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A VALIDATION STUDY OF INSTRUMENTS DESIGNED
TO MEASURE IRRATIONALITY.

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A validation study of instruments
designed to measure irrationality

by

Geoffrey Porosoff

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INTRODUCTION

An important current trend within the theories and practices of psychotherapy is the reconciliation between the cognitive and behavioral psychologies. Neither of these schools of thought are particularly recent additions to the literature of psychopathology or personality. One example of a cognitive theorist is Rokeach (1956; 1960; 1964), who in his investigations of authoritarianism and dogmatism dealt with the formal properties of belief systems. An individual's primitive or core beliefs, according to Rokeach (1960), are said to "develop early in life, are generally unquestioned, and are responsible for the sense of personal identity and stability that the person has about himself and the physical and social world" (Levy, 1970, p. 272). An example of a cognitive approach of possibly greater theoretical importance than Rokeach's, is that of George Kelly. Kelly (1955) conceives of people as scientists, constantly trying to predict and explain their environment as perfectly as possible. The tools that Kelly postulates are used for predictions and explanations are individualized, hierarchical, personal construct repertoires. A cognitive point of view that is rather different from either of the above is that of Glasser's (1965) reality therapy, which emphasizes the importance of values and responsibility. For all cognitive approaches, the concept of cognitive content is important, and has been described in terms of the idea of "self" (e.g., Murphy, 1947; Maslow, 1954) going all the way

back (in American psychology) to William James (1890).

Behavior modification has also been written about and employed for a number of years (e.g., Watson & Rayner, 1920; Jones, 1924). The concepts of positive and negative reinforcement, extinction, and counterconditioning have become part of the everyday vocabulary of many personality theorists and clinicians. Behaviorists are no longer viewed as belonging to a totally different approach from psychoanalysts, existential therapists, cognitively oriented therapists, etc. In fact, a clear trend has emerged whereby the principles and mechanisms of behavior modification are being used in conjunction with a variety of other techniques, some of which have a philosophical basis rather alien to the radical behaviorism (e.g., Skinner, 1953; 1955-6; 1957; 1963) from which they emerged. This blending of techniques and therapies has been greatly facilitated by the work of researchers in the area of social learning, such as Bandura (1968; 1969) and Rotter (1954; 1960; 1966), and by such influential cognitive theorists as Miller, Galanter, and Pribram (1960). Consequently, many psychologists have shifted their theoretical positions. For example, Lazarus (1971) now includes a variety of cognitive factors in his broad-spectrum behaviorism; Thoresen (1973; Thoresen & Mahoney, 1974) attempts to use the technology of behavior modification in pursuit of goals typically identified with "humanistic" psychology; Mischel (1973) now refers to "cognitive social learning;" and Mowrer (1967) emphasizes the relevance of values and responsibility. Bowers (1973) may be beating a rather dead horse in

his recent critique of "situationism," in that the S-R psychology that he so effectively dismembers has already been expanded and modified to include many of the "biocognitive" (Bowers, 1973, p. 314) factors that he discusses (e.g., Mischel, 1973).

A current school of thought that has integrated cognitive and behavioral principles, and which makes considerable use of philosophy as well, is the rational-emotive, or A-B-C theory of personality and behavior change postulated by Albert Ellis (1957, 1958; 1962, 1971; 1973a; 1973b; Ellis & Harper, 1961). One premise of Ellis' (1962) position is that people have free will; they are not predestined to act in any previously determined manner, nor are they prisoners of their own past experiences or habits. Instead, they may influence (given certain physical and environmental restrictions) their own lives, their own present, and their own futures. Ellis (1962) proposes that the irrational beliefs that people hold are directly related to their maladaptive behaviors and unhappiness. In other words, it is not the precipitating event--"A"--which causes an emotional disturbance--"C"--, but rather it is what the individual believes and tells oneself about that event --"B"-- that directly leads to the extreme emotional reaction. In order to help clients give up their irrational beliefs, Ellis employs teaching, arguing, behavior modification, homework assignments, and anything else that might work (Ellis, personal communication¹). The recent trend

¹RET workshop at Iowa State University in October, 1973.

of the cognitive and behavioral schools embracing each other more openly has evidenced itself in the writings of Ellis (e.g., 1973b) and by other proponents of this viewpoint, who have even begun to refer to their position as rational-behavior therapy (e.g., Maultsby, Stiefel, & Brodsky, 1972). Ellis' use of learning theory, behaviorism, and even his general eclecticism, can be observed consistently in a variety of his publications (e.g., 1958; 1962; 1973b). It is the purpose of rational-emotive therapy (RET) to get people to question their irrational beliefs and assumptions, and at the same time to have them learn to behave more adaptively, thereby obtaining lasting behavior change. Both cognitive and behavioral principles, then, are used to change both cognitive and behavioral factors.

What precisely are these "fundamentally unsound, irrational ideas" (Ellis, 1958, p. 43) that lead to neuroticism and to people being "inhibited, hostile, defensive, guilty, anxious, inert, uncontrolled, or unhappy" (Ellis, 1958, p. 42)? In one of his earlier publications, Ellis (1958) lists these twelve postulates:

1. The idea that it is a dire necessity for an adult to be loved or approved by everyone for everything he does--instead of his concentrating on his own self-respect, on winning approval for necessary purposes (such as job advancement), and on loving rather than being loved.
2. The idea that certain acts are wrong, or wicked, or villainous, and that people who perform such acts should be severely punished--instead of the idea that people who perform such acts are invariably stupid, ignorant, or emotionally disturbed.
3. The idea that it is terrible, horrible, and catastrophic when things are not the way one would like them to be--instead of the idea that it is too bad

when things are not the way one would like them to be, and one should certainly try to change or control conditions so that they become more satisfactory, but that if changing or controlling uncomfortable situations is impossible, one had better become resigned to their existence and stop telling oneself how awful they are.

4. The idea that much human unhappiness is externally caused and is forced on one by outside people and events--instead of the idea that virtually all human unhappiness is caused or sustained by the view one takes of things rather than the things themselves.
5. The idea that if something is or may be dangerous or fearsome one should be terribly concerned about it--instead of the idea that if something is or may be dangerous or fearsome one should frankly face it and try to render it non-dangerous and, when that is impossible, think of other things and stop telling oneself what a terrible situation one is or may be in.
6. The idea that it is easier to avoid than to face life difficulties and self-responsibilities--instead of the idea that the so-called easy way is invariably the much harder way in the long run and that the only way to solve difficult problems is to face them squarely.
7. The idea that one needs something other or stronger or greater than oneself on which to rely--instead of the idea that it is usually far better to stand on one's own feet and gain faith in oneself and one's ability to meet difficult circumstances of living.
8. The idea that one should be thoroughly competent, adequate, intelligent, and achieving in all possible respects--instead of the idea that one should do rather than always try to do well and that one should accept oneself as a quite imperfect creature who has general human limitations and specific fallibilities.
9. The idea that because something once strongly affected one's life, it should indefinitely affect it--instead of the idea that one should learn from one's past experiences but not be overtly-attached to or prejudiced by them.

10. The idea that it is vitally important to our existence what other people do, and that we should make great efforts to change them in the direction we would like them to be--instead of the idea that other people's deficiencies are largely their problems and that putting pressure on them to change is usually least likely to help them to do so.
11. The idea that human happiness can be achieved by inertia and inaction--instead of the idea that humans tend to be happiest when they are actively and vitally absorbed in creative pursuits, or when they are devoting themselves to people or projects outside themselves.
12. The idea that one has virtually no control over one's emotions and that one cannot help feel certain things--instead of the idea that one has enormous control over one's emotions if one chooses to work at controlling them and to practice saying the right kind of sentences to oneself (pp. 40-41).

In a later, and more widely acknowledged publication, Ellis (1962) again gives a listing of important irrational beliefs, this time in a far briefer fashion, and with the noticeable omission of the eleventh idea listed above. They include the following:

1. The idea that it is a dire necessity for an adult human being to be loved or approved by virtually every significant other person in his community.
2. The idea that one should be thoroughly competent, adequate, and achieving in all possible respects if one is to consider oneself worthwhile.
3. The idea that certain people are bad, wicked, or villainous and that they should be severely blamed or punished for their villainy.
4. The idea that it is awful and catastrophic when things are not the way one would very much like them to be.
5. The idea that human unhappiness is externally caused and that people have little or no ability to control their sorrows and disturbances.

6. The idea that if something is or may be dangerous or fearsome one should be terribly concerned about it and should keep dwelling on the possibility of its occurring.
7. The idea that it is easier to avoid than to face certain life difficulties and self-responsibilities.
8. The idea that one should be dependent on others and need someone stronger than oneself on whom to rely.
9. The idea that one's past history is an all-important determiner of one's present behavior and that because something once strongly affected one's life, it should indefinitely have a similar effect.
10. The idea that one should become quite upset over other people's problems and disturbances.
11. The idea that there is invariably a right, precise, and perfect solution to human problems and that it is catastrophic if this perfect solution is not found (pp. 61-87).

Despite the minor inconsistencies of language in the two listings, together they provide a fairly clear picture of what Ellis means by irrational ideas. As Ellis (1962), himself, states, "these ideas may be classified in various ways, so that the . . . listing is not meant to be definitive or non-overlapping, but constitutes one of several classificatory approaches which may be taken to modern irrationalities" (p. 61).

Although Ellis (1962) claims that he has discovered the principles of RET "independently (and that they are) constructed from my recent experience with patients" (p. 35), he does list several important influences. These range from such historical sources as Greek and Roman Stoic philosophers, such as Epictetus and Marcus

Aurelius, and ancient Taoist and Buddhist thinkers, to psychologists as diverse as Adler (1927), Horney (1939), Fromm (1941), Reich (1949), Dollard and Miller (1950), Rotter (1954), Kelly (1955), Wolpe (1958), and Eysenck (1961).

One major premise of RET that can be observed in several of the influences listed above, as well as in the irrational ideas cited earlier, is that there are no absolute standards or methods of divining how people should behave, and that belief in irrational absolutes of this type leads to a great deal of what is typically labeled as maladjustment, neurosis, or psychosis (Ellis & Harper, 1961). Ellis (1962) does not advocate that a person "think" more and "feel" less, but instead proposes that people question the irrational statements and beliefs that they tell themselves at "B." Then rational thinking could pave the way for less extreme emotional upsets, and more useful and efficient behaviors could be performed.

In Ellis' (Ellis & Harper, 1961) schema, a rational emotional reaction is one that is motivating, and energizes the individual into performing a behavior that is useful (i.e., removing a stressful stimulus, or coming into more contact with a pleasant stimulus). An irrational emotional reaction, on the other hand, is immobilizing, and keeps the person worrying and feeling sad, unworthy, anxious, or crazy. This latter type of reaction, of course, is not very compatible with doing something that might lead to more pleasing consequences. Ellis is not saying that his system will eliminate

feelings, do away with unhappiness, or totally remove anxiety, anger, depression, and feelings of unworthiness; he is saying that unpleasant feelings (with the exception of torture, and other forms of physical pain) don't have to last for extended periods of time, and that people can rationally choose to stop them and do something to feel better. It is their irrational belief systems, and what people tell themselves about what has happened, what will happen, or what should happen that lead to severe emotional upsets.

The supposition that irrational beliefs and emotional upsets are related is an obvious issue for researchers interested in RET. However, for any of Ellis' ideas concerning the relationship between irrationality and maladjustment to be tested, it is necessary first to have an adequate measure of irrationality. Fortunately, there have been some attempts to construct irrationality instruments. Measures have been devised by Argabrite and Nidorf (1968), Bard (1973), Fox and Davies (1971), Gustav (1968), Hartman (1968), Jones (1968), MacDonald and Games (1972), and Zingle (1965). Several of the above scales, however, have no reliability or validity data (e.g., Bard, 1973), some apparently are confounded with social desirability (e.g., Fox & Davies, 1971), and at least two have formats that make administration on a large scale impractical (e.g., Gustav, 1968). The most promising instruments for any investigation into RET concepts, based upon their reliability and validity data, include the scales of Jones (1968), Hartman (1968), and MacDonald and Games (1972). This will be more clearly illustrated in the

detailed review of irrationality instruments that follows. The primary concern of the remainder of this paper will be the measurement of irrationality: how it has been previously attempted, and what methods are most likely to be accurate in the future. When effective irrationality instruments are available, important theoretical and applied research concerning RET can take place.

Review of Irrationality Instruments

This section is based on a comprehensive review of the RET literature. The major source for research in this area is the journal, Rational Living, which is published under the auspices of the Institute for Rational Living, founded by Albert Ellis. In evaluating irrationality instruments, particular attention will be devoted to methods of test construction and to reliability and validity data.

Argabrite and Nidorf (1968) administered their fifteen item scale to 204 students in an introductory psychology class. The wording of the items was based on the writings of Albert Ellis and paraphrasings by Lynn (1966) and Gullo (1966). Each item consists of two extreme statements and three blank intermediate answers, giving a total range of five possible answers for each of the fifteen questions. Rational statement responses are scored "1," and extreme irrational statements are scored "5," with intermediate responses scored 2, 3, or 4. Thus 15 is the lowest (most rational) possible score, and 75 is the highest (most irrational) possible

score. The average total score of the class was 35.54 and the standard deviation was 5.66. Although responses to individual questions did not fall into perfectly normal distributions (the mean scores of all items were below 3.00), Argabrite and Nidorf (1968) explain this by arguing "that an average group of college students, such as our subjects, would be less neurotic than the general population" (p. 10) and that means of 3.00 would be expected only in the general population. Unfortunately, they cite no additional data to support this claim. In addition, although the authors report that "although this test tends to correlate positively with other, more traditional, tests of psychopathology in the main, the correlations are not particularly high" (p. 10). However, neither the correlations, nor the samples that they were obtained from are actually reported. The authors do assert that overt symptoms may not necessarily be associated with irrational beliefs, and support this with the psychoanalytic reasoning that irrational beliefs can be defense mechanisms which limit anxiety. Therefore, they would not be directly expressed in the form of symptoms. Without knowing what the "other" psychopathology measures Argabrite and Nidorf (1968) used, what the correlations were that they obtained, or the nature of the sample that these correlations were computed from, further speculation about their instrument does not appear worthwhile, especially after considering that several other instruments with more reliability and validity data are now available.

Bard (1973) developed a self-rating scale for rationality

"designed to sample opinions on several issues which seem to be most germane to the RET view of people and their problems. The scale is a revision of the scale we have been using to measure attitude change as a function of psychological homework. All items were derived from the writings of Albert Ellis. . . . It is therefore a 'valid' scale in that the founder and chief spokesman for RET has ruled on each of the items, i.e., either agreed or disagreed with them" (p. 19). The Bard scale consists of twenty statements to which responses ranging from +2 (strongly agree) to -2 (strongly disagree) are possible. No reliability data and no validity data (other than the administration of the scale to Albert Ellis) exists for this scale (Bard, personal communication, 1974). Its use, therefore, is ill-advised.

In order to measure the rationality of underachievers in secondary school, Zingle (1965) constructed a 122 statement inventory, with a five-point Likert-type response format, ranging from strongly agree, to undecided, to strongly disagree. The items were written with Ellis' (1962) eleven irrational beliefs in mind, with half of them being direct and half of them being inverse measures. In order to assess reliability, Zingle (1965) administered his Irrationality Inventory (II) to Ss from grades ten, eleven, and twelve, and then again, after a five week delay. A test-retest reliability coefficient of .80 was obtained. To determine validity, Zingle (1965) had three judges familiar with Ellis' writings rate each item as to which irrational belief it reflected.

Intercorrelations between the three judges and Zingle ranged from .75 to .85. To obtain evidence for construct validity, Zingle (1965) administered the II to 660 high school students "who were divided on the basis of discrepancy between scholastic capacity and achievement into three groups: overachievers, average achievers, and underachievers" (pp. 44-5). Zingle found that underachievers scored highest on irrationality, while the average achievers scored lowest, with each mean being significantly ($p < .01$) different from the other two. On the basis of these data, Zingle (1965) used the II in a study designed to see if counseling using RET would help underachievers. Zingle found that "underachieving students, counseled according to the rational-emotive therapy approach showed significant decreases in (their) irrational beliefs and significant increases in academic achievement" (p. 54). Students who were treated in another manner, however, also showed a decrease in irrational beliefs, without a corresponding increase in performance. It is difficult to draw conclusions from these data because, as Zingle (1965) himself points out, "only limited evidence of validity was obtained" (p. 55) on the II. It does not appear at this time that the II has sufficient validity data to mandate its continued use. In addition, the fact that it has been utilized solely with high school students further limits its usefulness.

