

Psychologische kenmerken van hartinfarctpatiënten : een medisch-psychologische studie

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SUMMARY.

I. MY OWN RESEARCH PROJECT.

I.1. Purposes

The objective of this research has been derived from the hypothesis of psychosomatic specificity, which according to Groen et al. (1965)- implies "that for the existence of a specific disease picture three factors are essential: a certain personality structure, a certain interpersonal conflict situation and a certain behavior pattern in such a situation".

In view of the empirical character of the afore-mentioned research and the nature of the research instrument, the following objectives have been derived from this general hypothesis of psychosomatic specificity: The testing of the hypothesis, that persons with a specific disease picture distinguish themselves in certain psychological variables from persons not suffering from that specific syndrome. The hypothesis of psychosomatic specificity is so complex that only the part of "the personality structure" in relation to the pathogenesis of myocardial infarction has been examined.

I.2. The "specific" disease picture

The myocardial infarction was chosen as the "specific" disease picture for the concerned study. The above-mentioned general hypothesis has been tested by comparing the results of certain variables of male myocardial infarction patients (Mips) with those of:

- a. "healthy" males,
- b. male asthmatics and
- c. males with medical diagnoses other than infarction and bronchial asthma.

I.3. Research instrument

For testing the Rating of Statements List (R.S.L.; -Dutch: BUL-) has been used, specially constructed for this research dealing with the testing of the hypotheses.

The contents of the items has been based on clinical-psychological personality and behavioral descriptions of myocardial infarction patients (Mips) and asthmatics. In a number of cases the items consist of verbal expressions frequently used by these patients themselves. The descriptions and expressions were formulated into statements with

the associated 6 point rating scales.

The underlying expectation, while generating these items has been: that Mips - gathering from certain clinical-psychological descriptions and characterizations - would show a different way of evaluating certain items than asthmatics or "healthy" males.

I.4. Variables

The R.S.L. consisting of 69 items was presented to more than 1300 males considered "healthy" (according to certain criteria) with ages varying between 15 and 65.

This material served as a basis for a factor-analysis, showing 6 factors that could be interpreted. Based on the contents of the relative highloading items these factors could be mentioned as follows:

1. R.S.L.-Factor I (R.S.L.-I), which is supposed to measure the personality characteristic "aggressiveness".
2. R.S.L.-Factor II (R.S.L.-II), which is supposed to measure the personality characteristic "depressiveness".
3. R.S.L.-Factor III (R.S.L.-III), which is supposed to measure the appreciation for "activity and work".
4. R.S.L.-Factor IV (R.S.L.-IV), supposing to measure "ambition and dominance".

Since the variables age and education show the highest loadings on this R.S.L.-IV, it is doubtful that this R.S.L.-IV specifically reflects the assumed personality characteristic. In this connection said R.S.L.-IV has not been used in this research.

5. R.S.L.-Factor V (R.S.L.-V), which is supposed to measure the personality characteristic "sociability" (relatedness to other people).
6. R.S.L.-Factor VI (R.S.L.-VI), which is supposed to measure the personality characteristic "job responsibility".

I.5. Relevant dimensions, based on psychosomatic literature

From a factor-analytical processing of the research data it emerged that certain clinical-psychological descriptions and characterizations could be statistically considered to be objective variables by means of R.S.L.-items.

In the following stage of research the concerned psychosomatic literature was again reviewed and classified according to "dimensions" found through factor-analysis.

In chapter 3 the clinical-psychological and objective test-psychological data are mentioned concerning "aggressiveness"

shown by patients suffering from coronary heart disease (CHD), in chapter 4 those concerning "depressiveness".

In chapter 5 data with regard to the degree of activity and work ethic, shown by CHD patients are reviewed and in chapter 6 data concerning sociability.

Finally psychosomatic literature data on the subject of "job responsibility" of CHD patients are advanced in chapter 7.

I.6. Hypotheses

In chapter 8 the R.S.L. testable hypotheses are derived from the above-mentioned literature data.

These hypotheses are thereby viewed as "differentiations" from that part of the psychosomatic specificity hypothesis which deals with "personality structure".

