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A B S T R A C T

In this paper, we explored the super-ego of patients with coronary artery disease. Research results have confirmed the initial hypothesis that a significant number of patients with coronary artery disease has rigorous super-ego. Among patients with coronary artery disease (N=50), and control group (N=50), we have found significant differences in the quality of super-ego and ego attitude towards the demands of the super-ego. The results of this research contribute to understanding the impact of psychological factors in coronary artery disease.

Key words: coronary artery disease, super-ego, psychological factor

Introduction

In this paper we investigate the quality and characteristics of the coronary patients super-ego. Super-ego has a large impact on the feelings, plays an important role in the regulation of self esteem, and in psychodynamics of depression[1].

In estimating the super-ego we considered various elements and manifestations of super-ego:

quality of the super-ego, object sources of the super-ego, (where they were obvious), amplitude of outsourcing super-ego attitudes (return of identifications to objects), fragmentation of super-ego, the attained level in super-ego structuration, the extent to which conflicts are external or internalized, the regulation of self-esteem, the functions of super-ego, the influence of the primary process in the functioning of super-ego, the regression of super-ego, instinctive sources of super-ego, how own aggressiveness increases super-ego activity, to what extent are the instinctive desires sublimated.

Database (Medline Search, Kluwer Journals, psychoanalytic Electronic Publishing Archive CD Jourlit/Bookrev) searching have not found studies that have specifically dealt with the super-ego of patients with coronary artery disease, although a series of papers is published which explore the psychological characteristics of coronary patients.

For example, in the seventies of the twentieth century, cardiologists Friedman and Rosenmann[2,3] described the characteristics of coronary patients and called them the character A, and then they developed and used a measuring instrument, a test of character A, which is one of the best tests of stress. Bonaguidi and colleagues[4] used Cattell's inventory to investigate relationship between personality traits and behavioural responses in patients with acute myocardial infarction. They have found more pronounced super-ego in patients who had suffered acute myocardial infarction.

The research was part of a project 'Quality of life of somatic patients'. It was conducted in New Zagreb Hospital at the Cardiac surgeon Department of the KB Dubrava and at the Department of Psychological Medicine, of the Zagreb University Hospital Center, University of Zagreb. This study aimed to estimate the quality and properties of super-ego and investigate the influence of the quality of super-ego as the likely psychological factors in coronary artery disease.

Our hypothesis was that a significant number of patients with coronary artery disease has rigorous super-ego. We suppose that there are significant differences between sample of coronary patients and control group in the quality of super-ego, which shall become evident on the Kleinian Psychoanalytic Diagnostic Scale (revised version) (in further text the KPDS) sub-scale 11th 'degree of persecutory anxiety that comes from the super-ego' (persecuting super-ego) which shows the quality of super-ego. Also, we suppose that there are significant differences between sample of coronary patients and control group in ego attitude towards the demands of the super-ego which shall become evident on the KPDS sub-scale 14th 'kind of relationship with feelings of guilt' which shows ego attitude towards the demands of the super-ego.

Patients and Methods

The study included one hundred patients suffering from heart disease. All patients were hospitalized for heart surgery. Examiner who conducted the interview did not know before the interviews whether the respondent was suffering from coronary heart disease or other cardiac diseases. The main feature, on the basis that we included subjects in the sample was the presence of coronary artery disease. The main feature, on the basis that we included subjects in the control group was the absence of coronary artery disease and the presence of other cardiac diseases. Other cardiac disease was in most cases a heart valve disease. Sample (Group 1) consisted of 50 patients suffering from coronary artery disease. The control group (Group 2) consisted of 50 patients suffering from other heart diseases.

In the study, we used the following methods:

Random sample method

Sample and control groups were selected randomly among patients who met criteria for cardio surgical treatment and were hospitalized for scheduled heart surgery at the Department of heart Surgery, Dubrava University Hospital in Zagreb.