The Adult Irrational Ideas Inventory (Fox & Davies, 1971), based on the Zingle (1965) instrument described above, was formed from many of the original items of the II, with some revised, some

kept the same, and a few new items added. From a total pool of 130 items, with a five-point Likert scale, choices ranging from "strongly agree" to "strongly disagree," 99 were selected, such that there were nine items for each of Ellis' (1962) outlined irrational beliefs. These items were then reviewed by judges familiar with RET, including Albert Ellis. The 99 items were then administered to a sample of 123 Ss, including males and females, various age groups, and a variety of occupations. The 60 items which had the highest item-total correlations were then chosen as the final Adult Irrational Ideas Inventory. Fox and Davies (1971) then administered this 60 item inventory to 110 university students for test-retest reliability data. They found a Pearson r of .77 and Kuder-Richardson formula 20 coefficients of .74 on the pretest and .78 on the retest. In addition, Fox and Davies (1971) administered both theirs and the Zingle (1965) II to a group of high school students, and the resulting correlation was .70. Finally, the authors sampled mental hospital patients, alcoholics, and "a socio-economically representative sample drawn from Edmonton--a northern Canadian city" (p. 24), and found no significant differences on irrationality between mental hospital patients and alcoholics, but significance ($p < .01$) for the comparisons (Sheffé multiple comparison of main effects) with both mental hospital patients and alcoholics when each group was compared with the "representative sample." Fox and Davies (1971) conclude that "the data gathered in this study definitely provides supportive evidence that the A-I-I

is a valid measure of irrationality as it is generally defined in R-ET theory. It is also clear that these results strongly support the basic tenet of R-ET that irrational beliefs and ideas are linked with emotional disturbance" (p. 24).

Cavior and Cone (1972) have presented a study that further examined the Adult Irrational Ideas Inventory (AII) described above. They point out that although Fox and Davies (1971) conclude that the AII shows promise of validity, they "presented no evidence as to the convergent or discriminant validity of their scale with respect to common measures of stable, personal-social characteristics such as intelligence, socioeconomic status, etc. Nor were they mindful of Campbell's (1960) suggestion regarding the need to show that new scales possess some degree of discriminant validity vis-à-vis the general social desirability (SD) factor" (Cavior & Cone, 1972; p. 13). Cavior and Cone (1972) then present their own data concerning the AII with respect to social desirability and the internal composition of the scale. After administering the AII and two measures of SD to 127 introductory psychology Ss (males and females), Cavior and Cone found that correlations (-.48 and -.45) between the AII and both SD scales were significant ($p < .001$). Also, an AII KR of .38 was obtained, indicating "an attenuated correlation of AII with the SD scales and . . . that the former contains a fairly heterogeneous item pool" (p. 14). Furthermore, "a principal components factor analysis . . . (with the) correlation matrix comprised of the 60 items of the AII and the two SD scales included as

markers" (p. 13) adds evidence to this speculation. There were not eleven factors, corresponding to Ellis' (1962) eleven irrational ideas, but only seven. Of those seven (the first being the SD factor), "only five . . . appeared to correspond with any of the eleven major irrational beliefs of Ellis" (p. 14) and "items designed by Fox and Davies to measure Ellis' eighth irrational idea were found to divide into two factors. Further, of the 28 items used by Fox and Davies to measure the four major irrational ideas tapped by this study, only fourteen had loadings over .40 on their respective factors; sixteen, if loadings of .30 are included. The average number of items loading factors interpretable as Ellis' irrational ideas was 2.8" (p. 14). Cavior and Cone (1972) conclude that "the AII pool is insufficient to measure each of Ellis' eleven ideas . . . (and that) additional items need to be constructed" (p. 14). Certainly these results make Fox and Davies (1971) claim that the AII "is a valid measure of irrationality as it is generally defined in R-ET theory" (p. 24) far more questionable.

In conjunction with a lecture series at the Institute for Rational Living, Gustav (1968) designed a projective technique for the assessment of adult personal adjustment. The test consists of ten "stems" used in a sentence completion format. Six of the stems were designed to elicit responses to Ellis' (1962) irrational ideas, three of the stems were expected to elicit "positive elements of people's adjustment" (p. 1), and one stem related to individual definitions of success. Gustav (1968) administered her sentence

completion test (SCT) to 89 people who were attending lectures designed to teach everyday applications of RET. Only twelve of the 89 Ss attended eight or more of the ten lectures, and these twelve took the SCT at the first and tenth lectures. The other 77 Ss "attended the lectures sporadically and took the test only once" (p. 1). Each item on each of the 101 test forms was then placed on a separate card, and a Q-Sort (Stephenson, 1953) procedure was then performed by three therapists acting independently of each other. The therapists sorted the cards into one of five categories, making judgments as to the nature of adjustment that the responses seemed to imply. Although Gustav (1968) concludes that "the Q-Sort results indicate that the test can be used reliably for evaluation of personal adjustment" (p. 3), the biased nature of the sampling must render all conclusions based on data from the study described above questionable, at best. In addition, the fact that the SCT is a projective instrument makes its use rather difficult for large scale research projects.

Another test that has been designed to assess levels of irrational thinking is the Personal Beliefs Inventory (PBI). Hartman (1968) administered an original pool of 135 items that were selected from an "extensive review of existing professional literature" (p. 7) to more than 500 college students. The sixty items yielding the highest item-total correlations were retained, and constitute the present form of the PBI. Each item is an irrational statement that can be responded to with any of five responses,

including totally disagree (0 points), disagree very much, disagree slightly, agree slightly, agree very much, and totally agree (5 points). Two separate samples of college students (30 and 85, respectively), from counseling service and classroom populations were administered the PBI, and reliability data were calculated. Test-retest reliability coefficients were .89 and .91, while split-half Spearman-Brown reliability coefficients were .95 and .90. Hartman (1968) then conducted two studies to see if the PBI was sensitive to changes in irrational thinking. One study was with eight clients undergoing RET, and the other was with a psychopathology class of 23 students. All Ss were given the PBI before RET principles were taught (before therapy and the first class period, respectively) and then again afterwards. For the clients, the mean PBI score dropped from 236 to 121, and for the students, the mean score dropped from 163 to 91. Although all of the above data are based on rather small samples, it does appear that the PBI has some evidence for both reliability and validity, and further exploration as to its usefulness definitely seems warranted.

Jones (1968) has developed what is probably the most carefully constructed measure of irrationality. He began by carefully listing and explaining ten irrational beliefs from the writings of Ellis (1962), and then writing forty items for each belief. A five-point, agree-disagree, Likert-type format was used. Half of the items were presented as rational statements and half were presented as irrational statements. The "best" 200 items to represent the ten

scales were chosen by three judges, who rated them according to how well they represented Ellis' (1962) irrational beliefs. These 200 items were then administered to 131 advanced undergraduate psychology students at Texas Technological College. Item scores were then factor analyzed, and the results enabled Jones (1968) to reduce the number of items per scale to thirteen (high item-total correlations and low item-item correlations were also used to select items). Another factor analysis allowed Jones (1968) to reduce the number of items to 100, "measuring ten irrational beliefs in separate scales, all of them validated against orthogonal factors" (p. 66). The ten scales include: demand for approval; high self-expectations; blame proneness; frustration reactive; emotional irresponsibility; anxious over-concern; problem avoidance; dependency; helplessness; and perfectionism.

In order to validate further the Irrational Beliefs Test (IBT), Jones (1968) administered his test to an additional 427 Ss, consisting of 105 junior college students, 73 senior students at Texas Technological College, 72 patients at a mental hospital (including alcoholics, chronic schizophrenics, 15 mixed diagnoses involving chronicity, and 20 mixed new admissions with acute symptomology), and 177 adult volunteers from the general population. With the data from these Ss, Jones (1968) was able to confirm virtually all of the following hypotheses:

1. "As determined by factor analysis, the irrational beliefs enunciated by Ellis are sufficiently distinct in content and stable in structure to be measurable as

separate constructs defined by factors which can be replicated in a separate nonhomogeneous population" (p. 35). This hypothesis was confirmed.

2. "As determined by factor loadings of scale items on factors defining the scales, construct validity of the IBT scales will exceed a minimum acceptable value of .40" (p. 37). This hypothesis was confirmed.
3. "The IBT will have sufficient homogeneity within scales to provide a minimum acceptable internal consistency reliability of .50 in any scale and a mean reliability of .60 for all scales" (p. 39). This hypothesis was confirmed using Hoyt's method, Guilford's method, and test-retest procedures.
4. "The reliability of measurement in the IBT and the stability of the domain will be sufficient to provide a test-retest correlation between scores over a 24 hour period of not less than .60 for any scale and not less than a mean of .75 for all scales" (p. 41). An actual correlation of $r = .92$ for the total test, and from .68 to .87 for the individual scales were obtained.
5. "There will be a significant positive functional relationship between irrational beliefs as measured by the IBT and the self-report of maladjustment symptoms" (p. 43). A multiple R of .72 was found between "symptom score" and the IBT.
6. "There will be a significant positive functional relationship between irrational beliefs as measured by the IBT and scales C-, H-, L+, O+, Q3-, Q4+, of the 16 PF" (p. 45). Results confirmed the hypothesis except for IBT scales 8 and 10, which were not related to 16PF clinical scales.
7. "There will be no significant functional relationship between irrational beliefs as measured by the IBT and scales A, E, F, G, I, M, N, Q1, and Q2 of the 16PF" (p. 47). This hypothesis was not confirmed. Positive correlations with IBT scores were found with A- (reserved), E+ (assertive), F- (sober), N- (artless), and Q2- (group dependent), while the scales of G (expedient vs. conscientious), I (tough-minded vs. tender-minded), and M (practical vs. imaginative) tended to correlate positively with some IBT scales and negatively with others.

8. "There will be a significant negative functional relationship between irrational beliefs as measured by the IBT and intelligence as measured by scale B of the 16PF" (p. 51). Only scales 3 and 9 of the IBT, and the IBT total score, were definitely positively related ($p < .05$) to scale B of the 16PF. Intelligence as measured by this scale does not seem to necessitate rationality as conceived by Ellis (or at least as measured by the IBT).
9. "The IBT will be a sufficient discriminator of mental disturbance that patients in a mental hospital will attain significantly higher scores than will subjects from a general adult population" (p. 53). This hypothesis was confirmed, except for scales 1, 4, and 8 of the IBT, with 4 and 8 providing virtually no difference in mean scores.
10. "There will be a significant negative functional relationship between irrational beliefs as measured by the IBT and age of the subjects" (p. 53). This hypothesis was not confirmed, with the exception of scale 6.
11. "Females will score significantly higher in irrational beliefs as measured by the IBT than will males" (p. 53). This hypothesis was not confirmed, except for scales 1, 4, and 8 of the IBT. There were significant sex differences for this sample, but the differences were scale-specific, rather than for the test as a whole. Jones concludes that "women were more inclined to perceive approval as a need, to overevaluate unpleasant events, to worry and be anxious, and to not be self-directing. On the other hand, men were more inclined to set high standards for themselves, to be blamers, to reject responsibility for their emotions, and to be perfectionistic" (p. 57).
12. "There will be a significant negative functional relationship between irrational beliefs as measured by the IBT and education level of the subjects" (p. 57). This hypothesis was confirmed for the total IBT score, and for half of the scale scores, while the other half were in the predicted direction but not significant.

Further evidence of the validity of the IBT arises out of two studies by Trexler and Karst (1972; 1973). In the first of these studies, the authors compared RET, using the IBT, with both

attention-placebo and no-treatment conditions, in an attempt to reduce public-speaking anxiety. Trexler and Karst (1972) found that both anxiety and irrational beliefs (as measured by the IBT) decreased more significantly after RET than after either of the other two conditions. Furthermore, scales 1, 2, and 4 seemed to be particularly related to public-speaking anxiety. In the second of their studies, Trexler and Karst (1973) present additional data from their earlier (1972) experiment. For example, test-retest reliability of the IBT total scores, after a two-week delay, was .88, and for individual scales, the range was from $r = .48$ to $r = .95$, with a mean of .80. All scales correlated at $p < .01$ with IBT total scores. Table 1 presents the results of IBT comparisons between speech anxious students before treatment with RET and the following groups: "normal" Temple speech students, "normal" Temple students from another study, Texas mental hospital patients from Jones' (1968) study, "normal" Texas Technological College students from Jones' (1968) study, and speech anxious students after treatment with RET. It is particularly interesting to note that after RET, the public-speaking anxious students had lower IBT scores than either the Temple or Texas "normal" groups ($t = 3.06$, $p < .05$, two-tailed test, compared with Texas student group). One final observation from the Trexler and Karst (1973) studies is that the IBT correlated positively and significantly ($p < .05$) with a thirty-item "Personal Report of Confidence as a Speaker" measure of anxiety.

On the basis of the Jones (1968) and Trexler and Karst (1972;

Table 1. Comparison of IBT scores for experimental Ss (pre-treatment) with other Ss (Trexler & Karst, 1973, p. 152)

Comparison	Mean	S.D.	t ^a	p < ^a
Experimental <u>Ss</u> (pretreatment; N = 33)	299.42	29.68		
Temple speech students (N = 33)	285.58	27.77	1.96	.05
Temple students in another study (N = 46)	284.50	37.54	1.90	.05
Texas Mental Hospital patients (N = 72)	305.97	35.80	.98	.20
Texas students (N = 157)	281.44	33.21	3.10	.001
Experimental <u>Ss</u> (post-treatment; N = 33)	261.51	33.20	4.84	.001

^aOne-tailed t-tests.

1973) studies described above, the Jones (1968) IBT appears to be worthy of further research in the area of irrational beliefs and psychopathology.

MacDonald and Games (1972) conducted three studies to consider another irrationality scale. While other researchers in this area have based items upon the writings of Albert Ellis and various other RET spokespersons, MacDonald and Games (1972) actually used the eleven irrational values cited by Ellis (1962) as indicative of irrational thinking and maladjustment. By presenting these eleven statements along with a nine-point rating scale, ranging from 1 (completely disagree) to 9 (completely agree), the authors sought to determine directly the utility of Ellis' eleven statements.

In the first of their three studies, MacDonald and Games (1972) administered their "scale" to sixty West Virginia University students (41 males and 19 females). They found that two of the eleven statements were not reliably associated with total scores. These statements were "It is easier to avoid certain difficulties and self-responsibilities than to face them" and "Past experiences and events are the determiners of present behavior; the influence of the past cannot be eradicated" (p. 26). In addition, these items were not significantly related to the other items ($p < .05$). Therefore, these two statements were removed, and all other statistics were reported on the basis of the resulting nine-item scale. Correlations between these items and the nine-item total score ranged

from .42 to .74 (as opposed to -.01 and -.22 for the items that were eliminated). The Cronbach alpha reliability coefficient for the nine-item scale was .73. Based on these somewhat encouraging results, MacDonald and Games (1972) proceeded with their development of a scale measuring irrationality.

Study II, by MacDonald and Games (1972), attempted to cross-validate their instrument. The authors administered their scale and the California Psychological Inventory (CPI; Gough, 1957) to 37 graduate students at West Virginia University. With this sample, a Cronbach alpha of .79 was obtained, and item-total correlations ranged from .27 to .75. Once again, the two items omitted from the original eleven-statement scale yielded rather small correlations of .00 and .27, although it should be pointed out that one of these items had an item-total correlation equal to that of an item that remained part of the scale. Ten of the CPI subscales were negatively and significantly correlated ($p \leq .05$) with the irrationality scale, including: sociability; social presence; sense of well-being; self-control; tolerance; achievement via conformance; achievement via independence; intellectual efficiency; psychological-mindedness; and flexibility. Dominance and self-acceptance were significantly correlated with irrationality at $p < .10$. Different subscales of the CPI were significantly correlated ($p \leq .05$) with irrationality for males than were significant for females. Social presence, sense of well-being, self-control, tolerance, communality, achievement via independence, intellectual efficiency, and psychological

mindfulness were significant for males, while sense of well-being, tolerance, intellectual efficiency, psychological-mindedness, and flexibility were significant ($p \leq .05$) for females. Since each of these "healthy" traits were found to be negatively related to irrationality, MacDonald and Games (1972) concluded that there was evidence for the construct validity of their instrument. Reliability of the scale was also supported in Study II.