Moreover, chapter 8 also mentions some psychosomatic literature data concerning certain "characteristics" of asthmatics in order to be able to analyse the implication of the specificity hypothesis, that persons suffering from the "specific" disease A differ in their personality structure from persons suffering from the "specific" disease B.

From literature data on asthmatics and Mips the differences between both groups are derived and formulated to testable hypotheses. Testable hypotheses with regard to differences between male Mips and "healthy" males are also mentioned in chapter 8.

To extend the field of research of the complex specificity hypothesis a control group was formed consisting of males hospitalized in a clinic for internal diseases, with various diagnoses other than myocardial infarction and asthma (the "Internal" group). This was done to investigate the implication contained in the hypothesis of psychosomatic specificity, that should the "personality structure" of Mips be specific, this specificity should also become apparent when Mips are to be compared, on relevant variables, with persons with different medical diagnoses (various "specific" disease pictures).

I.7. Research findings on comparing myocardial infarction patients with healthy males

In 3 tests male Mips score, in comparison with healthy males, in accordance with the hypotheses, significantly:

- higher in the "aggressiveness" direction on R.S.L.-I,
- higher in the "sociability" direction on R.S.L.-V, and
- higher in the "job responsibility" direction on R.S.L.-VI.

In 2 of the 3 tests male Mips score, in comparison with healthy males, in accordance with the hypothesis:
- significantly higher in the "activity and work" direction on R.S.L.-III.

It should be noted here, that in the only case in which this was not found the experimental group of Mips scores differently on R.S.L.-III from the two other experimental groups of Mips in an unfavourable direction, as regards the hypothesis to be tested.

The control group "healthy males" scores differently too on R.S.L.-III, in comparison with the two other control groups of "healthy males", also in an unfavourable direction, as regards the hypothesis to be tested.

Given the entire results, the hypothesis in question can yet be considered to be supported and tenable.

In none of the 3 tests is a statistically significant support found for the hypothesis that male Mips show more "depressiveness", in comparison with "healthy" males.

I.8. Research findings comparing myocardial infarction patients with asthmatics

In 1 of the 2 tests male Mips score, in comparison with male asthmatics, in accordance with the hypothesis, significantly:
- higher in the "activity and work" direction on R.S.L.-III.

In neither of the two tests has statistically significant support been found for the hypotheses, that male Mips in comparison with male asthmatics, show a higher positive appreciation when rating statements concerning resp.

- a. "relatedness to people" and
- b. "job responsibility".

I.9. Research findings comparing myocardial infarction patients and patients suffering from various syndromes other than myocardial infarction and bronchial asthma

In one test Mips score, in comparison with patients with diagnoses other than myocardial infarction and asthma, in accordance with the hypotheses, significantly:

- higher in the "aggressiveness" direction on R.S.L.-I,
- higher in the "sociability" direction on R.S.L.-V and
- higher in the "job responsibility" direction on R.S.L.-VI.

In one test no support is found for the hypothesis that male Mips, in comparison with males with medical diagnoses other than myocardial infarction, show a higher positive appreciation when rating statements concerning "activity and work".

The difference found lies even in the opposite direction from what has been expected. It should be noted here, that the experimental group of Mips scores differently from the two other groups of Mips in an unfavourable direction, as regards the hypothesis to be tested. If for testing the material of the other experimental group of hospitalized Mips should have been used, then a statistically significant support for the hypothesis concerned was found. This evidence at least justifies a second test of the hypothesis in question, before absolutely rejecting it. The other results will first have to be cross-validated before the acceptability of the hypotheses concerned can be adopted.

I.10. General conclusions

1. By repetition 4 of the total of 5 hypotheses concerning the differences between male Mips and "healthy" males have been empirically supported (see I.7.). This supports indirectly that part of the hypothesis of psychosomatic specificity, dealing with differences in "personality structure" between persons with a "specific" disease picture and "healthy" persons. The tested hypotheses concerned can indeed be considered as "differentiations" of precisely that part of the specificity hypothesis.

Based on the retrospective character of the research material however, it cannot be determined whether the differences found preceded the myocardial infarction or were a result thereof. It should be emphasized that these differences are based on comparisons between groups. A strong overlap of the scores is found when scrutinizing the individual R.S.L.-factor scores of the Mips and the "healthy" men. This means that a relatively large part of the Mips does not manifest the hypothesized personality traits. In this context it seems better to speak of "typicity" than of "specificity" with regard to certain personality characteristics of psychosomatic patients.

