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ABSTRACT

Research has shown a generally positive correlation between a person's propensity for illness and certain psychological variables. To investigate the relationship between an individual's age, sex, and degree of subscription to each of Albert Ellis' 10 irrational beliefs and their frequency and type of illness, 122 adults completed the Irrational Beliefs Test and an illness questionnaire. In general, the older subject with a high need for approval, competency, and achievement, a low need to find the perfect solution to every problem, and, to a lesser extent, a high dependency on other stronger persons correlated with more organ systems being affected by illness, more chronic illnesses, and, to some extent, a greater total frequency of illness. This was true more often in females than in males. The findings suggest that subscription to irrational beliefs in combination with age and sex tends to account for some of the variance in the selective process of illness not accounted for by natural environmental factors. (Author/JAC)

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Physical Illness and Subscription
To Ellis' Irrational Beliefs

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Physical Illness and Subscription.

To Ellis' Irrational Beliefs

The physical bases for illness have been well established for some time: certain physical conditions such as old age or extreme temperatures, and certain physical agents such as toxic drugs or infectious microbes are associated with a host of physical illnesses. But physical conditions such as these do not account for the total variance in the selective process of illness episodes, and it is now generally accepted that some interaction among physiological, psychological and social factors is involved in the balance between physical illness and health. Jacobs, Spilken and Norman (1969) have noted that even in times of epidemics, not all people become ill; disease is a selective process affecting some people more than others and is, at times, relatively independent of natural environmental factors. Similarly, Hinkle and his associates (Hinkle, Christenson, Kane, Ostfeld, Thetford & Wolff, 1958) have noted that the likelihood of becoming ill is different from person to person. Differences in ages, sex and opportunity to encounter infection do not entirely account for this variability.

Research has shown a generally positive relationship between more frequently ill groups of subjects and several psychological variables such as repression of problems, perception of threat, hopelessness, fear, perfectionism, anxiety, distress, hostility, preoccupation with problems, dependency, resentment and general neuroticism. Studies have also linked these types of negative affective states with specific physical illnesses. Both Selye (1956) and Hinkle et al. (1958) note

that such findings suggest that while the determinants of general susceptibility to illness are genetic and environmental, the actual life situations encountered are less important in this respect than the way in which these situations are perceived. In general, these individuals who are more frequently ill tend to perceive their life experiences as more challenging, more demanding and more conflict-laden than those less frequently ill. At the same time, they tend toward experiencing more disturbances of body function and process and of mood, thought and behavior as a result of their efforts to adapt to these perceived challenges and demands.

Research has also revealed a generally positive relationship between many of these same psychological variables and subscription to Ellis' "irrational beliefs" (e.g., Ellis, 1962; Goldfried & Sobocinski, 1975; Newmark, Frerking, Cook & Newmark, 1973). In light of these related, but as yet unconnected, findings associating anxiety, neuroticism, attitudes, emotional arousal, and negative affect to physical illness, and studies correlating subscription to Ellis' irrational beliefs with heightened anxiety, neuroticism, negative affect and emotional arousal, it was the purpose of this study to investigate directly the relationship between physical illness and irrational thinking (subscription to Ellis' irrational beliefs). Specifically, the present study investigated the relationship between persons' degree of subscription to each of Ellis' ten irrational beliefs, their age, their sex and the number, frequency and type(s) of physical illness they experience. It was hypothesized that a significant relationship would be found between persons' subscription to irrational beliefs and their susceptibility to illness.

Method

Subjects

Subjects were 122 individuals (70 females, 42 males), all 18 years or older, all solicited volunteers, selected from two midwestern communities to provide a reasonably broad distribution of subjects across the variables of sex, health, education, age and rational beliefs.