Study III of the MacDonald and Games (1972) series consisted of administering their irrationality scale, the Eysenck Personality Inventory (Eysenck & Eysenck, 1968), the Taylor Manifest Anxiety Scale (Taylor, 1953), the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960), and the MacDonald-Tseng Locus of Control Scale (MacDonald & Tseng, 1971) to 84 undergraduate students at West Virginia University. Significant correlations ($p < .01$) were found between the measure of irrationality and the Eysenck Neuroticism Scale ($r = .37$), the Manifest Anxiety Scale ($r = .41$), and the Locus of Control Scale ($r = .44$). MacDonald and Games (1972) emphasize that the correlations between irrationality and the neuroticism and anxiety scales are even higher for males alone ($r = .55$ and $.56$). No significant relationship was found between irrationality and social desirability ($r = .11$), nor was the MacDonald and Games (1972) irrationality scale significantly ($p > .05$) "related to age ($r = -.08$), Ss fathers' level of education ($r = .19$), academic year ($r = .12$), and Eysenck lie scale ($r = .10$), the Eysenck introversion-extraversion scale ($r = -.02$), the TMAS lie scale ($r = .21$), family

size ($r = -.10$), or frequency of church attendance ($r = .10$, high scores are associated with frequent attendance)" (p. 28). The Cronbach-alpha internal consistency reliability coefficient was again .79. The scale was also shown to be related to several subscales of the 16PF (Cattell, Saunders, & Stice, 1950) after being administered to 200 undergraduate engineering students (Games, personal communication, 1974).

The studies described above by MacDonald and Games (1972) and Games (1974) give support for the continued use of their instrument for additional validation research.

Rationale, Objectives, and Hypotheses

Content validity is an obvious, yet difficult problem for virtually all personality instruments. The measurement of irrational beliefs, however, is somewhat different from the measurement of personality traits through traditional assessment techniques, despite the fact that paper-and-pencil questionnaires are usually employed for both purposes. Unlike anxiety, for example, irrationality is a relatively clearly defined and described concept, with almost all of the researchers in this area using the same definition and descriptions--namely, the eleven irrational ideas referred to by Albert Ellis (1962). Furthermore, irrationality measures do not attempt or purport to tap underlying "traits" or various aspects of overt behavior; their sole function is to measure the extent to which people believe in a specific number of ideas. Although it is possible,

of course, that people either do not know what they believe in, or that they will refuse to answer truthfully, clearcut written responses concerning specific cognitions still seem to be far more direct and potentially useful (for the purpose of theory-testing) than traditional personality instruments.

While there is some current evidence supporting the theory behind RET (e.g., Trexler, 1971), there is certainly a need for more validating research. For this to be accomplished, however, it must first be demonstrated that adequate measures of irrationality have been devised. Although there are, at present, several instruments that have shown promise for the measurement of irrational beliefs (e.g., Jones, 1968; Hartman, 1968; MacDonald and Games, 1972) and the further testing of the rational-emotive theory of maladjustment, these instruments have not as yet been directly compared. One purpose of the present study is to compare the instruments of Jones (1968), Hartman (1968), and MacDonald and Games (1972).

A new one-item self-rating of irrationality will also be included in the comparisons. The decision to include the direct self-rating is based upon the observation that self-reports sometimes "provide the best as well as the cheapest predictions. Moreover, these predictions hold their own against, and usually exceed, those generated either clinically or statistically from complex inferences about underlying traits and states. In general, the predictive efficiency of simple, straightforward self-ratings and measures of directly relevant past performance has not been exceeded by more

psychometrically sophisticated personality tests . . ." (Mischel, 1968, p. 145).

In conjunction with the comparisons among irrationality instruments, items from each of the irrationality measures will be factor analyzed. This will provide a direct test of the contention of Jones (1968) that items from his instrument (and by implication, the other two irrationality instruments) measure ten distinct factors, which correspond to ten of Ellis' (1962) irrational beliefs. Jones' (1968) factors of anxious overconcern and blame proneness appear to subsume "the idea that one should become quite upset over other peoples' problems and disturbances" (Ellis, 1962, p. 85), accounting for the discrepancy between Jones' (1968) ten factors and Ellis' (1962) eleven irrational beliefs.

Additional data on the internal consistency of the tests of irrationality will also be presented, and a social desirability scale will be administered to check on possible confounding of the irrationality instruments with social desirability. Further tests of the relationship between irrational beliefs and psychopathology described by Albert Ellis will be explored. Specifically, these will include the relationships between irrationality and the following types of maladjustment discussed in A Guide to Rational Living (Ellis & Harper, 1961): depression, anxiety, neuroticism, and low self-image. Appropriate established inventories to measure these dimensions will be used. The relationship between irrationality and such variables as sex, age, year in school, income, marital

status, college gradepoint average, and experiences with psychologists or psychiatrists will also be explored.

The following specific hypotheses are made concerning the variables discussed above:

1. Factor analyses of the irrationality instruments' items will yield ten factors that correspond to Ellis' irrational beliefs; items representing a particular irrational idea will have the highest loadings for that particular factor; and factor loadings for specific items on each factor will be higher for items purporting to measure that factor, than for items purporting to measure another factor.

2. Significant ($p \leq .01$) positive correlations between the different measures of irrationality will be found.

3. Significant ($p \leq .05$) correlations between each measure of irrationality and the measures of depression, anxiety, neuroticism, and low self-image will be obtained.

METHOD

Sample

The sample consisted of 352 Iowa State University student volunteers from a variety of psychology classes. Males and females; freshmen, sophomores, juniors, seniors, and graduate students; and married and single students were all represented. All participants received extra credit from their instructors for having participated in the study.

Procedure

Each person was asked to complete a questionnaire booklet containing a biographical cover sheet (see APPENDIX A), the Personal Beliefs Inventory (PBI) (see APPENDIX B), the Irrational Beliefs Test (IBT) (see APPENDIX C), the MacDonald-Games Irrational Values Test (IVT) (see APPENDIX D), a one-item self-rating of irrationality, the Marlowe-Crowne Social Desirability Scale (Crowne & Marlowe, 1960) (see APPENDIX E), the Depression Adjectives Check List (Lubin, 1965) (see APPENDIX F), the Fear Survey Schedule (Wolpe & Lang, 1964) (see APPENDIX G), the Eysenck Personality Inventory (Eysenck & Eysenck, 1968) (see APPENDIX H), and the Tennessee Self-Concept Scale (Fitts, 1965) (see APPENDIX I). The order of the questionnaires in the booklet was varied in a roughly counter-balanced way, so that three different "forms" of the booklet were administered. Total test-taking time ranged from one to two hours.

Instrumentation

The PBI, IBT, and IVT have been discussed above in detail, in connection with the review of measures of irrationality. Based upon their preliminary reliability and validity data (e.g., Trexler & Karst, 1972; Hartman, 1968; MacDonald & Games, 1972), they appear to be the most promising instruments yet developed for the measurement of irrationality. The one-item self-rating of irrationality is in response to the statement: "In important situations, I think irrationally and become anxious or depressed." This item was included in order to determine if one relatively direct item could measure irrationality as well as more psychometrically sophisticated scales or factors could.

The Marlowe-Crowne Social Desirability Scale is the best known, most frequently used social desirability scale, and has previously been used as part of the validation of an irrationality instrument (MacDonald & Games, 1972). As outlined above, the purpose of the social desirability scale is to provide a check that a tendency to respond in a socially desirable (or undesirable) fashion is not being measured, rather than irrationality.

As mentioned earlier, depression, anxiety, neuroticism, and low self-image were chosen for this study because Ellis (Ellis & Harper, 1961) specifically describes their relationship with irrationality. The Eysenck Personality Inventory, the Depression Adjectives Check List, and the Tennessee Self-Concept Scale were chosen to measure the above dimensions on the basis of reviews in

The Seventh Mental Measurements Yearbook (Buros, 1972). Particular attention was paid to reliability and validity data, and to the length of the instruments. Test-retest reliability has been found to range from .80 to .97 for the Eysenck Personality Inventory; split-half reliability for the Depression Adjectives Check List has ranged from .82 to .93 for "normals;" and test-retest reliability for the Tennessee Self-Concept Scale has averaged in the high .80's (Buros, 1972).

The difficulties that are encountered in locating a valid paper-and-pencil measure of anxiety are numerous, and have been discussed in detail elsewhere (e.g., Mischel, 1968). The Fear Survey Schedule is a frequently used adjunct to behavior therapy for the identification of anxious behaviors. While some psychologists view "anxiety" and "anxious behaviors" as different concepts, it would be rather ludicrous to search for an instrument that psychologists from different theoretical orientations agreed measured anxiety. Since it did not appear possible to find such an instrument, the Fear Survey Schedule was chosen on the basis of its straightforwardness, its brevity, and its reliability. "The correlations among the six subscores (animal; social or interpersonal; tissue damage, illness, death, or associated stimuli; noises; other classical phobias; and miscellaneous) . . . ranged from .31 to .76 with a median of .55. The magnitude of these correlations suggests that the total score would be relatively reliable from an internal-consistency or generalizability point of view" (Buros, 1972, p. 81). Total scores from

the Fear Survey Schedule, therefore, were chosen as the measure of anxiety for this study.

The questionnaire booklet consisted of 470 items. Two modifications have been made where necessary in each of these items. First, the item responses have been converted to a 1-99 agree-disagree, true-false, or relevant-irrelevant format (Wolins & Dickinson, 1973), making them more suitable for factor analyses, without appreciably changing their contents. Ninety-nine point scales result in more reliable factors than do the short item-response formats that have traditionally been used (Hendricks, 1975). Second, overt sexism has been eliminated from the items to insure that their originally intended meanings were clear. This was accomplished by substituting gender-free nouns, pronouns, and modifiers for masculine and feminine nouns, pronouns, and modifiers.

Analysis

After eliminating incomplete data sets from the sample, item responses were keypunched and reordered so that the order of the items for all respondents was identical. Lie scale scores from the Eysenck Personality Inventory and validity scale scores from the Tennessee Self-Concept Scale were then computed to determine if some individuals' responses were sufficiently incredulous to be discarded. This was effected by employing frequency distributions of scores on the lie and validity scales, and checking for bimodal distributions (i.e., "nonliars" and "liars"). This procedure has often been used

in conjunction with the lie scale of the MMPI (Hathaway & McKinley, 1967).

A principal components factor analysis (Hotelling, 1933), using the largest item inter-correlations, rather than unities, in the diagonal, was then carried out for all of the irrationality items. Different numbers of factors were rotated using varimax rotation (Kaiser, 1958), where the various numbers of factors were chosen on the basis of changes in eigenvalues. The group of factors that was most meaningful (e.g., appeared not to be based upon artifacts, such as response sets) was then selected, using items with high factor loadings ($\geq .40$) and by considering the consistency of their content. After the factors were chosen, items were selected to represent these factors by reviewing their factor loadings and their consistency of content, and by seeking to maximize the variance accounted for. Scores on scales representing the factors were calculated from the items loading highly ($\geq .40$), using positive and negative unit-weights. These scales were then correlated with social desirability, depression, anxiety, neuroticism, self-concept, sex, age, year in school, family income, marital status, college gradepoint average, and experiences with psychologists and psychiatrists. All of the correlations between factors and the variables listed above were calculated with males and females combined, and then again, with males and females separated. Freshmen were not included with the remainder of the sample when correlations with college gradepoint were computed because of their lack of college grades. Correlations

with income were calculated with log income, rather than income, in order to reduce the skewness of the distribution with respect to this variable.

A measure of the internal consistency of each of the irrationality factors was computed. This was accomplished by calculating discriminant reliabilities, using the following formula:

$$r_D = \frac{\frac{n(\sum a)^2}{n^2}}{1 + (n-1) \frac{(\sum a)^2}{n^2}}$$

In this equation, r_D refers to discriminant reliability, n refers to the number of items being used to represent a particular factor, and $\sum a$ refers to the sum of the absolute values of the factor loadings of the items being used to represent a particular factor. This formula for discriminant reliability is related to the Spearman-Brown prophecy formula, which has been widely used in assessing the reliability of tests (Cranny, 1967).

Irrationality scores were then calculated for the original irrationality instruments. Inter-correlations were computed for total scores on the IBT, PBI, and IVT, along with social desirability, depression, anxiety, neuroticism, self-concept, sex, age, year in school, marital status, and experiences with psychologists and psychiatrists.

The final stage of the analysis consisted of comparing the

three forms of the questionnaire booklet to search for an order effect. This was necessary because of the length of the test battery, and was accomplished by computing inter-item correlations separately for each form, for all irrationality items. Within-factor, within-scale, within-form inter-item correlations were employed to determine if order effects were present. Item means were also compared between forms for the same purpose.

RESULTS

Exclusion of Data

Careful examination of the 352 questionnaire booklets revealed that four individuals had left substantial numbers of questions blank; their questionnaires were eliminated from the sample, leaving a total of 348.

Individual scores from the lie scale of the Eysenck Personality Inventory and the validity scale of the Tennessee Self-Concept Scale were then ranked in order to determine if their distributions were bimodal (i.e., "liars" and "nonliars"). This was not found to be the case, and thus no persons were excluded on these grounds.

Detailed Sample Description

The sample of 348 Iowa State University students consisted of 120 males and 228 females, averaging 19.1 years of age and 0.83 years of college. An overwhelming majority of these students were single, with only 22 individuals reporting being married or separated from their spouses. The mean family income was approximately \$19,000 per year, with most families being in the \$10,000 to \$15,000 range. The mean grade point average (excluding freshmen) was 2.85, 2.76 for males and 2.91 for females.

Only 21 persons reported having seen a psychologist or psychiatrist professionally, and only 17 persons anticipated seeing a psychologist or psychiatrist in the near future.

Factor Analysis

The principal components factor analysis provided eigenvalues for 172 factors, 172 irrationality items having been included in the analysis. The number of factors to be rotated was chosen on the basis of changes in these eigenvalues. Table 2 includes eigenvalues and percentages of variance accounted for by the first twenty factors. Rotations were carried out for seven, eleven, fourteen, fifteen, and sixteen factors.

As reported earlier, items with factor loadings greater than or equal to .40 were used to decide which grouping of factors was most meaningful. These same items were employed to name the seven factors that were selected according to the aforementioned procedure. The items, along with their means, standard deviations, and factor loadings are presented in Tables 3-9. The seven factors account for approximately 30.3% of the total variance of the 172 irrationality items.

