted in the various sub-groups. The use of partialling procedures led to some increase, though not a dramatic one, in duration of marriage effects. More elaborate procedures were not undertaken, partly because of doubt about the significance of the original observation: if it is true that most

young, married, male neurotics are so disturbed that out-patient referral is the rule, while longer-married patients are less disturbed and so less often referred, then any 'correction' for this situation can only be misleading. The point illustrates the dangers both of using hospital out-patient samples as representative of those with minor psychiatric disorders, and the difficulties of constructing a temporal process from cross-sectional data.*

Despite these difficulties, the health ratings show the duration of marriage effect which would follow from the interaction hypothesis, and so, to a lesser degree, do the C.M.I. data. We conclude that there is sufficient support for the interactional model to warrant more detailed study.

In connection with time trends, another unresolved problem may be mentioned. The assumption that any 'pathogenic' interaction dates from the time of marriage is a convenient fiction, and presupposes that it is exposure of the wife to the husband's personality that conduces to disability in herself. This assumption ignores the possibility of personality change in the husband during marriage: it also presupposes that it is the personality rather than the symptoms or incapacity of the husband which matters. But duration of the husband's illness rather than length of marriage may be the primary variable. Our own attempts to measure duration of illness had to be abandoned. The question may be put, however, whether the changes in the wife—most clearly shown in her health ratings—are more highly correlated with deviations in the husband's personality, his symptomatology or his own level of incapacity at the time of assessment. A clear answer would require measures for each of the variables which were uncorrelated, which is not the case in the present study, but our data suggest that it is the rating of incapacity that is of greatest importance, followed by the C.M.I. symptom score, and with personality variables having least influence. However, the picture may be radically different with, say, a group of male psychopaths, and these observations are intended only as suggestions for further studies, not as conclusions.

It might prove easier to assess the possible aetiological role of interactional processes in producing the high level of disability among the patients' wives if information were available on their marital relationships. Subsequent papers will be directed to this purpose.

* Using data from a large household survey, Hare *et al.* (1965) confirmed a rising correlation for N scores over duration of marriage between spouses where one partner at least was considered neurotic, with only a doubtful change in the same direction for non-neurotic couples.

Summary

1. A group of 60 male patients, receiving out-patient treatment for neurosis or personality disorder, together with their wives, have been examined by means of conjoint interviews supplemented by psychometric tests: the 60 couples represented 87 per cent of those approached. A control series of normal pairs were similarly examined: they represented 63 per cent of couples identified as suitable for the study.

2. The patient and control couples were found to be well-matched in a variety of background variables.

3. The patients' wives scored significantly higher than the control wives on clinical ratings of incapacity due to impaired health, and on the M-R section of the C.M.I.: they also had higher scores on the M.P.I. N scale and the total C.M.I. Similarly they had a significantly higher number of previous psychiatric illnesses.

4. The patient 'status' of the husbands appeared to be about as important as their level of illness as a correlate of the illness among the (patients') wives.

5. The effects of duration of marriage upon the health of the patients' wives proved difficult to examine, since the most disturbed husbands appeared to be those with the shorter marriages. Nevertheless, when compared with the controls, an increasing level of disability as rated clinically was demonstrated among the patients' wives. The C.M.I. data also showed a tendency to relatively increased scores in the later years of marriage. No trends emerged for the M.P.I. N scale.

6. It was predicted from earlier studies that the interspouse correlations (i) in the early

years of marriage would be lower in the patient pairs than the controls; (ii) in later years of marriage would progressively rise among the patient pairs but decline among the controls, and (iii) in the groups considered irrespective of duration of marriage, would be approximately equal. The first and third of these hypotheses were supported on most of the measures used.

7. Since early in marriage the patients' wives did not differ significantly from the controls on any measure of pathology, and since the husband-wife correlations at that time were approximately zero (or even negative) it was concluded that the study failed to confirm the assortative mating hypothesis. Conversely, the increasing differentiation of the patients' spouses from the controls on several indices of illness was considered to be more in accordance with an interactional model of pathogenesis.

8. A number of methodological problems were briefly reviewed, including the difficulties of specifying and measuring the relevant duration of any putative pathological interaction.

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