2. From the results as mentioned in I.8. it can be concluded that groups of male Mips and groups of male asthmatics hardly show any differences on the psychological variables used. With these results the implication of the hypothesis of psychosomatic specificity, that persons suffering from disease A ("specific" syndrome) and persons suffering from disease B (other "specific" syndrome) should show certain differences in their "personality

structure", is not supported.

3. From the results mentioned in I.9. it becomes clear that "personality traits" characteristic for Mips emerge more clearly when these patients are compared with males suffering from various "specific" syndromes. This combined with the results as mentioned in I.8. makes it most probable that the same personality traits are relatively highly correlated with various "specific" syndromes

II. A/B-TYOLOGIE AND THE JENKINS ACTIVITY SURVEY (JAS)

II.1. Description and research findings.

In chapter 12 the A/B-typology, as developed by the American cardiologists Friedman and Rosenman and the psychological questionnaire based thereon: the Jenkins Activity Survey (JAS), are described.

The similarities of the so-called Type A behavior pattern with the described traits characteristic for CHD patients are remarkable; such as a higher degree of aggressiveness (see chapter 3), the increased degree of activity and work (see chapter 5) and their strong ambition (see 12.7.1.). The relevancy of the Type A behavior pattern when searching for risk-factors for CHD appears amongst other things from the Western Collaborative Group Study (WCGS).

During the prevailing research it became clear that CHD occurred well over twice as much among Type A males than among Type B males.

By a follow-up research after 8½ years the risk ratio of well over twice as much still exists. Thus, the construct of the A/B-typology has a certain predictive validity as regards the development of CHD. When comparing this predictive validity with that of certain known somatic risk factors, this predictive validity does not seem to be surpassed by those of the somatic factors.

Jenkins (1968) tried to objectify the A/B-typology by constructing a questionnaire: The Jenkins Activity Survey (JAS). This survey is meant "for measuring the coronary-prone behavior pattern". With the so-called A/B scale of this JAS 68% of the Type A males and 73% of the Type B males could be identified as such. Factor-analyses of the JAS-questionnaires filled out by the WCGS males revealed 3 independent factors, namely: H(ard-driving), J(ob-involvement) and S(peed and Impatience). In a retrospective research the A/B scale and the JAS-factor H appeared to have a reasonable

concurrent validity with regard to CHD. In a prospective research only the A/B scale appeared valid. As a predictor on an individual level the A/B scale of the JAS leaves much to be desired.

Later research showed that the diagnostic category CHD is too broad for developing a relevant scale; also as far as "personality traits" are concerned one should differentiate in: acute infarction, "silent" infarction and angina pectoris, so that at least, for predictive purposes, three different scales should have to be constructed (Jenkins et al. 1978). Appels (1979) adapted the JAS for the Netherlands. At the moment the American version seems to identify Type A males better than the Dutch version, as far as Type B males are concerned both versions are about equal. The Dutch A/B scale has some relevancy in the cardiovascular field.

The JAS-Factors H(ard-driving) and J(ob involvement) are recognizable in the R.S.L.-Factors III (Activity and work), IV (Ambition/Domination) and VI (Job responsibility).

On the other hand no equivalent for the R.S.L.-Factor I (Aggressiveness) can be assigned in the JAS, neither for the R.S.L.-Factor II (Depressiveness) nor for the R.S.L.-Factor V (Sociability). However, for the JAS-Factor S(peed and Impatience) it is not easy to find an equivalent in the R.S.L..

II.2. R.S.L.-results with Type A and Type B males

Judging from the considerable degree of similarity between the clinical descriptions of the personality and the behavior of CHD patients and the characteristics of the Type A behavior and the similarities between the JAS and the R.S.L. it may be assumed, that certain characteristics of Type A behavior pattern can be measured by means of the R.S.L..

During research Type A males scored much higher on R.S.L.-I in the "aggressiveness" direction, in comparison with Type B males; on R.S.L.-III they scored higher in the "activity and work" direction and on R.S.L.-IV higher in the "ambition and domination" direction.