Factor 1 (see Table 3), titled Evaluating, accounts for approximately 7.0% of the total variance of irrationality items, and 23.1% of the total variance in the seven factors. This factor contains many "should" items, i.e., statements with assumptions that definite, clearcut, and morally correct behaviors exist. There are also considerable suggestions in these items that people are "supposed to" evaluate, judge, and blame themselves when they do not behave in the "right" or "correct" manner. Evaluating and blaming are somehow supposed to make things better. Examples include: "A person should

Table 2. Eigenvalues and percentages of variance of irrationality items for the first twenty factors

Factor	Eigenvalues	Percent variance	Cumulative percent
1	16.93	9.84	9.84
2	8.85	5.15	14.99
3	7.35	4.27	19.26
4	5.12	2.98	22.24
5	4.78	2.78	25.02
6	4.64	2.69	27.71
7	4.39	2.55	30.26
8	4.10	2.38	32.65
9	3.90	2.26	34.91
10	3.76	2.18	37.10
11	3.64	2.11	39.21
12	3.52	2.04	41.26
13	3.47	2.02	43.28
14	3.42	1.99	45.26
15	3.30	1.92	47.18
16	3.21	1.86	49.04
17	3.10	1.80	50.85
18	3.07	1.79	52.63
19	3.03	1.76	54.50
20	3.01	1.75	56.15

Table 3. Factor 1: Evaluating

Item ^a	Mean	S.D.	Loading
109. A person should blame others for their mistakes or bad behavior.	-141.86	93.00	.69
107. One should blame others severely for all mistakes and wrongdoings.	-119.19	103.61	.68
108. Punishing oneself for all errors will help prevent future mistakes.	-116.86	105.09	.68
116. If things are not the way one would like them to be, it is a catastrophe.	-140.99	92.89	.67
115. Because parents or society taught acceptance of certain traditions, one must go on accepting these traditions.	-141.49	88.96	.66
106. Incompetence in anything whatsoever is an indication that a person is inadequate or valueless.	-138.25	98.30	.60
110. One should spend considerable time and energy trying to reform others.	-78.39	98.21	.56
114. Because a person was once weak and helpless, one must always remain so.	-169.23	79.58	.57

^aItems 1-100 are from the IBT, 101-160 from the PBI, and 162-172 from the IVT.

Table 3. (continued)

Item	Mean	S.D.	Loading
111. One can best help others by criticizing them and sharply pointing out the errors of their ways.	-121.49	101.12	.56
117. Other people should make things easier for us, and help with life's difficulties.	-12.90	101.64	.56
122. Unhappiness is externally caused or created by outside persons and events.	-34.24	88.58	.52
166. Unhappiness is caused by outside circumstances, and the individual has no control over it.	-97.30	93.14	.51
164. Some people are bad, villainous, or wicked and therefore should be blamed or punished.	-49.16	96.60	.50
105. The main goal and purpose of life is achievement and success.	-27.33	115.38	.48
158. You owe obedience to your parents just because they are your parents.	-17.62	114.01	.48
127. Maximum human happiness can be achieved by passively and uncommittedly "enjoying oneself."	-41.59	112.96	.47
102. What others think of you is most important.	-45.11	116.02	.46
112. It is natural to get upset by the errors and stupidities of others.	-2.27	97.20	.46

Table 3. (continued)

Item	Mean	S.D.	Loading
126. Certain people are bad, wicked or villainous and should be blamed and punished for their sins.	-55.74	100.66	.46
163. One must be perfectly competent, adequate, and achieving to consider oneself worthwhile.	-76.32	106.58	.46
165. It is a terrible catastrophe when things are not as one wants them to be.	-95.07	89.68	.44
103. Depending on others is better than depending on oneself.	-124.58	84.35	.43
104. A person should be thoroughly competent, adequate, talented, and intelligent in all possible respects.	-18.85	115.72	.43
168. It is easier to avoid certain difficulties and self-responsibilities than to face them	-12.43	119.42	.43
167. Dangerous or fearsome things are causes for great concern, and their possibility must be continually dwelt upon.	-75.89	101.43	.42

blame others for their mistaken or bad behavior;" "Punishing oneself for all errors will help prevent future mistakes;" "One should spend considerable time and energy trying to reform others;" and "The main goal and purpose of life is achievement and success." There is also a component of dependency and helplessness in this factor, particularly apparent in the following items: "Because parents or society taught acceptance of certain traditions, one must go on accepting these traditions;" "Because a person was once weak and helpless, one must always remain so;" and "Unhappiness is externally caused or created by outside persons and events." Factor 1, then, encompasses blaming, judging, and/or evaluating people and their behavior, in a context of dependency and helplessness.

Evaluating has a discriminant reliability of .87.

Factor 2, presented in Table 4, is titled Neuroticism. It accounts for 6.7% of the total variance, and 22.0% of the common variance. The items reflect the rather "typical neurotic" symptoms of anxiety and insecurity. The items loading highest on this factor, with factor loadings of .76 and .74, respectively, are "I shrink from facing a crisis or difficulty" and "I worry over possible misfortune." Worrying, in fact, is included with respect to past behavior (e.g., "I feel guilty because of the sins I have committed"), present traits (e.g., "My feelings are easily hurt"), and future possibilities (e.g., "I worry over possible misfortune"). Annoyance and envy regarding a variety of people and situations is also part of this factor. Examples include: "I become annoyed over

Table 4. Factor 2: Neuroticism

Item ^a	Mean	S.D.	Loading
151. I shrink from facing a crisis or difficulty.	-47.48	93.14	.76
148. I worry over possible misfortune.	-15.89	106.86	.74
147. I feel self-conscious and uncomfortable when in the presence of those whom I consider to be my superiors.	22.11	104.20	.71
149. At times I think I am no good at all.	-7.33	127.57	.71
150. I get excited or upset when things go wrong.	21.15	94.30	.70
155. I feel guilty because of the sins I have committed.	-40.09	118.19	.68
157. There is invariably a right, precise, and perfect solution to human problems, and it is a catastrophe when this perfect solution isn't found.	-110.30	98.10	.64
132. When I'm in a group, I'm always afraid I may say or do something foolish.	-11.72	102.65	.62
82. I become annoyed over little things.	-6.82	96.23	.61
146. My feelings are easily hurt.	20.03	104.93	.59

^aItems 1-100 are from the IBT, 101-160 from the PBI, and 162-172 from the IVT.

Table 4. (continued)

Item	Mean	S.D.	Loading
134. I tend to do or say things I later hate myself for.	-14.45	110.10	.57
133. If you once start doing favors for people, they may just walk all over you.	-24.42	102.80	.53
135. When things go badly, I tend to blame myself.	33.38	85.24	.50
162. It is essential that one be loved or approved by virtually everyone in his or her community.	-79.42	117.84	.49
156. I tend to become upset and miserable when things are not the way I would like them to be.	0.56	88.29	.48
152. I have reason for feeling jealous of one or more members of my family.	-113.04	112.44	.47
81. I have concern with what people are feeling about me.	69.89	82.12	.44
154. I become depressed because of my own deficiencies or shortcomings.	12.47	98.58	.42
153. It makes me angry or upset when other people interfere with my daily activity.	-50.61	89.14	.41

little things" and "I have reason for feeling jealous of one or more members of my family." Neuroticism, as Factor 2, specifically refers to anxiety, insecurity, and resentment. The discriminant reliability of Neuroticism is .91.

Factor 3, titled Rationality-I, is presented in Table 5. This factor accounts for 3.5% of the total variance of irrationality items, and 11.7% of the variance in the seven factors. Items loading high on this factor are consistent in their descriptions of a lack of anxiety and acceptance of events philosophically (i.e., reasonably rather than in a judgmental fashion). Examples include: "I feel no anxiety over unexpected dangers or future events;" "If I can't keep something from happening, then I don't worry about it;" and "I accept what happens philosophically." These items clearly reflect one aspect of the well-adjusted, adaptive, or, to use RET terminology, rational point of view. Factor 6, described below, also reflects rational RET principles. Rationality-I has a discriminant reliability of .56. This is the lowest reliability of any of the seven factors.

Factor 4, titled Avoidance, is presented in Table 6. It accounts for 3.2% of the total variance, and 10.4% of the common variance. The items reflect a strong lack of confidence. The items loading highest (.66) on this factor include: "I put off important decisions" and "I avoid facing my problems." Other examples include: "People need a source of strength outside themselves" and "Everyone needs someone he or she can depend on for help

Table 5. Factor 3: Rationality-I

Item ^a	Mean	S.D.	Loading
16. I feel no anxiety over unexpected dangers or future events.	-24.06	111.33	.48
36. If I can't keep something from happening, then I don't worry about it.	1.34	94.74	.47
31. I like myself even when many others don't.	56.78	95.82	.45
15. People are disturbed not by situations, but by the view they take of them.	62.04	92.96	.44
4. I accept what happens philosophically.	20.33	74.68	.42

^aItems 1-100 are from the IBT, 101-160 from the PBI, and 162-172 from the IVT.

Table 6. Factor 4: Avoidance

Item ^a	Mean	S.D.	Loading
7. I put off important decisions.	-12.50	104.04	.66
27. I avoid facing my problems.	-46.72	98.58	.66
28. People need a source of strength outside themselves.	89.57	104.30	.57
17. I try to go ahead and get irksome tasks behind me when they come up.	51.55	79.55	-.56
37. I make decisions as promptly as I can.	24.89	86.26	-.51
6. I have a fear of some things that bother me.	28.30	109.98	.47
8. Everyone needs someone he or she can depend upon for help and advice.	126.32	98.98	.43

^a Items 1-100 are from the IBT, 101-160 from the PBI, and 162-172 from the IVT.

and advice." Avoidance, therefore, is comprised of avoiding difficult situations and avoiding personal responsibility for one's own behavior. The discriminant reliability of this factor is .75.

Factor 5 (see Table 7) is titled Perfectionism, and accounts for 3.1% of the total variance of irrationality items, and 10.3% of the variance in the seven factors. Evaluating and judging are once again important to this factor, with both moral issues and other kinds of problems approached with the view that there is a perfect way of relating to the world. Examples of items loading highly on this factor include: "People today have forgotten how to feel properly ashamed of themselves;" "I set a high standard for myself and expect others to do the same;" "Every problem has a correct solution;" and "People should obey moral laws more strictly than they do." Perfectionism does not appear to have the qualities of helplessness and dependency, as does Evaluating, and seems to be more associated with self-righteousness than with insecurity. Perfectionism has a discriminant reliability of .65.

Factor 6 is titled Rationality-II, and is presented in Table 8. This factor accounts for 3.1% of the total variance, and 10.3% of the common variance. Important elements of Rationality-II include nonjudging and responsibility for an individual's own behavior, but not for others' behavior. Examples of items with high factor loadings include: "No one is evil even though his or her deeds may be;" "I do not become upset over the mistakes of others;" and "People make their own hell within themselves." As with Rationality-I, this

Table 7. Factor 5: Perfectionism

Item ^a	Mean	S.D.	Loading
139. People today have forgotten how to feel properly ashamed of themselves.	-45.63	97.87	.60
140. I set a high standard for myself and feel others should do the same.	19.81	96.98	.53
138. For most questions there is one right answer, once a person has the facts.	-39.50	108.24	.52
50. Every problem has a correct solution.	-41.05	117.04	.46
129. People should observe moral laws more strictly than they do.	17.42	105.70	.41
145. Some of my family and/or friends have habits that bother and annoy me.	49.75	94.01	.41

^aItems 1-100 are from the IBT, 101-160 from the PBI, and 162-172 from the IVT.

Table 8. Factor 6: Rationality-II

Item ^a	Mean	S.D.	Loading
93. No one is evil even though his or her deeds may be.	-1.34	102.22	.57
94. I do not become upset over the mistakes of others.	-0.11	83.23	.52
44. I accept things the way they are, even if I don't like them.	-14.37	85.90	.49
43. I never blame people for their wrongdoings.	-36.82	84.18	.46
95. People make their own hell within themselves.	50.67	87.04	.45
78. I find it easy to seek advice.	26.31	99.85	.41

^aItems 1-100 are from the IBT, 101-160 from the PBI, and 162-172 from the IVT.

factor is very consistent with RET principles regarding descriptions of good adjustment and healthy self-talk. The discriminant reliability of Rationality-II is .65.

Factor 7 (see Table 9) is entitled Fear of failure. It accounts for 3.7% of the total irrationality item variance, and 12.2% of the variance in the seven factors. This factor is somewhat more passive than Avoidance, to which it appears somewhat similar. Both factors are related to insecurity and to various fears. Whereas Avoidance is primarily concerned with a relatively active avoidance of difficult situations and responsibility, this factor is composed of items which describe a more general and passive self-critical attitude and lack of confidence. Examples of such items include: "It upsets me to make mistakes;" "I hate to fail at anything;" and "I worry about how much people approve of and accept me." Fear of failure has a discriminant reliability of .74.

The seven factors described above had between twenty-five (Evaluating) and five (Rationality-I) items with factor loadings greater than or equal to .40. Although Fear of failure had the single highest loading (.77) Neuroticism had five items with loadings greater than or equal to .70. Rationality-I had the lowest series of factor loadings, with the five highest loadings on this factor ranging from .48 to .42. Consequently, Neuroticism had the highest discriminant reliability (.91), and Rationality-I had the lowest (.56). The mean discriminant reliability for the seven factors was .73, and the median was .74. Table 10 contains a listing

Table 9. Factor 7: Fear of failure

Item ^a	Mean	S.D.	Loading
72. It upsets me to make mistakes.	51.33	85.71	.77
73. Its unfair that "the rain falls on both the just and the unjust."	-39.49	105.61	.59
2. I hate to fail at anything.	96.99	84.73	.54
71. I worry about how much people approve of and accept me.	27.39	97.18	.52
1. It is important to me that others approve of me.	73.58	91.12	.49
26. I can't get my mind off some concerns.	61.60	106.45	.41
97. If something is necessary, I do it even if it is unpleasant.	90.88	71.49	.41

^aItems 1-100 are from the IBT, 101-160 from the PBI, and 162-172 from the IVT.

Table 10. Content, means, standard deviations, and discriminant reliabilities of the factors

Factor	Content	Mean	Standard deviation	Discriminant reliability
1. Evaluating	Blaming, judging, and evaluating people and their behavior; dependency and helplessness	-1406.30	792.53	.87
2. Neuroticism	Anxiety, insecurity, and resentment	-341.98	1137.31	.91
3. Rationality-I	Lack of anxiety and acceptance of events philosophically	116.43	273.73	.56
4. Avoidance	Avoiding difficult situations and avoiding personal responsibility for behavior; lack of confidence	261.40	290.72	.75
5. Perfectionism	Perfectionism, self-righteousness	-39.20	356.45	.65
6. Rationality-II	Responsibility for one's own behavior, but not for others'; lack of judging	24.34	290.58	.65
7. Fear of failure	Various fears and insecurities; passivity; self-criticism	362.28	412.34	.74

of the seven factors, summaries of their content, factor means and standard deviations, and discriminant reliabilities.

Correlations among Factors

In determining which items should be retained to represent the seven factors described above, all items with loadings greater than or equal to .40 were carefully examined for each factor, to insure consistent meanings and to maximize the variance accounted for. The item: "Maximum human happiness can be achieved by passively and uncommittedly 'enjoying oneself'" (see Table 3) was interpreted as being relatively inconsistent with the other items of Evaluating. Therefore, this item, and all other items with lower factor loadings (less than .47), were not retained for this factor. For all of the other factors, all items with loadings greater than or equal to .40 were employed in computing the correlations described below.

The correlations between each of the seven factors, social desirability, depression, anxiety, neuroticism, self-concept, sex, age, year in school, marital status, and experiences with psychologists and psychiatrists are reported in Table 11. These correlations were calculated with males and females combined ($N = 348$). Table 12 lists the same correlations for males only ($N = 120$), and Table 13 lists these correlations for females only ($N = 228$). Table 14 lists correlations between all of the variables listed above and college gradepoint average, with freshmen not included, for males and females combined ($N = 166$), males only ($N = 68$), and females

Table 11. Correlations^a among factors and the other variables
(males and females combined)

	Age	S ^b	C	MS	PPE	EPE	E	N
Age		-15*	67*	35*	-27*	-02	-10	-12
Sex			-15*	-04	-03	-02	-17*	03
Class				31*	-12	00	-03	-09
Marital status					-03	06	-13	-09
Past exp'nce w/psych.						05	-02	00
Expected exp'nce w/psych.							-08	-14*
<u>Evaluating</u>								<u>43*</u>
<u>Neuroticism</u>								
<u>Rationality-I</u>								
<u>Avoidance</u>								
<u>Perfectionism</u>								
<u>Rationality-II</u>								
<u>Fear of failure</u>								
Social desirability								
Depression								
Neuroticism								
Anxiety								
Self-image								

^aDecimals omitted; N = 348.

^bHeading abbreviations: S=Sex; C=Class; MS=Marital status; PPE=Past experience with psych.; EPE=Expected experience with psych.; E=Evaluating; N=Neuroticism; R-I=Rationality-I; AV=Avoidance; P=Perfectionism; R-II=Rationality-II; FF=Fear of failure; SD=Social desirability; D=Depression; NT=Neuroticism; ANX=Anxiety; SI=Self-image.

