

PERSONALITY FACTORS AS PREDICTORS OF COMPLIANCE WITH AND THE OUTCOME OF SUPERVISED SELF-CARE PROGRAM FOR PATIENTS WITH INTERMITTENT CLAUDICATION

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ABSTRACT. Personality factors related to the outcome of supervised self-care treatment program were studied in 56 patients with intermittent claudication. Psychological methods used were: structured interviews, the Rorschach Test, the Thematic Apperception Test, Beck's Depression Inventory, the Beth Israel Hospital Inventory of alexithymic behavior and Sauri's Creativity Inventory of psychic flexibility and adaptability. The patients who had no apparent signs of psychic disorders and were also capable of coping with disease-related psychic problems showed the best recovery. Alexithymic patients with a low level of psychic adaptability were likely to find the supportive relationship rewarding, but optimal recovery was not achieved. The results indicated that paranoid tendencies may be obstacles to a satisfying doctor-patient relationship and should be controlled.

Key words: compliance, supervised self-care, coping with disease, intermittent claudication.

The management of chronic diseases is becoming more important in medicine, and patient participation in this process is gaining increased attention. The patient's motivation and willingness to participate in long, ongoing treatment programs each involve the whole personality of the patient. Patient compliance and cooperation are related to knowledge of the disease, beliefs, attitudes, personal experiences, disease-related emotional responses and coping mechanisms. In contrast, compliance and cooperation are less related to the objectively measured severity of the disease (10).

The importance of understanding the role of psychic factors in compliance with a regimen has been recognized (2, 4, 11) but empirical research on this question is relatively sparse. The personality factors have often been chosen randomly rather than by applying any hypothesis concerning the role of the personality of the patient in treatment compliance. Furthermore, personality factors are not normally measured by means of objective personality testing. Instead, patients are subjectively evaluated

by practitioners and interviewers. These evaluations are likely to reflect the evaluators' stereotypes of noncompliant patients.

In a previous study (12) we examined how patients complied with the four-step self-care program comprising cessation of smoking, daily walks, daily leg exercises and increasing daily physical activity, and also the personality characteristics correlated with compliance in patients with intermittent claudication. The results showed rather poor compliance. The rehabilitation of the patients could just as well have been due to spontaneous recovery as to the program of physical exercises. There was no personality configuration related to compliance as a whole, but separate personality factors were correlated with different compliance dimensions.

The self-care program described above required major life-style changes and could have been too demanding, depending as it did on the patient's own activity and motivation. Therefore, the present study was undertaken with the aim of evaluating the effect of personal supervision on compliance with the same self-care program using a similar sample of patients with intermittent claudication. Two main phenomena were studied: (a) Compliance with a program of activities, (b) relationships of personality variables to outcome and compliance variables.

MATERIALS

The subjects consisted of a sample of patients similar to the one used in the previous study (12). They were a consecutive series of patients who had visited the Surgical Department IV at Helsinki University Central Hospital over an 18-month period, suffering from intermittent claudication. They were prescribed conservative treatment instead of surgical operation. The total number of patients was 66, 44 men and 22 women. Their mean age was 54.2 years (range 40-69 years).

Of the total of 66 patients, 26 discontinued treatment. Ten did so because of other illness. Of the remaining 16,

some expressed personal dissatisfaction with the conservative treatment while others offered no explanation. The 10 patients who ceased treatment because of other illnesses had no choice whether to comply or not, and therefore they were excluded from the analysis.

METHODS

A. Clinical examination

The patients' capacity was measured at the beginning of the study by a treadmill exercise test in a vascular laboratory. This test was given repeatedly during the course of the study. Recovery rates were evaluated by means of a walking tolerance test consisting of the following parameters: walking distance to the onset of pain, maximum walking distance (i.e. total distance walked before and after the onset of pain) and site and nature of restricting pain.

