PAPERS AND ORIGINALS

Rheumatoid Arthritis and Personality: A Controlled Study*

DERMOT J. WARD

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Summary

Evidence in support of claims for the existence of a special relationship between personality and rheumatoid arthritis is conflicting. In this study four groups—one of patients with early rheumatoid arthritis, one of patients with chronic rheumatoid arthritis, one of neurotic patients, and a normal control group—were compared by means of the Maudsley Personality Inventory (M.P.I.) and a neurotic trait in childhood (N.T.C.) score. Both arthritis groups had a lower M.P.I. neuroticism score than the normal control group, with greater significance in the chronic arthritis group. The neurotic group had a significantly higher neuroticism score than the other three groups. Both arthritis groups had a lower extraversion score than normal controls, again with greater significance in the chronic arthritis group. The neurotic group scored significantly less than normal controls on the extraversion scale and intermediately between the early and chronic arthritis groups. There was no significant difference between the arthritis groups and the normal control group in the N.T.C. score, but it was significantly increased in the neurotic group.

These findings suggest that people with rheumatoid arthritis differ significantly in personality from normal and from neurotic people, that the differences are accentuated with chronicity in the rheumatoid process, and that the differences develop as a result of the arthritis.

Introduction

There are many reports in the medical literature of a special cause or effect relationship between rheumatoid arthritis and a particular type of personality configuration. Earlier studies have been mostly uncontrolled and contradictory. They were the subject of a critical review by Moos (1964). Two main hypotheses were advanced: (1) that patients with rheumatoid

arthritis are more neurotic than non-arthritic, healthy controls (Cohen, 1949; Wiener, 1952); and (2) that a personality characterized by an inability to express aggressive feelings ("contained hostility") is peculiar to people with rheumatoid arthritis (Cobb, 1959).

The present study was done to try to find out whether the personalities of rheumatoid arthritics, as measured by the Maudsley Personality Inventory (M.P.I.), differ significantly from those of normal controls; and, if so, whether the difference is explicable as a phenomenon which exists in rheumatoid arthritics before the onset of their illness or whether it is better explained as being due to an "erosion" of the basic personality by a potentially chronic and painful disabling disease.

Patients and Method

Two rheumatologists agreed to refer two groups, each consisting of 10 patients suffering from rheumatoid arthritis. In group 1 the nine women and one man had rheumatoid arthritis as diagnosed according to the classification of Ropes *et al.* (1958, 1959), had had the illness less than one year, had had less than six weeks' inpatient treatment, were not in an acute exacerbation phase of the disease, and had a positive Rose-Waaler Test. The mean age of the group was 45.8 years, the range being 26 to 64 years.

Group 2 also consisted of nine women and one man. Each patient had been diagnosed physically and serologically as having rheumatoid arthritis; as in group 1 none were in an acute exacerbation phase of the disease and the overall duration was longer than five years, the mean duration being 12 years, and the range 5 to 28 years. The mean age of the group was 65.4 years and the range 45 to 67 years.

At routine outpatient clinics (National Health Service) suitable patients were allotted to the appropriate group as they attended. Each patient was told by the rheumatologist: "We have a doctor working in the hospital who has a special interest in the personalities of people who get the same type of illness as yourself. Some doctors claim that a particular type of personality may be common among sufferers. We are not sure if this is correct and the doctor I mentioned is studying this problem. Would you be willing to go along to him and be prepared to answer a lot of questions about yourself?" No patient to whom this question was put refused to co-operate.

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The inclusion of a male patient in group 1 was due to chance, as he happened to present when the study began. In each of the subsequent groups one man was also included. Otherwise selection was on a first come, first served basis, provided the criteria for one or other group were met. Each patient was seen at a special research clinic in the outpatient department of the Royal National Hospital for Rheumatic Diseases, Bath.

Group 3 consisted of 10 neurotic patients (nine women and one man) selected from a general psychiatric practice. The diagnosis of neurosis was based on three criteria: firstly, that the patient had undergone psychiatric treatment for more than a year; secondly, that there was no firm alternative diagnosis such as schizophrenia, manic depressive disorder, organic brain syndrome, etc.; and, thirdly, that the diagnosis of neurotic personality disorder had been confirmed by at least two trained psychiatrists. The mean age of the 10 patients was 33.6 years, the range being 19 to 63 years. Each member of this group was referred by a consultant psychiatrist colleague, and was asked by me to co-operate in the study as follows: "I am studying the personality of patients with rheumatoid arthritis in order to see if they show any special features, as has been suggested by some doctors. To do this I have to compare them with people who do not suffer from this disorder. Would you be willing to help by answering a lot of questions about yourself?" No patient refused to co-operate.