*Significant, $p \leq .01$.

Table 12. Correlations^a among factors and the other variables
(males only)

	Age	C ^b	MS	PPE	EPE	E	N
Age		68*	40*	-24*	-10	-06	-07
Class			33*	-02	-03	-13	-08
Marital status				07	06	-16	-01
Past experiences with psych.					14	-17	-14
Expected experiences with psych.						03	01
<u>Evaluating</u>							<u>42*</u>
<u>Neuroticism</u>							
<u>Rationality-I</u>							
<u>Avoidance</u>							
<u>Perfectionism</u>							
<u>Rationality-II</u>							
<u>Fear of failure</u>							
Social desirability							
Depression							
Neuroticism							
Anxiety							
Self-image							

^aDecimals omitted; N = 120.

^bHeading abbreviations: C=Class; MS=Marital status; PPE=Past experiences with psych.; EPE=Expected experiences with psych.; E=Evaluating; N=Neuroticism; R-I=Rationality-I; AV=Avoidance; P=Perfectionism; R-II=Rationality-II; FF=Fear of failure; SD=Social desirability; D=Depression; NT=Neuroticism; ANX=Anxiety; SI=Self-image.

*Significant, $p \leq .01$.

Table 13. Correlations^a among factors and the other variables
(females only)

	Age	C ^b	MS	PPE	EPE	E	N
Age		66*	32*	-30*	01	-17*	-14
Class			29*	-18*	01	-02	-09
Marital status				-09	06	-13	-14
Past experiences with psych.					02	04	06
Expected experiences with psych.						-15	-20*
<u>Evaluating</u>							<u>46*</u>
<u>Neuroticism</u>							
<u>Rationality-I</u>							
<u>Avoidance</u>							
<u>Perfectionism</u>							
<u>Rationality-II</u>							
<u>Fear of failure</u>							
Social desirability							
Depression							
Neuroticism							
Anxiety							
Self-image							

^aDecimals omitted; N = 228.

^bHeading abbreviations: C=Class; MS=Marital status; PPE=Past experiences with psych.; EPE=Expected experiences with psych.; E=Evaluating; N=Neuroticism; R-I=Rationality-I; AV=Avoidance; P=Perfectionism; R-II=Rationality-II; FF=Fear of failure; SD=Social desirability; D=Depression; NT=Neuroticism; ANX=Anxiety; SI=Self-image.

*Significant, $p \leq .01$.

Table 14. Correlations between college gradepoint average and all other variables^a

Variable	Males and females combined N = 166	Males only N = 68	Females only N = 98
Age	-11	-15	-06
Sex	13	-	-
Class	02	19	-08
Marital status	-02	-01	-03
Past experiences with psych.	-05	-08	-02
Expected experiences with psych.	11	13	11
<u>Evaluating</u>	<u>-14</u>	<u>-11</u>	<u>-14</u>
<u>Neuroticism</u>	<u>-07</u>	<u>-10</u>	<u>-05</u>
<u>Rationality-I</u>	<u>00</u>	<u>-12</u>	<u>16</u>
<u>Avoidance</u>	<u>-03</u>	<u>-13</u>	<u>04</u>
<u>Perfectionism</u>	<u>-08</u>	<u>-06</u>	<u>-10</u>
<u>Rationality-II</u>	<u>-03</u>	<u>-04</u>	<u>-04</u>
<u>Fear of failure</u>	<u>06</u>	<u>-05</u>	<u>16</u>
Social desirability	00	-04	01
Depression	08	09	11
Neuroticism	02	01	00
Anxiety	08	02	04
Self-image	11	05	13

^aDecimals omitted.

only ($N = 98$). Table 15 lists correlations between log salary and all of the variables listed above with males and females combined ($N = 315$), males alone ($N = 112$), and females alone ($N = 203$).

Examination of Table 11 reveals a number of significant ($p \leq .01$) correlations between factors that their descriptions would lead one to expect. Although the derived factor solution produced an orthogonal, uncorrelated, factor structure, the use of unit-weighting for calculating scores on scales representing the factors permits nonzero correlations among the factors. For example, Rationality-I and Rationality-II have a correlation of .28, not an astronomical figure, but higher than any of the correlations between Rationality-II and any of the other factors. Avoidance and Fear of failure have a correlation of .29; and Evaluating and Perfectionism have a correlation of .37. A particular noteworthy relationship, in view of RET, is that Evaluating and Neuroticism have a correlation of .43. The correlations between Evaluating and Perfectionism ($r = .37$), and between Evaluating and Fear of failure ($r = .20$) also are consistent with RET. Similarly, Neuroticism is significantly ($p \leq .01$) correlated with Rationality-I ($r = -.35$), with Avoidance ($r = .52$), with Perfectionism ($r = .33$), and with Fear of failure ($r = .63$). Rationality-I, on the other hand, has correlations of $-.30$ with Avoidance, $-.14$ with Perfectionism, and $-.26$ with Fear of failure (all significant, $p \leq .01$). Finally, Perfectionism and Fear of failure are significantly ($p \leq .01$) related ($r = .21$), as are Fear of failure and Rationality-II ($r = -.17$).

Table 15. Correlations between log salary and all other variables

Variable	Males and females combined N = 315	Males only N = 112	Females only N = 203
Age	-24*	-27*	-19*
Sex	15*	-	-
Class	-14	-20	-07
Marital status	-18*	-15	-19*
Past experiences with psych.	08	02	12
Expected experiences with psych.	04	13	00
<u>Evaluating</u>	<u>09</u>	<u>10</u>	<u>13</u>
<u>Neuroticism</u>	<u>05</u>	<u>03</u>	<u>04</u>
<u>Rationality-I</u>	<u>01</u>	<u>20</u>	<u>-08</u>
<u>Avoidance</u>	<u>02</u>	<u>05</u>	<u>-03</u>
<u>Perfectionism</u>	<u>-02</u>	<u>-06</u>	<u>00</u>
<u>Rationality-II</u>	<u>-13</u>	<u>00</u>	<u>-21*</u>
<u>Fear of failure</u>	<u>06</u>	<u>06</u>	<u>04</u>
Social desirability	-12	-12	-17
Depression	09	14	09
Neuroticism	01	02	-01
Anxiety	07	03	02
Self-image	-06	-06	-11

^aDecimals omitted.

*Significant, $p \leq .01$.

To summarize the inter-factor correlations, Evaluating is significantly ($p \leq .01$) related to three of the other factors, Neuroticism to five of the other factors, Rationality-I to five of the other factors, Avoidance to three of the other factors, Perfectionism to four of the other factors, Rationality-II to two of the other factors, and Fear of failure to all six of the other factors. When factors are correlated separately for males and females (see Tables 12 and 13), the only factor which appears to be affected is Rationality-II, with fairly substantial differences in correlations appearing for this factor and its relationships to Rationality-I ($r = .04$ for males, $r = .39$ for females), Avoidance ($r = .05$ for males, $r = -.12$ for females), and Perfectionism ($r = .02$ for males, $r = -.15$ for females).

Correlations among Factors and other Variables

In this section, the significant ($p \leq .01$) relationships between the seven factors and age, sex, year in school (or class), marital status, past experiences with psychologists and psychiatrists, expected experiences with psychologists and psychiatrists, college gradepoint average, log family income, social desirability, depression, neuroticism, anxiety, and self-image will be presented (see Tables 11-15). Correlations will be reported for combined male and female samples, and also for males and females separately. Since the grade-point (freshmen eliminated from sample, $N = 166$ for males and females combined) and family income (missing data, $N = 315$ for males and

females combined) correlations are based upon somewhat different samples than the other correlations, they will be reported separately. Also, there were very few persons who reported not being single ($N = 22$), and even fewer who reported having seen psychologists or psychiatrists ($N = 21$), or who anticipated seeing psychologists or psychiatrists in the near future ($N = 17$). These deficiencies in the sample must be taken into account in interpreting correlations concerning marital status and concerning experiences with psychologists and psychiatrists.

Evaluating was significantly ($p \leq .01$) related to sex ($r = -.17$, females reported evaluating less than males), depression ($r = .32$), neuroticism ($r = .17$), anxiety ($r = .25$), and self-image ($r = -.32$, evaluating being associated with a low self-image), with male and female data combined. Specifically, females (mean = -919.02 and s.d. = 445.54, for items loading $\geq .47$ on Evaluating) tended to report themselves as evaluating, blaming, and judging less often than did males (mean = 0747.75 and s.d. = 497.93, for items loading $\geq .47$ on Evaluating). Examinations of Tables 12 and 13, however, reveal no large differences between males and females with respect to correlations between Evaluating and depression, neuroticism, anxiety, and self-image. For both sexes, then, evaluating, blaming, and judging are associated with depression, neuroticism, anxiety, and a low self-concept. The only relatively minor exception is that for females, the correlation between Evaluating and neuroticism is only .15 (significant, $p \leq .05$), whereas for males this

correlation is .24 (significant, $p \leq .01$).

The Neuroticism factor was found to be significantly ($p \leq .01$) related to anticipated experiences with psychologists or psychiatrists in the near future ($r = -.14$, neurotic responses associated with anticipating seeing a psychologist or psychiatrist), social desirability ($r = -.43$, neurotic responses associated with choosing socially undesirable responses), depression ($r = .57$), neuroticism ($r = .72$), anxiety ($r = .55$), and self-image ($r = -.54$, neurotic responses being associated with a poor self-concept), when male and female samples were combined. When the correlations were computed separately for males and females, the only large differences occurred in the comparisons between Neuroticism and past experiences with psychologists or psychiatrists ($r = -.14$ for males, $r = .06$ for females), and Neuroticism and anticipated experiences with psychologists or psychiatrists ($r = .01$ for males, $r = -.20$ for females). Since a negative correlation between Neuroticism and the experiences with psychologists or psychiatrists items indicates that Neuroticism is associated with having seen, and anticipating seeing, psychologists or psychiatrists, these results are not surprising. A very small number of both males and females, however, responded affirmatively to the questions asking about their experiences with psychologists and psychiatrists. Therefore, caution is advised with respect to considering these findings too seriously. In summary, the Neuroticism factor is significantly ($p \leq .01$) related to depression, neuroticism, anxiety, and poor self-concept, but it is

somewhat confounded with social desirability.

With males and females considered together, Rationality-I, (e.g., lack of anxiety and acceptance of events philosophically) was found to be significantly ($p < .01$) correlated with social desirability ($r = .26$, rational responses tending to be socially desirable), depression ($r = -.31$), neuroticism ($r = -.33$), anxiety ($r = -.32$), and self-image ($r = .23$, rational responses being associated with a good self-image). No appreciable differences were found when male and female data were analyzed separately, except for some varying of nonsignificant ($p > .01$) correlations between Rationality-I and past and anticipated experiences with psychologists or psychiatrists. Although depression, neuroticism, anxiety, and low self-concept are all significantly ($p \leq .01$) related to Rationality-I, this factor, too, is partially confounded with social desirability. In considering the magnitude of these correlations, it should be remembered that the discriminant reliability of Rationality-I is only .56.

Avoidance was found to be significantly ($p \leq .01$) related to social desirability ($r = -.40$, avoiding responses associated with socially undesirable responses), depression ($r = .37$), neuroticism ($r = .50$), anxiety ($r = .41$), and self-image ($r = -.46$), when data for males and females were analyzed together. When data for males and females were analyzed separately, the only large difference related to significant ($p \leq .01$) correlations was with respect to self-concept and Avoidance. For females, the correlation between

self-concept and Avoidance was $-.53$, whereas for males this correlation was $-.40$. Thus avoiding responses, as measured by this factor, and a poor self-concept are somewhat more closely related for females than for males. While all of the personality variables (depression, neuroticism, anxiety, and self-concept) correlated significantly ($p \leq .01$) and in the expected direction with Avoidance, there was partial confounding with social desirability, as well.

With male and female data combined, no significant ($p \leq .01$) correlations were obtained between Perfectionism and any of the other variables. When data for each sex were analyzed separately, however, significant ($p \leq .01$) correlations were obtained between Perfectionism and class ($r = -.24$ for males, $r = -.03$ for females), and between Perfectionism and marital status ($r = -.23$ for males, $r = .03$ for females). For males in this sample, the more advanced in school they were, the less likely they were to score highly on Perfectionism. Furthermore, single males in this sample tended to score higher on Perfectionism (i.e., they were more "perfectionistic") than did male students who were not single. Perfectionism was not confounded with social desirability ($r = .00$ for males and females combined).

When male and female data were analyzed together, significant ($p \leq .01$) correlations were found between Rationality-II (e.g., responsibility for one's own behavior, but not for others'; lack of judging) and the following variables: social desirability ($r = .36$, rational responses tending to be associated with socially desirable

responses), depression ($r = -.18$), neuroticism ($r = -.15$), and self-image ($r = .19$, rational responses tending to be associated with a good self-image). When males and females were analyzed individually, however, there was a significant ($p \leq .01$) correlation between Rationality-II and anticipated experiences with psychologists or psychiatrists for men ($r = -.23$, irrational responses tending to be associated with not anticipating seeing a psychologist or psychiatrist), but not for women ($r = .04$). In addition, there was a significant ($p \leq .01$) correlation between Rationality-II and log family income for women ($r = -.21$, rational responses tending to be associated with lower log family income), but not for men ($r = .00$). Since Rationality-II is composed of items related to not judging, and being responsible for one's own behavior, but not others', it is indeed surprising that rational responses by men in this sample tend to be associated with anticipating seeing a psychologist or psychiatrist. Once again, however, caution is advised in interpreting this result, due to the limited nature of the sample with respect to this variable. It is intriguing, though, that a higher family income for female students in this sample appears to be associated with irrationality (as measured by this factor). A final point, with respect to Rationality-II, is that this factor, too, is partially confounded with social desirability; in fact, the correlation between these two variables is higher than between Rationality-II and any of the other variables.

Fear of failure is significantly ($p \leq .01$) correlated with

several variables, when male and female data are combined. These variables include: age ($r = -.20$, older students tending to be less afraid of failure), class ($r = -.16$), social desirability ($r = -.27$, fearful responses tending to be associated with socially undesirable responses), depression ($r = .31$), neuroticism ($r = .57$), anxiety ($r = .31$), and self-image ($r = -.24$, fearful responses tending to be associated with a poor self-image). Considerably different results, however, are obtained when males and females are considered separately. With females, for example, Fear of failure is significantly ($p \leq .01$) correlated with age ($r = -.23$), class ($r = -.24$, students with more schooling tending to be less afraid of failure), marital status ($r = -.20$, single students tending to be more afraid of failure than students who are not single), social desirability ($r = -.34$), depression ($r = .39$), neuroticism ($r = .63$), anxiety ($r = .32$), and self-image ($r = -.32$). With males, however, only the variables of anxiety ($r = .30$) and neuroticism ($r = .45$) are significantly ($p \leq .01$) correlated with Fear of failure. Since Fear of failure is related to quite a few more variables for women in this sample than for men, it appears particularly important to examine the data independently for each sex, for this factor.

To briefly summarize the relationships between the seven factors and the other variables included in the study, six of the seven factors (the seventh being Perfectionism) are significantly ($p \leq .01$) correlated with each of the personality variables. The only exception is that Rationality-II is not significantly ($p \leq .01$)

related ($r = -.06$, for males and females combined) to anxiety. Furthermore, although there are sex differences with respect to the correlations between the factors and the other variables, there are far more similarities between the sexes than there are differences. Five of the seven factors (Evaluating and Perfectionism being the exceptions) are partially confounded with social desirability.

Correlations among the IBT, PBI, IVT, and other Variables

In this section, the correlations among the original irrationality instruments (IBT, PBI, and IVT), age, sex, class, marital status, experiences with psychologists and psychiatrists, the seven irrationality factors, social desirability, depression, anxiety, neuroticism, and self-image will be presented (see Table 16). These correlations are based upon the entire sample of 348 students.

As hypothesized earlier (p. 30), the correlations between the three irrationality instruments were positive and significant ($p \leq .01$). The highest correlation was between the PBI and IVT ($r = .65$), and the lowest was between the IBT and IVT ($r = .40$). The PBI and IBT had a correlation of .62.