B. A self-care program

After diagnosis the patients were fully informed about their disease and its treatment by the vascular surgeon. They were given the same self-care program as was given to patients in the previous study. It consisted of the following demands and recommendations: 1) to stop smoking, 2) to do leg exercises according to the special training program at least twice a day, 3) to walk at least twice a day until the onset of claudication pain, 4) to increase all kinds of daily physical activity.

In the previous study, the patients carried out this program alone for a period of six months, merely reporting their compliance to the vascular surgeon, who offered his support. In this study the program was supervised by a physiotherapist. The patients met her once a week, did their leg exercises with her and were given advice and emotional support. Furthermore, the patients recorded their daily exercises, and the physiotherapist checked these note books.

The process of giving advice and offering support was standardized as far as possible.

C. Psychological methods

The psychological approach to the problem was based on the theory that illness is a crisis which evokes emotional reactions, activates psychic problems and disorders and requires psychic energy, integrity and adaptability in order to maintain psychic stability. On the other hand, signs of psychic problems such as paranoia, narcissism and neuroticism are obstacles to adaptive illness behavior (15).

Before the study was begun, the personality factors were evaluated by using the following psychological methods: structured interviews, the Rorschach Test (13) the Thematic Apperception Test (6), Beck's Depression Inventory (3), the Beth Israel Hospital Questionnaire on alexithymic behavior (1), and Sauri's inventory on psychic flexibility and adaptability (17).

The emotional reactions were evaluated on the basis of the interview, the Rorschach Test and Beck's Depression Inventory. The following variables were adopted: anxiety (5) depression (3), hostility (9), and disease-related worry and fears.

Psychic energy, integrity and adaptability needed for coping with the disease were evaluated on the basis of the interview, the Rorschach Test and the Thematic Apperception test. The following parameters were adopted: Friedman's index of psychic integrity (8), form level of Rorschach responses (13), the quantity of human movement responses in Ro measuring psychic energy (13), and psychic flexibility and adaptability as measured by Sauri's Inventory on psychic creativity (17).

For the purposes of the present study, psychic factors which may prevent the optimal effects of the treatment were assumed to be: neurotic signs (16), narcissism (14), personality splitting (14), paranoia (18), body-image disturbances (7), lack of emotional control (13), all expressed in the Rorschach test, and alexithymia, expressed in Beth Israel Hospital Questionnaire (1). Alexithymia means the inability to express emotions with words. It has been shown to be correlated with psychosomatic reactions and the inability to cope with disease-related psychic problems (1).

A structured interview was conducted before and after the treatment. During the first interview information was collected regarding the following variables: disease-related information accepted by the patient, the personal meaning of the disease to the patient, his treatment motivation, disease-related emotional responses and the impact of the disease on the patient's present life, including social, occupational, and sexual activity.

The second interview assessed the following: the patient's report on his compliance with the regimen, the patient's subjective satisfaction with his recovery, and changes in the patient's psychic or somatic well-being and changes in his work and social activity.

The compliance and recovery parameters were as follows: Compliance with the therapeutic regimen ($N=56$). Objective recovery (recovery measured with the walking tolerance test), subjective recovery (subjectively experienced benefit without obvious reference to objectively measured recovery) and degree of overall recovery (the summation of objective and subjective recovery) were all studied in the 40 patients who stayed with the study to the end. The 26 patients who discontinued the study could not be included because they missed the second interview.

Personality configuration related to the discontinuation of the treatment program was studied in the 16 patients who dropped out in study without apparent reason.

RESULTS

A. Compliance with the regimen

Compliance with the regimen was significantly better when exercise was supervised by a physiotherapist than when it was carried out alone by the patients.

Stopping smoking. Sixty-one percent of the smokers (24 of the 39 patients), stopped smoking during the present study as opposed to 24% (9 of the 38 patients) in the previous study.