Instruments

Irrational Beliefs Test (IBT). The IBT (Jones, 1968) was used to measure and quantify the data for subjects' subscription to irrational beliefs. The test consists of 100 items and measures separately each of Ellis' ten "irrational beliefs" on independent scales of ten items each: (a) IBT1 = one must be loved and approved of by everyone, (b) IBT2 = one must be thoroughly competent, adequate and achieving, (c) IBT3 = some people are wicked and bad and must be blamed and punished, (d) IBT4 = it is awful when things don't go the way one wishes, (e) IBT5 = unhappiness is externally caused and one has little or no control over it, (f) IBT6 = one should worry and dwell over the possibility of dangerous and fearsome things, (g) IBT7 = it is easier to avoid than face difficulties and responsibilities, (h) IBT8 = one should be dependent on someone stronger than oneself, (i) IBT9 = the past is an all-important determinant of one's present behaviors, (j) IBT10 = there is invariably a right, precise and perfect solution to human problems and it is awful if that solution isn't found.

Each test item consists of a statement to which the subject indicates his/her degree of agreement on a five-point scale from "strongly disagree" to "strongly agree." Documentation of the instrument's adequacy with respect to its test-retest reliability and concurrent validity has been provided by Jones (1968) and Trexler and Karst (1973).

Briefly, both studies report a mean stability coefficient for the individual IBT subscales scales of .80. With respect to concurrent validity, Jones (1968) reports a significant correlation of .71 between the IBT and a 25-item self-report measure of psychiatric symptoms; Trexler and Karst (1973) found IBT scores to significantly differentiate public speaking anxiety subjects from two other groups of students.

DeVore-Johnson Illness Survey (DJIS). An illness questionnaire was constructed by the first author to assess each subject's history of illness type and frequency of illness within the past year. The questionnaire consisted of 73 named diseases and 41 named symptoms. Each subject was directed to mark the number of occurrences of illness episodes for each disease or symptom during the last year. Because not all illnesses lend themselves to being counted as discrete episodes (e.g., hay fever or high blood pressure) a count of the total number of types of illnesses was also computed. This value offered another, possibly more accurate, indicator of general illness susceptibility. In addition, a section was included on the questionnaire in which subjects marked which of their illnesses were of a chronic nature. A "chronic illness" was defined in the directions of the DJIS as "an illness of long duration, such as six months or more out of the last year, or of frequent recurrence, such as ten or more times in the last year."

Although it was recognized that data obtained from memory and self-report may not be precise, there was no evidence or apparent reason to suggest that subjects differed in their capacity to recall, or in their willingness to honestly reply, in a manner that would account for a significant difference in the distribution or frequency of illness.

Hinkel, et al. (1958) compared self-report results with available

medical records and found the recall of major episodes of illness for a 20-year period to be "generally good." Self-report of illness episodes has also been used elsewhere in similar types of research (e.g., Robbins, Meyersburg & Tanck, 1974; Stewart, 1965, 1966).

The illness questionnaire was, in part, assembled from sections of the Cornell Medical Index (Note 1), the Watkins Student Health Medical History Form (Note 2), and the standard Veterans Administration Medical Record, Form 10-7978c (Note 3). With the assistance of a local physician, rare, fatal and childhood diseases were eliminated from the illness list. Also in consultation with the physician, the organ systems of the body associated with each disease were designated, and the various delineations of chronicity, diseases and symptoms were made. The rationale for these classifications was the possibility that different measures of illness might show different relationships with the other variables of irrational belief, age, and sex.

Analysis

These instruments produced a total of 16 variables: ten IBT scores, age, sex, and four illness variables (frequency of illness, number of chronic illnesses, number of nonchronic illnesses, number of organ systems affected by illness).

Subjects' scores/responses on the two instruments were separated into two sets of variables (Set 1 = IBT scores, age, sex; Set 2 = illness variables). These two sets of variables were then analyzed by canonical correlation to determine the interrelation between them. Redundancy coefficients were computed to determine the amount of overlap between each set of variables in the canonical relationship (Stewart & Love, 1968; Weiss, 1972).

Results/Discussion.