Certain differences expected from the A/B-typology between Type A and Type B males appear to be significantly statistically demonstratable by means of an objective method, developed apart from said typology.

With the aid of a discriminant function 80% of the Type A males and 79% of the Type B males could be identified as such.

III. SUGGESTIONS FOR FURTHER STUDY

III.1. Introduction

The research described in this thesis shows how groups of myocardial infarction patients and groups of asthmatics, hardly manifested any differences on the psychological variables used. Moreover, when compared with healthy people an identical scoring pattern is found in most cases. On these grounds it is to be expected that this applies equally as well to the discriminant function of the R.S.L., found during the A/B-typology study. In other words: a relatively high score on this variable discriminating between Type A and Type B males (pointing at the Type A behavior pattern) is not only correlated with an increased chance on CHD, but probably also with an increased chance to be seized with another (psycho)somatic illness.

It is very likely that the same also applies to the A/B scale of the American as well as the Dutch version of the JAS and for the Type A people, selected by means of the standardized interview. This implies that there is a wide field of research open for further work, based on the present data, in the course of which not only CHD's but also other syndromes can be subject to research.

Two aspects of such a research of the risk factors by the occurrence of certain syndromes are hereby elaborated, namely:

- a. the research design and
- b. the relevant psychological variables.

III.2. Preferences with regard to the research design

When studying the risk factors causing CHD (or another disease) the prospective research design is to be preferred. This applies to studying biomedical as well as psychomedical risk factors.

Appels (1978) e.g. mentions that high blood-pressure (somatic risk factor) can disappear after an infarction. The role of high blood-pressure as a risk factor when a CHD occurs would then give a distorted picture in a retrospective study. In this way the results of the psychological variables can have been influenced by having lived through a disease, as evidenced by the answers given to the psychological questionnaire. In this connection a prospective cardiovascular study of Friedman et al. (1974)* can be mentioned, in which in the

*Gary D. Friedman is referred to in this case and not the originator of the A/B-typology Mayer Friedman.

psychological method e.g. the item: "I work better under pressure of outside demands, deadlines etc." occurs. It can be expected - that in view of the A/B-typology and the descriptions of Mips - that prospective Mips will answer with "yes" to this more often than persons who will stay free of an infarction. From their data however, it becomes clear that of the persons, who developed a myocardial infarction after they had answered this question, 18% had given the answer "yes".

Of the controls, on the other hand, 28% had given the answer "yes" ($p < .01$). Only via a prospective design the real predictive validity of this item with regard to developing myocardial infarction could be found out. The same could be applied to other somatic syndromes, if these should be brought into a prospective study. Another advantage of a prospective research design is to obviate the factor "selective dying". This means, that in this way information can also be used (e.g. answers on test questions) concerning patients, who in the meantime have died of the disease in question.

Of myocardial infarction e.g. it is known that about 30% immediately die of the infarction. In a retrospective design all information of these 30% is lost beforehand. A combined medical/psychological prospective study could offer the following advantages:

- a. with regard to medical diagnoses; the correct diagnosing is indispensable, in view of the findings, that for the construction of a relevant predictive psychological test variable a distinction should be made between the various manifestations of CHD (see II.1).
- b. from data published by Rosenman et al. (1975), based on the WCGS follow-up study after 8½ years, it can be deduced, that with Type A males between 39 and 49 years of age with systolic hypertension, the average yearly incidence of CHD is 2,6 times larger than with males of Type B of the same group also having systolic hypertension. For diastolic hypertension this ratio is 2,4 times greater.

This indicates, that a predictive formula will be most valid, when an combination of somatic as well as psychological variables is used. For a number of other somatic syndromes such suppositions appear to be obvious.

A longitudinal medical/psychological design enables us, when following the subjects for years, to select those persons developing a certain somatic disease, after they have been examined.

Persons with the same disease can then be considered to belong to an external criterion-group. The psychological questionnaire(s) filled out by these persons can serve as a basis to carry out an item-analysis, which means finding out which test-items discriminate between persons with or without that disease. On this basis (a) variable(s) can be constructed with a predictive validity. This variable can then be looked upon as a psychological risk factor. In a continued study it should have to be found out, how high this predictive validity is, preferably in combination with medical/somatic risk factors.