A fourth group consisted of 10 normal controls (nine women and one man). Each had attended a general practitioner's surgery for some transitory complaint and at the time of the study was convalescing. The mean age of the group was 37.2 years and the range 18 to 66 years. Regular attenders at the surgery were excluded from the group. None of the patients refused to co-operate.

The invitation to each patient to participate in the study is given verbatim to show the attempt made to eliminate attitude four groups agreed to a standardized psychiatric interview. However, the present study is concerned only with the neurotic trait in childhood (N.T.C.) score elicited during that interview. Table 1 contains the check list of childhood neurotic traits used in the study.

TABLE 1—Neurotic Traits in Childhood

Nail biting	Tics	Enuresis
Temper tantrums	School refusal	Stammering
Fear of the dark	Nightmares	Food fads
Difficulty in mixing	Fits or faints	Stealing
Nervousness		

Each patient completed an M.P.I. and to exclude patients with potential rheumatoid arthritis from the neurotic and normal control groups (Rubin *et al.*, 1956) each was asked (1) Have you ever had arthritis or rheumatism? (2) Had you ever had swelling in any joint? and (3) Do you waken (or have you ever wakened) with stiffness or aching in your joints or muscles? None in either group had to be excluded after answering these questions.

Results

Statistical analysis of the neuroticism scale of the M.P.I. was carried out with the χ^2 non-parametric technique (Siegel, 1956). Normal controls had a higher mean neuroticism score than the early rheumatoid patients at a 2% level of significance ($P<0.02$, D.F.=1) and than the chronic rheumatoid patients at a 0.1% level of significance ($P<0.001$, D.F.=1). Neurotic controls had a higher mean neuroticism score than the early and the chronic rheumatoid patients significant at a 0.1% level ($P<0.001$, D.F.=1). Neurotic controls had a higher mean neuroticism score than normal controls significant at the 0.1% level ($P<0.001$, D.F.=1). Finally, the early rheumatoid group had a higher mean neuroticism score than the

chronic group, but this trend did not reach a statistically significant level.

Extraversion scales were analysed statistically with the same technique as for the neuroticism score. Normal controls had a higher extraversion score than early rheumatoid patients at a 2% level of significance ($P<0.02$, D.F.=1). They also had a higher mean extraversion score than chronic rheumatoid patients significant at the 0.1% level ($P<0.001$, D.F.=1), and they had a higher mean extraversion score than neurotic controls significant at the 1% level ($P<0.01$, D.F.=1). There was no statistically significant difference between the extraversion scores of the early and chronic rheumatoid groups, between the early rheumatoid and neurotic groups, or between the chronic arthritic and neurotic groups. However, the early rheumatoid group had a higher mean extraversion score than the chronic rheumatoid group and the neurotic controls were intermediate.

There were not enough question mark scores in the M.P.I. for a valid statistical inference to be drawn.

Analysis of the N.T.C. scale (using the same statistical technique as above) showed that both the early rheumatoid and the chronic rheumatoid groups had a lower mean N.T.C. score than the neurotic control group significant at the 0.1% level ($P<0.001$, D.F.=1). Neurotic controls had higher N.T.C. scores than normal controls significant at the 0.1% level ($P<0.001$, D.F.=1). There was no statistically significant difference between the N.T.C. score of the early rheumatoid group compared with the chronic rheumatoid group, between the early rheumatoid group and normal controls, or between the chronic rheumatoid group and the normal controls. The "raw" total M.P.I. and N.T.C. scores for the four groups are shown in Table II.

TABLE II—"Raw" Total M.P.I. and N.T.C. Scores for the Four Groups

Group	Neuroticism	Extraversion	N.T.C.
Early rheumatoid arthritis ..	163	258	12
Chronic rheumatoid arthritis ..	148	227	12
Neurotic control	380	249	44
Normal control	210	313	15

Discussion

Cohen's (1949) and Wiener's (1952) studies were exclusively of men with rheumatoid arthritis and were by means of the Minnesota Multiphasic Personality Inventory (M.M.P.I.). They showed that arthritics had higher scores on the neurotic scale of the M.M.P.I. than non-disabled controls. On the other hand, the scores were less abnormal than in a group of neurotic patients. Subsequent studies (Moos and Solomon, 1964; Moos, 1965), also using the M.M.P.I., were unable to confirm these findings.