Method of equivalent groups

The groups were demographically matched by method of equivalent groups for age, sex, education, marital status and number of children *per* family. For the study, subjects were selected whose intellectual status was allowing adequate cooperation in the investigation, and we have excluded the patients with established psychiatric illness.

Review of medical records

Review of available medical records (access to specialist reports, discharge letters, medical histories) of all patients enrolled in the study allowed us a detailed introduction to their somatic diseases and sorting patients into two groups: a) suffering from coronary artery disease and b) suffering from other heart diseases.

As the methods and tools of psychological assessment of patients, we used a psychiatric interview, psychodynamic interview[5,6], psychodynamic estimate of super-ego and the KPDS. Mandatory prerequisite for psychodynamic and psychiatric interview was the patient's free and voluntary consent to an interview. Psychiatric and psychodynamic interviews are conducted simultaneously, and the assessment of patients by the KPDS the same day thereafter. During and after the interview we have observed and monitored the transference and counter-transference response, which has enabled us scoring the KPDS questionnaire.

Psychodynamic assessment of super-ego

In this research, the main purpose of psychodynamic interviews was to evaluate the super-ego. In psychodynamic estimate of super-ego, we took into account various elements and manifestations super-ego[7–14].

The Kleinian Psychoanalytic Diagnostic Scale (KPDS) (revised version)

After psychiatric interview, unstructured psychodynamic interview and psychodynamic assessment of super-ego evaluation of psychological structure profile and the structure of object relations of the individual s conducted on the KPDS scale based on what the interviewee said and what the examiner could detect in the relationship. In our study the use of the KPDS has enabled us systematize the abundance of data obtained using psychodynamic interviews (with special emphasis on psychodynamic assessment of super-ego) and to facilitate subsequent statistical elaboration of the data, which we consider important methodological contribution in this kind of research.

The KPDS is a standardized psycho-diagnostic instrument based on psychoanalytical theory of object relations[15]. The scale was constructed to allow the inclusion of psychodynamic and the corresponding object relations dimensions in clinical trials.

Statistical methods

The obtained numerical results were, in collaboration with the statistician, analyzed using standardized and accepted methods in the SPSS[16] statistical package on a personal computer. We used the Student t test and χ^2-test. To test score for the KPDS and sub-scales eleven and fourteen we used the Student t-test for independent samples, and to test the difference between the two groups in qualitative demographic variables we used the χ^2-test.

Results

The statistical analysis of demographic characteristics of Group 1 and Group 2 used the χ^2-test. The results of qualitative variables are shown in absolute and relative frequencies. Differences between groups 1 and 2 for qualitative variables (sex, marital status, number of chil-

dren in the family, education) were tested by χ^2-test for independent variables.

Table 1 shows the demographic characteristics of Group 1 and Group 2 and the results of statistical analysis thereof. For validation of statistical analysis (to satisfy the conditions for the interpretation of χ^2-test) in properties 'Number of children in the family' were merged categories 'Four children', 'Five children', 'Six children', 'Seven children' and 'Eleven children', and in properties 'Education' were merged categories 'Illiterate' and 'Unfinished primary school', as well as 'Associate degree' and 'University degree'.

Table 2 presents the results of statistical analysis of age for groups 1 and 2.

Quantitative demographic variable age was tested by Student t-test for independent samples and the χ^2-test. The results are shown by the arithmetic mean and standard deviation. Results of statistical analysis of demographic characteristics showed that Group 1 and Group 2

TABLE 1
DEMOGRAPHIC CHARACTERISTICS OF GROUP 1 AND GROUP 2 AND THE RESULTS OF STATISTICAL ANALYSIS THERE OF

(A)

	Group 1	Group 2	In total %	P
Male	40 (80%)	32 (64%)	72	
Female	10 (20%)	18 (36%)	28	0.075
Marital status				
Married	42 (84%)	44 (88%)	86	
Single	3 (6%)		3	
Separated	1 (2%)	1 (2%)	2	
Widowers/widows	4 (8%)	5 (10%)	9	0.368

(B)