III.3. Psychological variables considered relevant

III.3.1. Introduction.

In a prospective study, as described above, the question arises which psychological test variables can, in this case, be considered relevant. Based on results from our own research and those of other researchers, a number of test-psychological variables arise, which can be considered as the risk profile of the CHD-patient.

To what degree such a profile also applies to persons with another somatic disease, is not dealt with here.

A psychological test carried out for prospective CHD-study would contain items correlated with various dimensions, which will be summed up successively below.

III.3.2. Aggressiveness/Hostility

Starting from the results of the R.S.L.-research the dimension "Aggressiveness" or "Hostility" appears very promising for an explorative study of the psychological risk factors in the occurrence of CHD (see I.7.).

Indications in the same direction were found by Klein and Parsons (1968), Theorell and Rahe (1972), Van Dijn and Nagelkerke (1978) (see 3.2.5.), and it should also be remembered, that "Hostility" is a component of the standardized interview of the A/B-typology. Evidence from the WCGS, that the Type A behavior goes together with an increased chance of CHD, shows that a "hostility" factor is relevant.

As a matter of fact Van Doornen (1979) did not find with the R.S.L., the relevancy of an "aggressiveness" dimension, as was found in the R.S.L.-I.

During that study R.S.L.-factor scores of 46 Mips and of males with a so-called Low risk and of males with a so-called High risk (as regards the development of CHD) were

used.

III.3.3. Depressiveness.

Although in my own research there was no indication found for the relevancy of a "depressiveness"-dimension, as measured by R.S.L.-II (see I.7.) as a psychological risk factor with CHD, there is still an amount of data, that continues to make a study, retaining this dimension, worth while. This would involve the results of the retrospective studies of Mordkoff and Rand (1968) with the MMPI (Minnesota Multiphasic Personality Inventory) and the Mood Scale of Clyde; and of Klein and Parsons (1968) also with the Mood Scale of Clyde; and of Thiel et al. (1973) with a modified Depression Scale of Welsh and Appels et al. (1979A) with the "Maastricht Questionnaire" (see 4.1.5.). By means of the last mentioned questionnaire, formerly called the "Rotterdam Questionnaire", Nass et al. (1979) found that out of 14 scales considered relevant, said list discriminated best on univariate level ($p = .01$), between a group of 58 male Mips and a group of 58 male controls matched for socio-economic status and age. Quite rightly the authors point at the possibility, that the increased depressiveness score of the Mips on this list can (also) be determined by having lived through an infarction. In this connection we should point out the negative results of the prospective studies of Ostfeld et al. (1964), Shekelle and Ostfeld (1965), Lebovits (1967) and Brozek et al. (1966). From a number of these studies it emerges that the "depressiveness"-dimension seems to be relevant when predicting a reinfarction. Van Doornen (1979, see III.3.2.) also indicates that a "depressiveness"-dimension still deserves our attention. The degree of increased depressiveness as established by him cannot possibly be determined by having lived through a CHD, as this was found for males with a High risk level, without having CHD. This probably points to an increased depressiveness preceding CHD. Van Doornen (1979) also mentions that in a discriminant analysis the R.S.L.-Factor II-depressiveness appeared to be the most important discriminant variable between the High and Low risk groups. Our own studies (1978) also show the relevancy of a "depressiveness"-dimension. Concluding for the present it seems advisable, when carrying out an epidemiological incidence study of the psychological risk factors to include a "depressiveness"-dimension in the study-program.

III.3.4. Activity/Work/Ambition/Job responsibility.

When searching for relevant testpsychological variables with CHD, dimensions come repeatedly forward that are connected with "being active", ambition, work, job responsibility and performance drive. These dimensions are brought together here under one heading, because they are all closely connected with "work" and "work climate".

Here we remind you of the retrospective research results of Wardwell et al.(1968) and the prospective ones of Brozek et al.(1966) (see 5.1.5.).

Also my own retrospective study shows the relevancy of such a dimension (see I.7.), as well as the R.S.L.-research with Type A and Type B males (see II.2.) and the recent study of Van Dijn and Nagelkerke (1978).