The correlations between the three irrationality instruments and the four personality measures were also consistent with the hypothesis cited earlier (p. 30). These correlations were all significant ($p \leq .01$), with irrational responses tending to be associated with depression, neuroticism, anxiety, and a low self-concept.

Table 16. Correlations among the IBT, PBI, IVT, and other variables (N = 348)

	IBT	PBI	IVT
IBT	1.00	.62*	.40*
PBI	.62*	1.00	.65*
IVT	.40*	.65*	1.00
Age	-.12	-.13	-.16*
Sex	.04	-.08	-.06
Class	-.11	-.08	-.07
Marital status	-.06	-.12	-.11
Past experiences with psych.	.08	.01	.08
Expected experiences with psych.	-.09	-.11	-.14*
<u>Evaluating</u>	<u>.28*</u>	<u>.78*</u>	<u>.66*</u>
<u>Neuroticism</u>	<u>.72*</u>	<u>.85*</u>	<u>.48*</u>
<u>Rationality-I</u>	<u>-.60*</u>	<u>-.27*</u>	<u>-.16*</u>
<u>Avoidance</u>	<u>.59*</u>	<u>.37*</u>	<u>.22*</u>
<u>Perfectionism</u>	<u>.38*</u>	<u>.50*</u>	<u>.34*</u>
<u>Rationality-II</u>	<u>-.32*</u>	<u>-.06</u>	<u>-.05</u>
<u>Fear of failure</u>	<u>.65*</u>	<u>.49*</u>	<u>.28*</u>
Social desirability	-.45*	-.30*	-.07
Depression	.48*	.51*	.31*
Neuroticism	.61*	.52*	.27*
Anxiety	.47*	.47*	.31*
Self-image	-.43*	-.48*	-.32*

*Significant, $p \leq .01$.

Correlations with the IVT, however, were not quite as high as with the PBI and IBT, for the personality measures. The IVT, though, was the only one of the three irrationality instruments not to be significantly ($p > .05$) related to social desirability.

Since the seven factors were derived from the IBT, PBI, and IVT, it is to be expected that the correlations between the factors and the original instruments would be rather high. This is precisely the case, with significant ($p \leq .01$) correlations having been found between each of the irrationality instruments and each of the seven factors. The only exception was that Rationality-II correlated only $-.06$ with the PBI, and only $-.05$ with the IVT. The other correlations ranged from $.85$, between the PBI and Neuroticism, to $-.16$, between the IVT and Rationality-I.

In general, the IBT, PBI, and IVT did not relate very closely to age, sex, class, marital status, and experiences with psychologists and psychiatrists. There were two exceptions, however, which included: the IVT and age ($r = -.16$; significant, $p \leq .01$), and the IVT and anticipated experiences with psychologists or psychiatrists ($r = -.14$; significant, $p \leq .01$). Specifically, irrational responses on the IVT tended to be associated with the expectation to visit a psychologist or psychiatrist in the near future, and younger students tended to give more irrational responses than did older students. The limitations of the sample with respect to the "experiences with psychologists or psychiatrists" questions have been discussed earlier.

In summary, the three irrationality instruments have been found to be significantly ($p \leq .01$) related to each other, and to measures of anxiety, neuroticism, depression, and self-concept. While the correlations with the personality measures are somewhat lower for the IVT, this was the only one of the three instruments not to be partially confounded with social desirability, and to be significantly ($p \leq .01$) associated with anticipating seeing a psychologist or psychiatrist in the near future.

One-item Rating of Irrationality

The one-item self-rating of irrationality ("In important situations, I think irrationally and become anxious or depressed.") was not found to be useful. This item did not load particularly highly on any of the seven factors. In addition, the item was not significantly ($p \leq .05$) correlated with either the original irrationality instruments or with any of the seven factors derived from these instruments.

Order Effects

As mentioned earlier, three different orderings of the questionnaire booklet were employed in this study. The search for a fatigue or any other systematic order effect was accomplished by comparing item means and standard deviations from each of the three forms, and by examining within-factor, within-scale inter-item correlations of the irrationality items from each of the three

for Form 1 (where the IBT was first), next highest for Form 3 (where the IBT was in the middle), and lowest for Form 2 (where the IBT was last). Examination of Table 18 reveals neither this pattern, nor any other consistent trends.

Table 17. Means and standard deviations for the three orders

Item ^a	Form 1 ^b		Form 2 ^c		Form 3 ^d	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
1	72.45	88.89	50.58	96.84	98.55	80.18
2	114.37	83.48	84.69	76.13	92.02	91.31
3	18.86	89.39	-38.41	96.05	17.04	95.96
4	25.44	74.91	13.47	67.11	22.23	81.07
5	41.22	102.26	21.47	108.17	53.74	117.06
96	12.02	119.91	17.39	98.55	26.55	116.75
97	99.64	74.80	79.19	62.89	94.06	74.73
98	5.62	107.17	0.77	96.21	19.72	102.19
99	24.93	130.22	2.75	107.02	-10.69	118.39
100	35.65	112.66	69.31	113.12	68.42	118.90
101	-123.54	100.61	-123.48	109.23	-85.54	118.43
102	-58.80	117.26	-43.51	118.05	-32.82	111.03
103	-125.16	79.58	-127.35	86.80	-121.13	86.35
104	-14.71	109.56	-26.58	117.67	-15.07	119.33
105	-20.34	108.62	-44.91	119.33	-16.24	115.75

^aItems 1-100 are from Jones', 101-160 from Hartman's, and 162-172 from MacDonald-Games' scale.

^bJones scale first, Hartman scale in the middle, MacDonald-Games scale last.

^cHartman scale first, MacDonald-Games scale in the middle, Jones scale last.

^dMacDonald-Games scale first, Jones scale in the middle, Hartman's scale last.

Table 17. (continued)

Item	Form 1		Form 2		Form 3	
	Mean	S.D.	Mean	S.D.	Mean	S.D.
156	0.37	84.66	-3.96	91.32	5.44	88.46
157	-103.24	83.47	-115.08	97.77	-112.53	110.98
158	-22.82	109.87	-22.75	112.08	-7.03	119.27
159	6.27	95.73	1.04	94.04	4.75	94.35
160	-93.63	106.01	-114.34	102.83	-81.81	114.29
162	-55.33	113.02	-108.76	114.03	-73.56	120.06
163	-65.16	104.26	-90.08	101.37	-73.42	112.45
164	-50.02	94.89	-50.13	89.27	-47.30	106.05
165	-94.06	89.09	-90.29	86.98	-101.05	92.63
166	-81.90	90.60	-69.15	78.49	-142.11	93.19
168	-9.02	111.92	-25.45	115.22	2.44	129.45
169	-54.71	101.67	-79.31	91.45	-68.58	101.72
170	-30.66	100.22	2.53	103.00	13.70	115.64
171	-17.28	82.73	-27.73	76.17	-35.43	97.71
172	-116.79	88.06	-124.13	83.79	-141.19	92.34

Table 18. Within-factor, within-scale inter-item correlations

Items ^a	Form 1 ^b	Form 2 ^c	Form 3 ^d
109,116	.36	.43	.53
164,166	.23	.16	.10
110,122	.12	-.10	.22
117,158	.08	.10	.30
151,157	.28	.29	.27
149,156	.18	.46	.58
157,134	.31	.10	.26
146,135	.28	.20	.34
16,36	.29	.28	.22
36,31	.13	.00	.08
31,15	.16	.00	.11
15,4	.07	.28	.32
7,27	.64	.53	.56
28,17	-.06	-.01	.07
37,6	-.08	-.06	.12

^aItems 1-100 are from Jones', 101-160 from Hartman's, and 162-172 from MacDonald-Games' scale.

^bJones scale first, Hartman scale in the middle, MacDonald-Games scale last.

^cHartman scale first, MacDonald-Games scale in the middle, Jones scale last.

^dMacDonald-Games scale first, Jones scale in the middle, Hartman scale last.

Table 18. (continued)

Items	Form 1	Form 2	Form 3
6,8	.20	.23	.12
139,129	.28	.26	.50
140,129	.35	.10	.52
138,145	-.13	.07	.09
139,145	-.05	.06	.00
93,44	.12	.14	.09
94,43	.17	.36	.21
95,78	.03	.22	.17
43,44	.29	.01	.24
72,1	.40	.38	.32
26,72	.43	.39	.31
2,97	.02	.41	-.08
71,73	.11	.20	.17

DISCUSSION

There have been very few studies that have addressed the question of the effectiveness of RET. It was conjectured earlier that a major factor in this paucity of research has been the lack of an irrationality instrument with demonstrated reliability and validity. A similar argument can be voiced in criticism of those studies that have been completed in this area (e.g., Cavior & Cone, 1972). In other words, the value of a study concerning RET, in which a poor (or unknown) measure of irrationality has been employed, obviously is severely limited.

The literature review of irrationality instruments discussed earlier reduced the number of promising inventories from eight to three, these three all being suitable for large-scale administration to an adult population. The Jones IBT, Hartman PBI, and MacDonald-Games IVT were thus included in the present investigation. The exploratory nature of this study led to the choice of factor analyzing all of the irrationality items from these three instruments, rather than working with the scales as whole units. As well as providing far more detailed information concerning the content and internal consistency of the irrationality instruments, this procedure provided the possibility of using new combinations of good items from any of the three scales to measure irrationality.

The theoretical writings of Albert Ellis (1962; Ellis & Harper, 1961) suggested that neuroticism, anxiety, depression, and self-concept are all directly related to irrationality. Previous

research (e.g., MacDonald & Games, 1972) has also suggested that there are sex differences with respect to irrationality. These variables, therefore, were all included in the present investigation of the measurement of irrationality. The results of comparing these variables with factors derived from the irrationality instruments have been cited in the previous chapter.

In the following three sections, the results of this study will be discussed in terms of the specific hypotheses outlined earlier (see p. 30).

Hypothesis 1

Hypothesis 1 was stated as follows: "Factor analyses of the irrationality instruments' items will yield ten factors that correspond to Ellis' irrational beliefs; items representing a particular irrational idea will have the highest loadings for that particular factor; and factor loadings for specific items on each factor will be higher for items purporting to measure that factor, than for items purporting to measure another factor."

This hypothesis, based primarily on Jones' (1968) comprehensive study concerning the IBT, was only partially confirmed. The factor analysis clearly does not support the Jones (1968) classification system of ten irrational ideas, corresponding to ten of Ellis' (1962) irrational beliefs. Ellis (1962), himself, has clearly stated that his irrational ideas "may be classified in various ways, so that the . . . listing is not meant to be definitive or non-overlapping, but constitutes one of several classificatory

approaches which may be taken to modern irrationalities" (p. 61). Jones (1968), however, found it necessary to "fit" his items, which were based upon a variety of Ellis' writings, to ten sub-scales that directly corresponded to ten of Ellis' ideas. The present factor analysis does not support Jones' contention that this is a valid approach (i.e., that the items from the IBT comprise ten separate factors, which conform to ten of Ellis' irrational beliefs). It appears that Jones would have been better advised to freely factor analyze his items, rather than forcing them to conform to a classification system that even its author admits was rather arbitrary.

The fact that the present factor analysis suggests a somewhat different conceptualization of irrationality from the structure of the IBT, is not at all meant to suggest that these results are inconsistent with Ellis' (1962) overall approach. On the contrary, the factors of Evaluating, Neuroticism, Rationality-I (e.g., lack of anxiety and acceptance of events philosophically), Avoidance, Perfectionism, Rationality-II (e.g., responsibility for one's own behavior, but not for others'; lack of judging), and Fear of failure are entirely in agreement with RET principles. It is relevant at this point to consider the results of the factor analysis with respect to the items of the MacDonald-Games IVT (see APPENDIX D). The IVT actually consists of Ellis' (1962) eleven irrational statements, and the items' factor loadings, therefore, are of particular interest. Tables 3 and 4 reveal that seven of the IVT items have high loadings (greater than .42) on Evaluating and Neuroticism.

Those items which did not load highly on any of the seven factors ("One should be dependent on others and must have someone stronger on whom to rely;" "Past experiences and events are the determiners of present behavior; the influence of the past cannot be eradicated;" "One should be upset over people's problems and disturbances;" and "There is always a right or perfect solution to every problem, and it must be found or the results will be catastrophic") were similar in content to other items which did have higher loadings. All of the content, in fact, of the eleven irrational statements (Ellis, 1962) can be observed in the seven factors. Furthermore, Evaluating, which accounts for the highest percentage of common variance in the seven factors (23.1%), is most obviously related to RET principles. The emphasis within this factor on evaluating, blaming, and judging is most consistent with Ellis' writings, and it is not at all difficult to discern judging and blaming in the six irrational beliefs (items 2-7 on the IVT) that load highly (greater than .42) on this factor.

To summarize the findings with respect to the first hypothesis, then, the factor analysis did not support the use of ten factors corresponding to ten of Ellis' (1962) irrational beliefs. However, results did suggest a somewhat different conceptual framework for describing and measuring irrationality that was still consistent with RET principles. This conception of irrationality includes the seven factors: Evaluating, Neuroticism, Rationality-I, Avoidance, Perfectionism, Rationality-II, and Fear of failure. Its

advantage over the previous conception of irrationality is that it is more empirically based.

Hypothesis 2

Hypothesis 2 was stated as follows: "Significant ($p \leq .01$) positive correlations between the different measures of irrationality will be found." The correlations between the IBT, PBI, and IVT were, in fact, both positive and significant ($p \leq .01$), ranging from .65 (PBI and IVT) to .40 (IBT and IVT). However, since the factor analysis demonstrated that irrationality could be more meaningfully represented by seven new factors derived from the IBT, PBI, and IVT, the seven factors, rather than the three original scales, will be discussed below. As mentioned earlier, the inclusion of the one-item self-rating of irrationality did not prove to be rewarding. This item was not significantly ($p > .05$) correlated with the other measures of irrationality included in the study. There is no evidence, therefore, that the one-item rating measures irrationality, as it has been defined by researchers in this area.

Examination of Tables 3-9 reveals the following composition of the seven factors: Evaluating contains thirteen items from the PBI and two from the IVT; Neuroticism contains sixteen items from the PBI, three from the IBT, and one from the IVT; Rationality-I contains five items from the IBT; Avoidance contains seven items from the IBT; Perfectionism contains five items from the PBI and one from the IBT; Rationality-II contains six items from the IBT;

and Fear of failure contains eight items from the IBT. Thus Rationality-I, Avoidance, Rationality-II, and Fear of failure are comprised entirely of IBT items, and Evaluating, Neuroticism, and Perfectionism contain items from more than one scale.

The relationships between the seven factors will now be examined. Since Jones' (1968) finding that sex differences are important to components of irrationality was partially supported by the present findings (see Tables 12 and 13), the relationships between factors will be discussed separately for males and females.

For males (see Table 12), Neuroticism correlated significantly ($p \leq .01$) with each of the other factors, except for Rationality-II. Rationality-II, in fact, was not found to be significantly ($p \leq .01$) related to any of the other factors. Evaluating, on the other hand, was found to correlate significantly ($p \leq .01$) with Neuroticism and Perfectionism; Rationality-I correlated significantly ($p \leq .01$) with Neuroticism and Avoidance; Avoidance with Neuroticism, Rationality-I, and Fear of failure; Perfectionism with Evaluating and Neuroticism; and Fear of failure with Neuroticism and Avoidance. All of these significant ($p \leq .01$) correlations are entirely consistent with RET. Each of the significant ($p \leq .01$) correlations between maladjustment-oriented factors (Evaluating, Neuroticism, Avoidance, Perfectionism, and Fear of failure) is positive (as reported in the previous chapter), while each of the correlations between the maladjustment-oriented factors and Rationality-I is negative.