Daily walks. Forty-six percent of the patients in

Table I. Compliance with the recommendations of the self-care program: studies with and without supervision compared

1=percentage of patients complying with the recommendations in the self-care program (previous study, $n=53$).
2=percentage of patients complying with the recommendations in the experiment conducted by a physiotherapist (present study, $n=56$)

	Daily walks		Leg exercises		Other physical activity	
	1 (%)	2 (%)	1 (%)	2 (%)	1 (%)	2 (%)
Poor (0-19 times a month)	42	15	42	8	62	36
Average (20-30 times a month)	45	39	50	51	28	43
Good (more than 30 times a month)	13	46	8	41	9	21

the present study walked until the onset of pain at least twice a day as opposed to 13% of the patients in the previous study.

Leg exercises. Forty-one percent of the patients did their daily leg exercises as opposed to 8% in the previous study.

Other physical activity. 21% of the patients had markedly increased their daily physical activity as opposed to 9% in the previous study (Table I).

B. Personality factors related to compliance and recovery

1. *Degree of overall recovery.* The relationship between personality factors and degree of overall recovery (i.e., the objectively measured relief of somatic symptoms and the subjective experience of recovery) was examined using canonical analysis.

The first analysis resulted in a model, which was statistically significant at the level $p < 0.05$. The first canonical variable can be described as rational and adaptive psychic reaction to the disease. It consisted of the following psychological factors: patients did not experience the disease as a loss and did not stress the restrictions caused by the disease. They were not depressive or alexithymic (i.e., they had the capacity to verbalize their emotions), and they had psychic energy.

The above mentioned combination of personality characteristics explained 61% of the variance of the second canonical variable, which can be labelled compliance and recovery. It consisted of subjective recovery, objective recovery and persevering with treatment until the end (Table II).

2. *Objective recovery.* The relationship between objective recovery and psychic variables was measured using regression analysis. Twenty-six percent of the variance of objectively measured recovery

was related to psychic variables, but it was not possible to find a logical interpretation for this constellation.

3. *Subjective recovery.* When subjectively experienced benefit was considered without obvious reference to objectively measured recovery, regression analysis showed that 39% of the variance of subjective recovery could be explained with a particular personality combination. Specifically, patients who had subjectively benefited a great deal from treatment were alexithymic (i.e., they lacked the capacity to verbalize their emotions) and were non-depressive. They had accepted the disease-re-

Table II. Results of the canonical analysis evaluating the degree of overall recovery of patients with intermittent claudication ($n=40$)

Psychic variables	Canonical coefficients	Correlational coefficients of the variables to the canonical variable
1. <i>The first canonical variable: rational and adaptive psychic reaction to the disease</i>		
Alexithymia	-.379	-.510
Psychic energy	.169	.464
Depression	-.094	-.443
Restrictions caused by the disease	-.269	-.358
Disease experienced as a loss	-.319	-.352
2. <i>The second canonical variable: compliance and recovery</i>		
Perseverance with treatment	.488	.501
Subjective recovery	.794	.859
Objective recovery	.447	.446

Canonical correlation 0.779. Correlation squared 0.606. Chi squared 133.622 with 96 degrees of freedom. $p < 0.05$.

Table III. Results of the regression analysis explaining subjective recovery according to personality characteristics ($n=40$)

Dependent variable: subjective recovery

Independent variables	Standardized regression coefficient	Deviation	t-Value
Alexithymia	.201	-.101	1.72*
Low form level in Rorschach responses	.202	.091	1.74*
Psychic integrity	-.301	.043	2.49**
Narcissism	.297	.013	1.84*
Depression	-.403	.114	3.28***
Good disease-related knowledge	.365	.081	3.04***
Body-image disturbances	-.231	.043	1.71*

$R = 0.039$. $F = 5.10$. $df = 6$. $df = 57$. $p < 0.05$. * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

lated information well and they did not experience major bodily changes as a result of the disease (i.e., they did not manifest body-image disturbances in the Rorschach test). Furthermore, patients with high subjective recovery scored at a low developmental level in the Rorschach test and there was a significant grandiose narcissistic content in their Ro responses (Table III).

4. *Perseverance with the whole treatment program.* Patients who continued the treatment program until the end and did not pay any attention to whether it resulted in recovery or not, were characterized by the following personality cluster, which explained 37% of the variance of the treatment maintenance proved by regression analysis: they were alexithymic, had a low capacity to solve psychic problems and high treatment motivation at the beginning of the study (Table IV).