Cobb (1959) using psychoanalysis in one man, who incidentally also had peptic ulcer, evolved the "contained hostility" hypothesis in rheumatoid arthritis, which has been supported by other studies, with the Rorschach Projective Test (Cleveland and Fisher, 1954, 1960; Cormier *et al.*, 1957). The validity of a hypothesis based on a detailed study of only one patient is open to doubt, and there are problems inherent in the test itself (Eysenck, 1957).

While there is disagreement about the nature and even the existence of a specific "rheumatoid personality," those studies which claim that it exists have made no objective attempt to prove that it is a cause rather than an effect of the disease, with its pain, chronicity, debility, and physical handicap—which in turn can lead to occupational, financial, social, marital, and psychological difficulties (British Medical Journal, 1969). However, it is easier to criticize earlier studies than to suggest how

they could be improved on, since to distinguish accurately a premorbid personality state from postmorbid change would require assessment before and after the onset of rheumatoid arthritis, and in our existing state of knowledge it is impossible to predict which people will later develop the disease.

I chose the M.P.I. as an objective test of personality because it has only two scales, neuroticism and extraversion. These seemed admirably suited to an attempt at delineating the neurotic and contained hostility concepts by using a single test, and thus to finding an answer to the first of my two questions. The comparison of group 1 (early rheumatoids) with group 2 (chronic rheumatoids) was an attempt, using an extrapolation technique, to answer the second question. If certain differences in personality from normal controls were found in the early rheumatoid group, and if the changes were found to be accentuated in the chronic rheumatoid group, this could be seen as supporting a probability that the changes succeeded rather than preceded the onset of rheumatoid arthritis. A positive correlation of the N.T.C. score with the adult neuroticism score (Slater, 1943) should indicate whether the changes occurred merely because the chronic rheumatoid group represented those patients with the severest personality deviation from normal and because of it had become chronic rheumatoid patients, for in that case adult patients with a pronounced personality deviation from normal should show a correspondingly high N.T.C. score.

The results of the neuroticism scale score in both rheumatoid groups were consistent but unexpected, with the early rheumatoids (group 1) having a lower (though, in view of sample size, not very significantly lower) neuroticism score than the normals (group 4) and the chronic rheumatoids having a score which was significantly lower. Furthermore, the absence of any significant difference in the N.T.C. score of the normal, early rheumatoid, and chronic rheumatoid groups, with only the neurotic controls showing a statistically significant difference, suggested that the neuroticism scale changes in the rheumatoid groups occurred after the onset of rheumatoid arthritis. Any sampling error resulting in a biased selection of a normal group with a higher than average neuroticism score would probably also have produced a raised N.T.C. score, but this was not the case. The extraversion scale changes, though outside the monitoring scope of the N.T.C. score, favoured the supposition that the personality changes happened after rather than before the onset of arthritis, inasmuch as the depressed extraversion score in the rheumatoids as compared with the normal controls was significantly more pronounced in the chronic rheumatoid group. Interestingly, this increased extraversion scale depression with longer duration of illness could be interpreted as vindicating the contained hostility character phenomenologically if not aetiologically.

The age factor is not regarded by Eysenck (1959) as critically important in assessing M.P.I. scores. A surprising finding in this study was the direction of neuroticism scale deviation in the rheumatoid population as a whole towards a lower neuroticism score than in the normal controls. Perhaps a substitution of physical for neurotic symptoms in chronic sufferers of serious physical disease or handicap helps to make

the dual finding of significantly lower extraversion and neuroticism scores on the M.P.I. more understandable. There is a well-known correlation between physique, mainly musculoskeletal structure, and adult personality development. Skottowe (1965) ably surveyed and contributed to this study. That rheumatoid arthritis—not merely an arthropathy but an illness which can cause widespread physical disorder—may be accompanied by personality change becomes more understandable when considered together with the accompanying difficulties in adaptation. All this may serve further to emphasize the well-known but perhaps sometimes forgotten interdependence of psychic and somatic processes.

Finally, it must be emphasized that the emergence of the rheumatoid groups as a relatively non-neurotic population should not be taken to imply that neurotic factors in an individual rheumatoid patient's personality will not impede rehabilitation. There is indeed evidence (Solomon and Moos, 1965) that neurotic factors do impede progress. They also tend to lessen the response to treatment.

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