For females (see Table 12), the relationships between factors were very different than they were for males, for Rationality-II and Fear of failure, respectively. Rationality-II, which for males was not significantly ($p \leq .01$) correlated with any of the other factors, had a correlation of .39 with Rationality-I ($r = .04$ for males). Fear of failure was significantly ($p \leq .01$) correlated with all of the other factors (positively), except for Rationality-II. Thus for females, the two types of rationality measured by Factors 3 and 6 are far more closely associated with each other, than for males. Furthermore, Fear of failure was much more closely related to other aspects of irrationality for women in this sample, than for men. One possible conclusion from these results is that for women, the different aspects of irrationality (and rationality) may tend to be more directly related than for males. There is also the possibility, however, that females consistently self-disclose more, with respect to maladjustment or irrationality. It is generally accepted among personality theorists that females do self-disclose more readily than do males on a variety of measures (e.g., Pedersen & Breglio, 1968).

To summarize the relationships between factors, there are a number of significant ($p \leq .01$) correlations between the factors, all of them consistent with RET. In addition, there are some differences in the way that the factors are associated, between males and females of this sample. The lack of significant ($p \leq .01$) relationships between certain factors (e.g., Evaluating and

Rationality-II) is not necessarily contrary to RET principles.

A general principle of RET is that if there is maladjustment, then there has probably been irrationality which has led to the maladjustment. That is not to say, however, that if there is a particular type of irrationality, then a particular diagnosis of maladjustment can be predicted. In fact, there is only one other study that even deals with components of irrationality (Jones, 1968). RET principles do not predict that different types of irrationality are necessarily associated with each other. It would be contrary to RET principles, however, if none of the irrationality factors were significantly ($p \leq .01$) correlated with a particular measure of maladjustment. This brings us to Hypothesis 3.

Hypothesis 3

Hypothesis 3 was stated as follows: "Significant ($p \leq .05$) correlations between each measure of irrationality and the measures of depression, anxiety, neuroticism, and low self-image will be obtained." The correlations between the IBT, PBI, IVT, and the personality measures were, in fact, significant ($p \leq .01$) and in the expected direction. The relationships between irrationality and depression, anxiety, neuroticism, and self-concept will be discussed below, with respect to the seven irrationality factors. Since there are some sex differences related to the factors, the correlations between the factors and the personality dimensions will be discussed separately for males and females.

It is apparent from the results illustrated in Tables 12 and 13 that depression (as measured by the Depression Adjectives Check List) is significantly ($p \leq .01$) related to a number of the irrationality factors. For males, evaluating responses, neurotic responses, irrational responses, and avoiding responses (Factors 1-4) are all associated with a tendency towards depression. For females, evaluating responses, neurotic responses, irrational responses, avoiding responses, and fearing failure responses (Factors 1-4, 6, and 7) are all associated with a tendency towards depression. Thus for both sexes, several of the irrationality factors have been found to be related to depression.

Neuroticism (as measured by the Eysenck Personality Inventory) is also significantly ($p \leq .01$) related to a number of the irrationality factors. For females, neurotic responses, irrational responses, avoiding responses, and fearing failure responses (Factors 2, 3, 4, and 7) are all related to a tendency towards neuroticism. For males, all of the directions of responding described above on Neuroticism, Rationality-I, Avoiding, and Fear of failure, with evaluating responses as well, are all related to a tendency towards neuroticism. Neuroticism, too, then has been found to be associated with several of the irrationality factors.

Anxiety (as measured by the Fear Survey Schedule) was found to be related to the same irrationality factors, for both males and females. Anxiety tended to be associated with evaluating responses, neurotic responses, irrational responses, avoiding

responses, and fearing failure responses (Factors 1-4 and 7).

Anxiety is the only one of the four personality variables of the study that was significantly ($p \leq .01$) correlated with the same factors, for both males and females.

Self-concept (as measured by the Tennessee Self-Concept Scale), too, is significantly ($p \leq .01$) correlated with several of the irrationality factors. For females, evaluating responses, neurotic responses, irrational responses, avoiding responses, and fearing failure responses (Factors 1-4, 6, and 7) are all associated with a tendency towards a poor self-image. For males, evaluating responses, neurotic responses, and avoiding responses (Factors 1, 2, and 4) are associated with a tendency towards a poor self-concept.

Each of the personality dimensions included in this study, then, is significantly ($p \leq .01$) correlated with at least three irrationality factors for males, and at least four irrationality factors for females. This can be taken to be the beginning of validating evidence for six of the seven factors, and to a limited extent, as construct validity data for RET. The factor labeled Perfectionism, however, was not found to be significantly ($p \leq .01$) correlated with any of the personality variables. While it is possible that this component of irrationality is associated with the repression or denial of neurotic symptoms, and that it is, therefore, a valid component of irrationality, this is sheer speculation. Until some validating evidence is collected for this factor, its usefulness is seriously in doubt.

Demographic Variables and the Factors

As has been frequently mentioned, the irrationality factors have been found to be related to sex in a variety of ways. Since these relationships have already been discussed in detail, with respect to both individual factors and correlations between factors and personality measures, the variable of sex will not be discussed further in this section, except in terms of how it relates to the other demographic variables and the irrationality factors. Information was collected with respect to the age, year in school, marital status, experiences with psychologists or psychiatrists, family income, and college grade point average of the Ss. Relationships between each of these variables and the irrationality factors will now be discussed.

The age of the Ss (see Tables 12 and 13) was found not to be significantly ($p \leq .01$) correlated with any of the irrationality factors, for males. For females, however, older Ss tended to report less evaluative responses (Factor 1) and less afraid of failure responses (Factor 7). Either females are learning to admit less irrationality information as they get older, or they are learning to be more rational in the two areas tapped by Evaluating and Fear of failure.

There was enough variability in the sample, such that class (see Tables 12 and 13) or year in school, although related to age ($r = .66$ for females, $r = .68$ for males), was found to be related to the irrationality factors in a somewhat different fashion.

With females, being more advanced in college was associated with a tendency towards giving less afraid of failure responses (Factor 7). Once again, females appear to be progressing (or revealing less) when males are not, with respect to Fear of failure.

For males, greater advancement in college is associated with less perfectionistic responses (Factor 5). This may be indicative of males learning something in college with respect to irrationality, too. Older and more advanced in school males, from this sample, do tend to be less neurotic (as measured by the Eysenck Personality Inventory). As reported earlier, however, there is not a significant ($p \leq .01$) relationship between Perfectionism and neuroticism.

Marital status (see Tables 12 and 13) has been found to be related to Perfectionism, for males, and to Fear of failure, for females. In other words, single women tended to respond with greater fear of failure than did women in this sample who were not single, and single males tended to give more perfectionistic responses than did males in the sample who were not single. This suggests, of course, that marriage is associated with less perfectionism in males, and less of a fear of failure in females. While these conclusions are consistent with the still prevalent notion in this culture that women who don't get married are "failures," and that men become more responsible and realistic after getting married, the limited nature of the sample (with respect to married students) and the confounding of the nonsingle category (married, divorced, and separated are all considered together) render these

conclusions highly speculative. This is particularly true with respect to Perfectionism, due to the lack of validating evidence from the personality measures for this factor.

None of the irrationality factors or personality measures included in this study were found to correlate significantly ($p \leq .01$) with reports of experiences with psychologists or psychiatrists. However, since this study is more concerned with present characteristics of Ss than past characteristics, this is not altogether surprising. Anticipated experiences with psychologists or psychiatrists (See Tables 11 and 12) were found to be significantly ($p \leq .01$) related to Neuroticism, for females, and to Rationality-II, for males. Specifically, neurotic responses, for females, tended to be associated with anticipating seeing a psychologist or psychiatrist. Anticipating seeing a psychologist or psychiatrist also tended to be associated with being depressed, neurotic, anxious, and having a poor self-concept. The rather bizarre finding that, for males, anticipating seeing a psychologist or psychiatrist in the near future tended to be related to rational responses (as measured by Rationality-II), is difficult to explain. One possibility is that this finding results from the item "I find it easy to seek advice," which is included in Rationality-II, although in previous studies this item has been used to indicate irrationality. More likely, however, this finding is due to the limited nature of the sample, since only seventeen males and females in the entire sample responded affirmatively to the

"anticipated experience" question.

Log family income (see Table 14) was found not be be significantly ($p \leq .01$) correlated to any of the irrationality factors or personality measures, for males. For females, however, log family income correlated $-.21$ with Rationality-II. In other words, the lower the family income, the greater the tendency for females' responses to indicate responsibility for personal behavior and lack of judging (as measured by Rationality-II).

Finally, college gradepoint average (see Table 13) was found not to be significantly ($p \leq .01$) correlated with any of the other variables in the study. This finding was consistent for both male and female Ss.

Social Desirability and the Factors

Social desirability is certainly one of the more important variables included in the present study. There is a very definite danger that in attempting to measure adjustment and other personality dimensions, that one is really measuring a tendency to respond in a socially desirable (or undesirable) fashion (Edwards, 1970). The Adult Irrational Ideas Inventory (Fox & Davies, 1971), discussed in detail earlier, is a good example. Cavior and Cone (1972) found that the AII as a whole was correlated with two social desirability scales at $-.48$ and $-.45$, respectively. Their principal components factor analysis revealed, however, that the first factor (accounting for 11.7% of the total variance) was correlated with

the two social desirability scales at .80 and .83. The other factors were not interpretable, either in terms of RET or other personality terminology (Cavior & Cone, 1972). Similarly, a principal components factor analysis of the MMPI (Edwards, 1970) resulted in the SD scale having a loading of .97 on the first rotated factor (accounting for 38% of the total variance). These factors are measuring social desirability, not irrationality or maladjustment (Cavior & Cone, 1972; Edwards, 1970).

While social desirability is at least partially confounded with five of the seven factors in this investigation, the situation is not as severe as those described above. Evaluating and Perfectionism, for example, are not even significantly ($p \leq .01$) correlated with social desirability, with male and female data viewed either separately or together. Since social desirability and sex are significantly ($p \leq .01$) correlated ($r = .16$, females tending to give more socially desirable responses), the relationships between social desirability and the other five factors will be discussed separately for males and for females.

For females, correlations between social desirability and Neuroticism, Rationality-I, Avoidance, Rationality-II, and Fear of failure are -.47, .36, -.46, .37, and -.34, respectively. For males, social desirability is significantly ($p \leq .01$) correlated only with Neuroticism ($r = -.39$), Avoidance ($r = -.34$), and Rationality-II ($r = .34$). While it might be better if some of these correlations were lower, it certainly cannot be argued very effectively

that any of the seven factors is predominantly measuring social desirability. One final comparison that may be useful, is that two of the scales of the Edwards Personal Preference Schedule (Edwards, 1959), an instrument designed to keep social desirability confounding at a minimum, have correlations with social desirability between .30 and .35. It does not seem necessary, therefore, to discount any of the seven irrationality factors solely on the basis of confounding with social desirability.

Conclusions

The present investigation has suggested that the ten (or eleven) irrational ideas of Albert Ellis (1962) are not appropriate as a basis for ten subscales measuring irrationality. While Ellis' (1962) conceptualization of irrationality has been extremely useful in providing a specific and widely known definition of irrationality, previous researchers (e.g., Jones, 1968) have sometimes followed Ellis' arbitrary classification system of modern irrationalities too rigidly, i.e., without first investigating empirically what the components of irrationality are.

The three irrationality instruments employed in this study (Jones' IBT, Hartman's PBI, and MacDonald-Games' IVT), suggested by previous research to be the most promising were all based upon Ellis' (1962) conceptualization of irrationality. However, these instruments are not comprised of ten or eleven factors that correspond to Ellis formulation.

Furthermore, these instruments are not comprised of a single "irrationality" factor. Instead, a new framework for measuring and understanding irrationality, still consistent with RET principles, is suggested. The seven factors that this framework consists of include: Evaluating (blaming, judging, and dependency); Neuroticism (anxiety and insecurity); Rationality-I (acceptance of events philosophically, and the absence of anxiety); Rationality-II (nonjudging and responsibility for personal behavior); Avoidance; Perfectionism; and Fear of failure. These factors have been found, with one exception (Perfectionism), to be significantly ($p \leq .01$) related to measures of depression, neuroticism, anxiety, and self-image, consistent with predictions derived from the RET literature. The discriminant reliabilities of the seven factors, ranging from .91 (Neuroticism) to .56 (Rationality-I), could, of course, be increased by adding further items.

The differences in the relationships between the factors and the personality measures, when male and female data were viewed separately, once again demonstrated the advantage of examining personality data separately for males and females. It is not possible, however, from the results of this study, to determine whether there are any clearcut personality (or cognitive style) differences between the sexes, with respect to irrationality, or if the discrepancies can be traced to differences in what males and females will admit about themselves on a paper-and-pencil personality inventory. As mentioned earlier, social desirability and sex were

found to be significantly ($p \leq .01$) correlated for this sample, with females tending to give more socially desirable responses than did males. Furthermore, other researchers have demonstrated sex differences with respect to personality correlates of self-disclosure (e.g., Pedersen & Breglio, 1968).

The above discussion concerning what is "really" being measured brings up some crucial questions regarding the measurement of irrationality by paper-and-pencil inventories. Irrationality is an exceedingly difficult construct to measure. Although it was argued earlier that having people respond to questions concerning the extent to which they believe in various ideas (as a measure of the cognitive variable of irrationality) was more direct than other forms of personality measurement, there are some severe problems inherent in this approach. Nunnally (1967) has pointed out the necessity of using unambiguous, uni-dimensional items in constructing tests, in order to facilitate high reliability and internal consistency. This is an especially difficult task to accomplish for irrationality, when the investigator is interested in multi-dimensional cognitive beliefs, and not symptoms. For example, the item "People are disturbed not by situations, but by the view they take of them" is really composed of two parts: people are not disturbed by situations and people are upset by the view that they take of situations. Neither of these two segments independently can properly match the meaning of the original with respect to irrationality. Previous researchers, therefore, have accepted

the notion that irrationality is a complex variable that requires multi-dimensional items. This has unfortunately resulted, however, in a great deal of ambiguity, and a tremendous amount of variability in response to the same or similar items.

This issue of the complexity of items could conceivably be solved by researchers particularly adept at writing items and test construction. An even more basic dilemma, though, is what respondents are writing about when they are asked about their irrational beliefs. As William James (1902) explained so eloquently almost three-quarters of a century ago, there is a huge difference between "core" beliefs (or belief systems) and "peripheral" beliefs. The former frequently and influentially energize or motivate an individual's behavior, while the latter are accepted but do not really affect the person very much. When an individual is asked on a paper-and-pencil test about agreement or disagreement with various ideas and statements, there is no evidence that the person will respond differentially to questions that concern core and peripheral beliefs. Thus there is not much reason to expect that data collected from such inventories are likely to be very closely associated with the individual's behavior (overt or covert). A clinician has the advantage of being able to ask more questions to find out how influential various beliefs are, as well as the added possibility of additional information in the form of voice quality and non-verbal communication; the paper-and-pencil test has no such possibilities. Therefore, it is suggested that irrationality

instruments are unlikely to become useful as clinical tools for individual clients. They may become useful, however, and to a certain extent already have become useful, for research purposes. It seems appropriate, then, to conclude with a brief discussion of the implications of the present study for future research.

Future Research

The first stage in the application of the present study's results would be a replication of the factor analysis of items from the IBT, PBI, and IVT. A change in the conceptualization and measurement of irrationality obviously ought not to be based upon just one study. It is suggested that this replication be carried out with a nonstudent population, in order to increase the generalizability of the findings. In this way, a reliable set of factors that represent the RET concept of irrationality can be obtained. If this procedure is not productive, in that either reliable (and meaningful) factors cannot be derived from these instruments, or not enough items from the IBT, PBI, and IVT load high enough on the factors to comprise a new instrument, then it is suggested that new items be written based upon Ellis' (1962) irrational beliefs or the new irrationality factors. In working on any new items, particular attention ought to be given to writing uni-dimensional items, and to balancing scales with respect to social desirability.

The next step concerning research in this area would be to

investigate further the relationships between the new irrationality instrument and other personality variables (e.g., depression, neuroticism, anxiety, and self-image). Any irrationality scale or factor which does not correlate significantly with some other measure of maladjustment probably should be considered to be useless. It might be helpful in studies of this type to include general clinical ratings of adjustment, along with the paper-and-pencil measures. In the present study, the factor of Perfectionism was not found to be related to any of the other personality instruments. It was not possible to determine whether Perfectionism was not a useful factor, or whether people who score highly on this factor are just less likely to admit to traditional maladjustment symptoms. The inclusion of clinical ratings of Ss' adjustment might give additional information in this regard.