Number of children in the family				
Childless	5 (10%)	2 (4%)	7	
One child	9 (18%)	9 (18%)	18	
Two children	22 (44%)	24 (48%)	46	
Three children	7 (14%)	6 (12%)	13	
Four children	5 (10%)	5 (10%)	10	
Five children	1 (2%)	1 (2%)	2	
Six children	1 (2%)	1 (2%)	2	
Seven children		1 (2%)	1	
Eleven children		1 (2%)	1	0.791**
Education				
Illiterate	1 (2%)	5 (10%)	6	
Unfinished primary school	4 (8%)	6 (12%)	10	
Primary school	4 (8%)	9 (18%)	13	
Secondary school qualifications	33 (66%)	25 (50%)	58	
Associate degree	3 (6%)	4 (8%)	7	
University degree	5 (10%)	1 (2%)	6	0.113

TABLE 2
RESULTS OF STATISTICAL ANALYSIS OF AGE FOR GROUPS 1 AND 2

	Group 1	Group 2	P
Age (years)	60±8.1	57.3±11.2	0.167

were equivalent by gender, age, marital status, number of children in the family and educational attainment.

Also, we performed a global evaluation of the personality of patients through the KPDS. The results of sub-scales 11th 'degree of persecutory anxiety that comes from the super-ego' (persecuting super-ego) and 14th 'kind of relationship with feelings of guilt', referring to the super-ego, we have observed separately, too, given the specific needs of this research. Sub-scale 11th shows the quality of super-ego, and the sub-scale 14th ego attitude towards the demands of the super-ego.

The statistical analysis of results and results of the KPDS (quantitative variables) are shown using the arithmetic mean, standard deviation and the meridian.

The differences between Group 1 and Group 2 (since the distributions followed Gaussian distribution) were tested by Student t-test for independent samples.

Table 3 shows the overall results of Group 1 and Group 2 on sub-scales 11th, 14th, 11th + 14th, KPDS and differences in overall results between the groups.

Table 4 shows the statistical differences found between Group 1 and Group 2 on the 11th sub-scale. Group 1 has 56.7% more points than Group 2.

Table 5 shows the statistical differences found between Group 1 and Group 2 on the 14th sub-scale. Group 1 has 79.7% more points than Group 2.

Table 6 shows the statistical differences found by summation sub-scale 11th and sub-scale 14th between

TABLE 3
OVERALL RESULTS OF GROUP 1 AND GROUP 2 ON SUB-SCALES 11TH, 14TH, 11TH + 14TH, KPDS AND DIFFERENCES IN OVERALL RESULTS BETWEEN THE GROUPS

In total	Sub-scale 11th	Sub-scale 14th	Sub-scale 11th + Sub-scale 14th	KPDS
Group 1	94	106	200	1479
Group 2	60	59	119	1101
Difference	34	47	81	378

TABLE 4
SHOWS THE STATISTICAL DIFFERENCES FOUND BETWEEN GROUP 1 AND GROUP 2 ON THE 11TH SUB-SCALE. GROUP 1 HAS 56.7% MORE POINTS THAN GROUP 2

	Arithmetic mean	±	Standard deviation	Median	Sub-scale 11th Total points
Group 1	1.9	±	0.4	2	94
Group 2	1.2	±	0.4	1	60

T=8.09 df=98 p<0.001

TABLE 5
STATISTICAL DIFFERENCES FOUND BETWEEN GROUP 1 AND
GROUP 2 ON THE 14TH SUB-SCALE. GROUP 1 HAS 79.7% MORE
POINTS THAN GROUP 2

	Arithmetic mean	±	Standard deviation	Median	Sub-scale 14th Total points
Group 1	2.1	±	0.5	2	106
Group 2	1.2	±	0.4	1	59

T=10.23 df=98 p<0.001

TABLE 6
STATISTICAL DIFFERENCES FOUND BY SUMMATION
SUB-SCALE 11TH AND SUB-SCALE 14TH BETWEEN GROUP 1
AND GROUP 2

	Arithmetic mean	±	Standard deviation	Median	Sub-scale 11th + Sub-scale 14th Total points
Group 1	4.0	±	0.7	4	200
Group 2	2.4	±	0.7	2	119

T=10.93 df=98 p<0.001

Group 1 and Group 2. The sum of the sub-scale 11th and sub-scale 14th of Group 1 was 68.1% greater than the sum of Group 2.