5. *Discontinuation of the treatment program.* Patients who discontinued the treatment program immediately, or rather quickly were characterized by high scores on paranoia and splitting in the Rorschach test and by a suspicious attitude toward conservative treatment (Table V). Splitting and paranoia indicate deep psychic pathology usually seen as symptoms of borderline disorder (14).

DISCUSSION

The results showed that when major life-style changes are required by treatment recommenda-

Table IV. Results of the regression analysis showing the relationship between personality characteristics and treatment maintenance ($n=40$)

Dependent variable: treatment maintenance

Independent variables	Standardized regression coefficient	Deviation	t-Value
Treatment motivation	.192	.049	1.72*
Alexithymia	.395	.041	3.27***
Lack of psychic adaptability	.442	.078	2.83**

$R = 0.037$. $F = 5.73$. $df = 6$. $df = 58$. $p < 0.05$. * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

tions, supervision of the care program is needed; a self-care program based only on the patient's own initiative did not meet with success.

A striking difference was found in the incidence of stopping of smoking in the studies with and without patient supervision. It cannot be regarded purely as a result of an "effective" supervision, since the time difference of one year between the above mentioned studies has to be taken into account. An active health education campaign during the recent years has helped the people to recognize a smoking as a risk factor.

In terms of personality, the best recovery was achieved by patients who did not experience the disease as too traumatic of an event, were able to express their emotions with words and were not depressive. It has been proved in previous studies that a good ability to express emotions with words prevents a fixation on somatization (1) just as it has

Table V. The results of the regression analysis showing the relationship between personality characteristics and discontinuation of treatment ($n=16$)

Dependent variable: discontinuation of treatment

Independent variables	Standardized regression coefficient	Deviation	t-Value
Paranoia	.424	.004	4.00***
Splitting	.313	.363	2.93**
Suspicious attitude towards conservative treatment	.208	.003	2.06**

$R = 0.039$. $F = 13.0$. $df = 3$. $df = 61$. $p < 0.001$. * $p < 0.05$. ** $p < 0.01$. *** $p < 0.001$.

been shown that depression is a hindrance to the active psychic work required to cope with disease (15).

Subjective experience of recovery without significant correlation with objectively measured recovery was most apparent in alexithymic, non-depressive patients who had good disease-related knowledge and who did not have strong body-image problems. They also scored low on psychic maturity and high on narcissism. Thus, subjective satisfaction was best for patients with poor psychic integrity who lacked the means to handle their emotional problems. Narcissistic tendencies made concentration on their disease and its treatment a satisfying experience for them.

The most "obedient" patients, in other words patients who persevered with treatment until the end regardless of whether they had gained significant benefit or not, were characterized by high treatment motivation, difficulties in expressing their emotions (i.e., alexithymia) and in confronting psychic problems. It can therefore be suggested that a supportive relationship may be rewarding to such patients. Symbiotic dependence is a characteristic of the alexithymic personality (1), and persevering with the treatment could bring satisfaction even though subjective recovery is not achieved.

Evidence that paranoid patients have problems in cooperating with medical staff is not a new discovery. In the light of these results, long-term medical treatment requiring the patient's own participation and trust in the medical staff will not be successful in paranoid patients.

Several conclusions can be drawn on the basis of results of this study. First, treatment that requires the patient's own contribution works best for patients who are without obvious signs of psychic disorders and who are able to work out disease-related psychic problems. Psychic disorders such as alexithymia, narcissistic tendencies or poor psychic integrity do not prevent patients from co-operating or from achieving subjective satisfaction, but optimal recovery is not achieved. Furthermore, these patients can impose expectations originating in their own psychic problems on the doctor-patient relationship, and thus they may easily become frustrated.

Although the number of patients who discontinued treatment during the study was too small to draw conclusions, there is reason to stress the importance of managing the paranoid tendencies and

suspicious attitudes of patients in order to create a good doctor-patient relationship.

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