Findings published by Van Doornen (1979), Jenkins et al. (1974), and of Nass et al.(1979) also point to the relevancy in this matter of a dimension referring to "increased activity", ambition, job responsibility and performance drive.

III.3.5. Sociability.

In my own study the fact that Mips score higher than health males, on R.S.L.-V., in the direction "relatedness to people" is regularly shown (see I.7.). This points to the relevancy of such a dimension when studying CHD (and perhaps also when studying other syndromes?). This idea is also supported by the research results of Siltanen et al.(1975) with the aid of the Rorschach test and of Miles et al.(1954) with the 16 Personality Factors Test of Cattell (1957).

No support is found by Van der Valk (1960) with the aid of a questionnaire; by Stormont (1951) with the 13 Personality Factors Test of Guilford and Martin (1943); by Brozek et al. (1966) with the Temperament Schedule of Thurstone (1950); by Finn et al.(1966); Lebovits et al.(1967); Bruhn et al. (1967) nor by Van Doornen (1979) and Van Dijn and Nagelkerk (1978).

Besides its possible value for explorative study, all this renders the relevancy in this case of the dimension "sociability", in comparison with the dimensions mentioned before doubtful.

III.3.6. Neuroticism.

In connection with the meaning of a dimension: neuroticism, Van Doornen (1979) remarks, in his myocardial infarction

study with the aid of the "Self Evaluation Questionnaire" of Fey: "Although Depression and Neuroticism as possible elements of the myocardial infarction risk personality have been somewhat pushed to the background by the A-pattern, during the last few years, we think they are just as important aspects of the risk personality, whereby especially the element Depression deserves a renewed interest". Set off against this is the fact that in a prospective study by Lebovits et al.(1967) with the neuroticism scale of the MMPI no difference was found between future infarction during the course of the study. The data of the longitudinal research by Ostfeld et al.(1964) and Bruhn et al.(1969) are in agreement with this (see 4.1.5.). The relevancy of a neuroticism dimension for a prospective incidence study on CHD is therefore also doubtful.

III.3.7. Impatience and Time Anxiety.

Impatience (Speed and Impatience) is a factor in the JAS, having arisen from the Impatience-component of the Type A behavior pattern. Van Doornen (1979) also found this factor in factoranalytical research (see III.3.2.). This Impatience dimension has very likely a strong relation with Time Anxiety (a fear that time passes too rapidly). At least the test results of Nass et al.(1979) point in this direction. In their study they used amongst other things the Subscale Time Anxiety from the Western Time Attitude Scale (WTAS) of Winnubst (1975). On univariate level a significant discrimination between their group of Mips and their group of control-persons was found with the aid of this scale. For the group of Mips the Time Anxiety-scale correlated 0.54 with the Dutch version of the A/B scale of the JAS; and 0.53 for the group of controls. This points to an important relation between these dimensions; the inclusion of items, relating to Impatience and Time Anxiety in a total itempool also seems most promising when studying the psychological variables of CHD (and other diseases?).

III.3.8 . Conclusion.

Summarizing, the following guidelines can be given concerning the research design and the testpsychological variables thought relevant as risk factors associated with coronary heart diseases (and perhaps other somatic syndromes):

- a. with regard to the research design an epidemiological prospective incidence study is preferred. All this offers the following advantages:

1. Results on medical as well as psychological variables cannot be influenced by the manifest coronary heart disease or other possible diseases.
 2. The factor "selective dying" is obviated, which means that of persons immediately dying from their disease data are also available.
 3. A co-operation in the medical disciplines offers the best guarantee towards finding the correct diagnosis. Furthermore a predictive formula could be constructed in which medical as well as psychological variables will have a place.
- b. with regard to psychological variables thought relevant a psychological test-instrument should certainly contain items belonging to the following dimensions:
- Aggressiveness/Hostility,
 - Depressiveness,
 - Activity/Work/Ambition/Job responsibility/Performance drive,
 - Impatience and Time Anxiety.

Based on data available at the moment, the relevancy of the dimensions Sociability and Neuroticism cannot be convincingly justified.

Translated by Mrs.M.M.Meijers-Butzelaar.