Table 7 shows the statistical difference in overall results of the KPDS of Group 1 and Group 2. Total score the KPDS of Group 1 was 34.3% higher than Group 2.

Statistical analysis of the KPDS results showed significant difference between Group 1 and Group 2 on sub-scale 11th, and sub-scale 14th, the sum of the sub-scale 11th and sub-scale 14th, as well as the total number of points the KPDS and in a way that Group 1 has significantly higher scores than Group 2.

TABLE 7
SHOWS THE STATISTICAL DIFFERENCE IN OVERALL RESULTS
OF KPDS OF GROUP 1 AND GROUP 2

	Arithmetic mean	±	Standard deviation	Median	KPDS Total points
Group 1	29.6	±	5.6	30.0	1479
Group 2	22.0	±	4.8	22.0	1101

T=7.28 df=98 p<0.001

Discussion

In this study, we explored the quality of super-ego as well as psychosocial determinants of mental qualities, character and behaviour of coronary patients.

Higher total score on the KPDS indicates more regressive psychic structure and object relations.

Higher score on the KPDS sub-scale 11th 'degree of persecutory anxiety that comes from the super-ego' (persecuting super-ego) is related to more regressive super-ego functioning.

Higher score on the KPDS sub-scale 14th 'kind of relationship with feelings of guilt's, is related to problems which ego has in meeting demands of strict and punishing super-ego.

From these results it is evident that significant number of patients suffering from coronary disease has a strict super-ego, which is substantially different from super-ego in control group. The results also show that the ego of coronary patients is largely occupied in meeting the requirements of strict super-ego, which draws its energy and limits functioning free of conflict. Such differences found expression for example in attitudes towards work, ambition, levels of life and professional stress and family support. The requirements of strict super-ego exhaust ego and limit it in an optimal adaptation to reality. Strict super-ego affects workaholic lifestyle, prevents stress relaxation and change of lifestyle. It also has adverse impact on family relationships. Strict super-ego contributes to sense of failure because of the unconscious paranoid anxiety or depressive guilt.

The results obtained are consistent with other reports, which do not specifically deal with the super-ego of coronary patients. Nasilowska-Barud[17] in the study of anxiety in men who had suffered myocardial infarction found that about 60% of patients have a high level of internal tension, which was in connection with the conflict of the super-ego and the instincts. Nirkko[18] and colleagues found differences between the super-ego of patients who died of myocardial infarction and patients who survived. Bonaguidi[19] and colleagues in patients who had suffered an acute myocardial infarction have found a significantly more rigid super-ego than in healthy control group.

Results of the study confirm the initial hypothesis about the presence of a strict super-ego in the group suffering from coronary disease.

Conclusion

A significant number of patients with coronary artery disease has rigorous super-ego. Super-ego of patients with coronary disease is more rigorous than the super-ego of patients in the control group. Super-ego is involved in the complex interaction of psychological factors with other risk factors of coronary heart disease.

R E F E R E N C E S

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SUPER-EGO OBOLJELIH OD BOLESTI KORONARNIH ARTERIJA SRCA

S A Ž E T A K

U ovom radu istraživali smo super-ego oboljelih od bolesti koronarnih arterija srca. Rezultati ovog istraživanja su potvrdili početnu hipotezu da značajan broj bolesnika oboljelih od koronarne bolesti ima strogi super-ego. Između bolesnika oboljelih od koronarne bolesti (N=50) i kontrolne skupine (N=50), našli smo značajne razlike u kvaliteti superega i u stavu ega prema zahtjevima superega. Rezultati ovog istraživanja doprinose razumijevanju utjecaja psiholoških čimbenika u koronarnoj bolesti.