A single significant canonical correlation was found ($R_c = .616$, $p < .001$). On the basis of this result, it appears that a relationship does exist between the variables of irrational belief, age and sex and the variables of the four measures of physical illness. The eigenvalue for this significant canonical correlation indicated the two variable sets to have a shared variance of 38%. However, due to the large number of variables and the limited amount of variance of these variables explained by the variate sets, this variance overlap proved to have little predictive power between the two variable sets. Specifically, the proportion of the total variance of the beliefs, age and sex variables which was explained by the first variable set of the variate (beliefs, age, sex) was 11%; the variance of the illness variables explained by the second variable set of the variate (illness set) was 25%. The resulting indices of redundancy revealed that given the first variable set (beliefs, age, sex), predictability for the illness variables was 4.26%; and given the illness set of variables, predictability for the beliefs, age and sex variables was 9.62%.

Due to the nonsymmetrical nature of the shared variance, as shown by the redundancy coefficients calculated for each set of the significant variate, the predictions which can be made between the variable sets are likewise nonsymmetrical. That is, given knowledge of the irrational beliefs, age and sex variable set, the best predictions for the illness variables would be 4.26%; and given the illness variable set, the predictability of the irrational beliefs, age and sex variables would be 9.62%. In sum, knowledge of the subjects' illness scores would provide a better basis for prediction of the subjects' irrational beliefs, age and sex, than vice-versa.

The canonical variable loadings for the significant canonical variate revealed the differential contribution of each variable to the predictability of the variate: For Set 1, the sex variable was the most significant predictor, followed by age, IBT1 (approval), IBT2 (perfectionism), IBT10 (perfect solutions) and IBT8 (dependency) respectively. For Set 2, organ system was the best predictor, followed by number of chronic illnesses. The signs of the variable loadings indicated the directionality of the variable measures in their relationship.

In discussing the above contributing variables, it may be concluded that if a subject is young, male, has a low score on IBT1 (approval), IBT2 (perfection), IBT8 (dependency), and a high score on IBT10 (perfect solutions), there is a tendency to have fewer organ systems affected by illness and fewer chronic illnesses. The converse is equally true for this data: older females scoring higher on IBT1, IBT2, IBT8 and lower on IBT10 are more likely to have a greater number of organ systems affected by illness and to have a greater number of chronic illnesses (and to a lesser extent, to have a greater total frequency of illnesses).

In sum, for the significant canonical correlation, the older the subject, and more often for females, a high need for approval, a high need for competency and achievement, a low need to find the perfect solution to every problem, and to a lesser extent, a high dependency on other stronger persons, will be correlated with a greater number of organ systems being affected by illness, a greater number of chronic illnesses and to some extent a greater total frequency of illness. In the converse, the younger the subject, more often for men, a low need for approval from others, a low need for competency and achievement, a

high need to find perfect solutions to problems and to a lesser extent a low dependency on others will be correlated with a fewer number of organ systems affected by illness, fewer chronic illnesses, and to a lesser extent a lower frequency of illness. In general these results coincide with the findings of other studies concerning illness and psychological variables such as perfectionism, dependency needs, and unfulfilled expectations regarding the behavior of others (e.g., Abse, Wilkins, van de Castle, Buxton, Demars, Brown & Kirschner, 1974; Eastwood & Trevelyn, 1972; Kerr, Schapira & Roth, 1969; McKinney, 1974; Schmalè, 1958).

Conclusion

Previous research has demonstrated that psychological variables are related to the incidence of general illness and specific illnesses. In this study, the ways in which people think, specifically their subscription to Ellis' irrational beliefs, in combination with their age and sex, has been shown to account for some of the variance in the selective process of illness not accounted for by natural environmental factors.

Reference Notes

1. Cornell Medical Index - Health Questionnaire. Cornell University Medical College, New York, N.Y., 1949.
2. Watkins Student Health Medical History Form. Watkins Memorial Hospital, The University of Kansas, Lawrence, Kansas, 1977.
3. Veterans Administration Medical Record Form 10-7978c, 1974.

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