After accomplishing the research tasks described above, it would then be possible to use the new irrationality dimensions to help measure the effectiveness of RET. For example, investigations could be carried out concerning what kinds of irrationality were most likely to be reduced or eliminated by RET. In addition, RET could be compared with other therapies to determine further its differential effect on irrationality. The usefulness of RET in nonclinical settings could also be studied. For example, the effect of teaching RET principles in school environments could be tested for various age groups. If Ellis (1962) is correct in his claim that irrationality is a general cultural phenomenon, then the uses of a reliable and valid measure of irrationality would be virtually endless.

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APPENDIX A: BACKGROUND INFORMATION

General Information

This first section of the questionnaire consists of questions about your general background. Write your answer to each question in the space provided.

_____ Present age?

_____ Sex (Male or Female)?

_____ Occupation or classification in school
(Freshman, Sophomore, Junior, or Senior)?

_____ Firm of school?

_____ Present annual salary (or parents' salary if student)?

_____ Marital status (single, married, separated, or divorced)?

_____ The highest educational level that I attained was:

- A. Did not graduate from high school.
- B. High school graduate.
- C. Two years of college or less.
- D. More than two years of college but did not graduate.
- E. College graduate.
- F. Master's degree or higher.

_____ If a student, what is your cumulative gradepoint average?

_____ Have you ever seen a psychologist or psychiatrist professionally? If so, for how long?

_____ Do you anticipate seeing a psychologist or psychiatrist in the near future?

APPENDIX B: PERSONAL BELIEFS INVENTORY

Instructions: This is an inventory about the way that you believe and feel about various things. There are a number of statements with which you will tend to agree or disagree. For each statement you should mark your answer in the space provided as follows--according to your own reaction to the item:

Use a number from 1 to 99. You may use any number from 1 to 99 to indicate your response to a statement. This does not mean that you have to use all the numbers from 1 to 99. Some people use only the numbers 1, 25, 50, 75, and 99. Others use 1, 10, 20, 30, 40, ..., up to 99. The point is, the distinction you make should be as fine as you can make. Use the numbers along the range you feel most comfortable with. If you feel you can distinguish between 50 and 51, then do so. This procedure satisfies some people's need to make fine distinctions, but others who feel they cannot respond with such precision may use fewer different numbers.

When making your judgment concerning whether you agree or disagree with each statement, place a number from 1 to 99 in the space following each statement. Answer "1" to those statements you "completely disagree" with and answer "99" to those statements you "completely agree" with. Answer with numbers between "1" and "99" those statements which you neither completely agree or completely disagree with. The closer your response is to "99" the more you agree with the statement. The closer your response is to "1" the more you disagree with the statement. The closer your response is to "50" the more uncertain you are about your reaction. Thus a response of "50" indicates that you neither agree nor disagree with the particular statement.

When responding to each statement according to whether you agree or disagree with it, use the following scale:

1	10	20	30	40	50	60	70	80	90	99
COMPLETELY DISAGREE				NEUTRAL OR UNCERTAIN			COMPLETELY AGREE			

It is not necessary to think over any item very long. Mark your answer quickly and go on to the next statement.

Be sure to mark how you actually feel about the statement; not how you think you should feel.

Instructions: For each of the following statements mark a number from 1-99, according to your reaction to the item, in the space after each statement.

It is not necessary to think about any item for very long. Mark your answer quickly and go on to the next statement.

Be sure to mark how you actually feel about the statement, not how you think you should feel.

Use the following scale to answer the next series of questions:

1	10	20	30	40	50	60	70	80	90	99
COMPLETELY DISAGREE				NEUTRAL OR UNCERTAIN				COMPLETELY AGREE		

1. An adult must be approved of or loved by everyone for everything he or she does. _____
2. What others think of you is most important. _____
3. Depending on others is better than depending on oneself. _____
4. A person should be thoroughly competent, adequate, talented, and intelligent in all possible respects. _____
5. The main goal and purpose of life is achievement and success. _____
6. Incompetence in anything whatsoever is an indication that a person is inadequate or valueless. _____
7. One should blame oneself severely for all mistakes and wrongdoings. _____
8. Punishing oneself for all errors will help prevent future mistakes. _____
9. A person should blame others for their mistaken or bad behavior. _____
10. One should spend considerable time and energy trying to reform others. _____
11. One can best help others by criticizing them and sharply pointing out the error of their ways. _____
12. It is natural to get upset by the errors and stupidities of others. _____
13. Because a certain thing once strongly affected one's life, it should indefinitely affect it. _____
14. Because a person was once weak and helpless, one must always remain so. _____
15. Because parents or society taught acceptance of certain traditions, one must go on accepting these traditions. _____

1	10	20	30	40	50	60	70	80	90	99
COMPLETELY DISAGREE				NEUTRAL OR UNCERTAIN			COMPLETELY AGREE			

16. If things are not the way one would like them to be, it is a catastrophe. _____
17. Other people should make things easier for us, and help with life's difficulties. _____
18. No one should have to put off present pleasures for future gains. _____
19. Avoiding life's difficulties and self-responsibilities is easier than facing them. _____
20. Inertia and inaction are necessary and/or pleasant. _____
21. One should rebel against doing things, however necessary, if doing them is unpleasant. _____
22. Unhappiness is externally caused or created by outside persons and events. _____
23. A person has no control over his or her emotions and cannot help feeling bad on many occasions. _____
24. If something is or may be dangerous or injurious, one should be concerned about it. _____
25. Worrying about a possible danger will help ward it off or decrease its effect. _____
26. Certain people are bad, wicked, or villainous and should be blamed and punished for their sins. _____
27. Maximum human happiness can be achieved by passively and uncommittedly "enjoying oneself." _____
28. Any job should be done perfectly and thoroughly if you do it at all. _____
29. People should observe moral laws more strictly than they do. _____
30. I get annoyed at being held up by small rules and regulations. _____
31. I get impatient, and begin to fume and fret, when people delay me unnecessarily. _____
32. When I'm in a group, I'm always afraid I may say or do something foolish. _____
33. If you once start doing favors for people, they may just walk all over you. _____
34. I tend to do or say things I later hate myself for. _____
35. When things go badly, I tend to blame myself. _____
36. I feel that many people could be described as victims of circumstances beyond their control. _____
37. The trouble with many people is that they don't take things seriously. _____

1	10	20	30	40	50	60	70	80	90	99
COMPLETELY DISAGREE				NEUTRAL OR UNCERTAIN				COMPLETELY AGREE		

38. For most questions there is one right answer, once a person has the facts. _____
39. People today have forgotten how to feel properly ashamed of themselves. _____
40. I set a high standard for myself and feel others should do the same. _____
41. Criticism makes me nervous and anxious. _____
42. I do whatever makes me feel good at the moment, even at the cost of some distant goal. _____
43. I am so touchy on some subjects that I can't talk about them. _____
44. A large number of people are guilty of bad sexual conduct. _____
45. Some of my family and/or friends have habits that bother and annoy me. _____
46. My feelings are easily hurt. _____
47. I feel self-conscious and uncomfortable when in the presence of those whom I consider to be my superiors. _____
48. I worry over possible misfortunes. _____
49. At times I think I am no good at all. _____
50. I get excited or upset when things go wrong. _____
51. I shrink from facing a crisis or difficulty. _____
52. I have reason for feeling jealous of one or more members of my family. _____
53. It makes me angry or upset when other people interfere with my daily activity. _____
54. I become depressed because of my own deficiencies or shortcomings. _____
55. I feel guilty because of the sins I have committed. _____
56. I tend to become upset and miserable when things are not the way I would like them to be. _____
57. There is invariably a right, precise, and perfect solution to human problems, and it is catastrophic when this perfect solution isn't found. _____
58. You owe obedience to your parents just because they are your parents. _____
59. I tend to take myself and others too seriously. _____
60. It is realistic to expect that there should be no incompatibility in marriage. _____

APPENDIX C: IRRATIONAL BELIEFS TEST

1	10	20	30	40	50	60	70	80	90	99
COMPLETELY DISAGREE				NEUTRAL OR UNCERTAIN				COMPLETELY AGREE		

1. It is important to me that others approve of me. _____
2. I hate to fail at anything. _____
3. People who do wrong deserve what they get. _____
4. I accept what happens philosophically. _____
5. If a person wants to, he or she can be happy under any circumstances. _____
6. I have a fear of some things that bother me. _____
7. I put off important decisions. _____
8. Everyone needs someone he or she can depend on for help and advice. _____
9. "A zebra cannot change its stripes." _____
10. There is a right way to do everything. _____
11. I like the respect of others, but I don't have to have it. _____
12. I avoid things I cannot do well. _____
13. Evil persons escape the punishment they deserve. _____
14. Frustrations don't upset me. _____
15. People are disturbed not by situations, but by the view they take of them. _____
16. I feel no anxiety over unexpected dangers or future events. _____
17. I try to go ahead and get irksome tasks behind me when they come up. _____
18. I try to consult an authority on important decisions. _____
19. It is impossible to overcome the influences of the past. _____
20. There is no perfect solution to anything. _____
21. I want everyone to like me. _____
22. I don't mind competing in activities where others are better than I. _____
23. Those who do wrong deserve to be blamed. _____
24. Things should be different from the way they are. _____
25. I cause my own moods. _____
26. I can't get my mind off some concerns. _____
27. I avoid facing my problems. _____
28. People need a source of strength outside themselves. _____
29. Just because something once strongly affects your life, doesn't mean it need do so in the future. _____

1	10	20	30	40	50	60	70	80	90	99	
COMPLETELY DISAGREE				NEUTRAL OR UNCERTAIN				COMPLETELY AGREE			
30.	There are no easy ways out of life's difficulties.										_____
31.	I can like myself even when many others don't.										_____
32.	I like to succeed at something, but I don't feel I have to.										_____
33.	Immorality should be strongly punished.										_____
34.	I get disturbed over situations I don't like.										_____
35.	People who are miserable have made themselves that way.										_____
36.	If I can't keep something from happening, I don't worry about it.										_____
37.	I make decisions as promptly as I can.										_____
38.	There are certain people that I depend on greatly.										_____
39.	People overvalue the influence of the past.										_____
40.	Some problems will always be with us.										_____
41.	If others dislike one, that's their problem not mine.										_____
42.	It is important to me to be successful in everything I do.										_____
43.	I never blame people for their wrongdoings.										_____
44.	I accept things the way they are, even if I don't like them.										_____
45.	A person won't stay angry or blue long unless one keeps oneself that way.										_____
46.	I can't stand to take chances.										_____
47.	Life is too short to spend it doing unpleasant tasks.										_____
48.	I like to stand on my own two feet.										_____
49.	If I had had different experiences, I could be more like I want to be.										_____
50.	Every problem has a correct solution.										_____
51.	I find it hard to go against what others think.										_____
52.	I enjoy activities for their own sake, no matter how good I am at them.										_____
53.	The fear of punishment helps people be good.										_____
54.	If things annoy me, I just ignore them.										_____
55.	The more problems a person has, the less happy he or she will be.										_____
56.	I am never anxious over the future.										_____
57.	I never put things off.										_____
58.	I am the only one who can really understand and face my problems.										_____
59.	I never think of past experiences as affecting me now.										_____
60.	We live in a world of chance and probability.										_____

1	10	20	30	40	50	60	70	80	90	99
COMPLETELY DISAGREE					NEUTRAL OR UNCERTAIN					COMPLETELY AGREE

61. Although I like approval, it is not a real need for me. _____
62. It bothers me when others are better than I am at something. _____
63. Everyone is basically good. _____
64. I do what I can to get what I want, and then don't worry about it. _____
65. Nothing is upsetting in itself--only in the way you interpret it. _____
66. I worry about certain things in the future. _____
67. It is difficult for me to do unpleasant chores. _____
68. I dislike for others to make my decisions for me. _____
69. We are slaves to our personal histories. _____
70. There is never an ideal solution to anything. _____
71. I worry about how much people approve of and accept me. _____
72. It upsets me to make mistakes. _____
73. It's unfair that "the rain falls on both the just and the unjust." _____
74. I am fairly easy going about life. _____
75. More people should face up to the unpleasantness of life. _____
76. I can't get fears off of my mind. _____
77. A life of ease is not very rewarding. _____
78. I find it easy to seek advice. _____
79. Once something strongly affects your life, it always will. _____
80. It is better to look for a practical solution than a perfect one. _____
81. I have concern with what people are feeling about me. _____
82. I become annoyed over little things. _____
83. I give someone who has annoyed me a second chance. _____
84. I dislike responsibility. _____
85. There is never any reason to remain sorrowful for very long. _____
86. I never think of such things as death or atomic war. _____
87. People are happiest when they have challenges and problems to overcome. _____
88. I dislike having to depend upon others. _____
89. People never change basically. _____
90. I feel I must handle things in the right way. _____
91. It is annoying, but not upsetting, to be criticized. _____
92. I'm not afraid to do things that I cannot do well. _____

1	10	20	30	40	50	60	70	80	90	99
COMPLETELY DISAGREE				NEUTRAL OR UNCERTAIN			COMPLETELY AGREE			

- 93. No one is evil even though his or her deeds may be. _____
- 94. I do not become upset over the mistakes of others. _____
- 95. People make their own hell within themselves. _____
- 96. I find myself planning what I would do in different
dangerous situations. _____
- 97. If something is necessary, I do it even if it is
unpleasant. _____
- 98. I've learned not to expect someone else to be con-
cerned about my welfare. _____
- 99. I don't look upon the past with any regrets. _____
- 100. There is no such thing as an ideal set of
circumstances. _____

APPENDIX D: IRRATIONAL VALUES TEST

Instructions: For each of the following statements mark a number from 1-99, according to your reaction to the item, in the space after each statement.

It is not necessary to think about any item for very long. Mark your answer quickly and go on to the next statement.

Be sure to mark how you actually feel about the statement, not how you think you should feel.

Using the following scale to answer the next twelve questions:

1	10	20	30	40	50	60	70	80	90	99
COMPLETELY DISAGREE				NEUTRAL OR UNCERTAIN				COMPLETELY AGREE		

1. It is essential that one be loved or approved by virtually everyone in his or her community. _____
2. One must be perfectly competent, adequate, and achieving to consider oneself worthwhile. _____
3. Some people are bad, villainous, or wicked and therefore should be blamed or punished. _____
4. It is a terrible catastrophe when things are not as one wants them to be. _____
5. Unhappiness is caused by outside circumstances, and the individual has no control over it. _____
6. Dangerous or fearsome things are causes for great concern, and their possibility must be continually dwelt upon. _____
7. It is easier to avoid certain difficulties and self-responsibilities than to face them. _____
8. One should be dependent on others and must have someone stronger on whom to rely. _____
9. Past experiences and events are the determiners of present behavior; the influence of the past cannot be eradicated. _____
10. One should be upset over people's problems and disturbances. _____
11. There is always a right or perfect solution to every problem, and it must be found or the results will be catastrophic. _____

PLEASE NOTE:

Pages 120-121, Appendix E, "Marlowe-Crowne Social Desirability Scale", and pages 127-129, Appendix H, "Eysenck Personality Inventory", copyrighted material, not microfilmed at request of author. Available for consultation at Iowa State University Library.

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APPENDIX F: DEPRESSION ADJECTIVES CHECK LIST

Instructions: Below you will find words which describe different kinds of moods and feelings. If "1" represents "completely inaccurate" and "99" represents "completely accurate," use a number from 1-99 to respond to each word as to whether it accurately describes how you feel right now--today.

Work rapidly and respond to each item. Be sure to mark how you actually feel, not how you think you should feel.

Use the following scale to answer this group of items:

	1	10	20	30	40	50	60	70	80	90	99
	COMPLETELY INACCURATE			UNCERTAIN				COMPLETELY ACCURATE			
1.	Wilted										
2.	Safe										
3.	Miserable										
4.	Gloomy										
5.	Dull										
6.	Happy										
7.	Low-spirited										
8.	Sad										
9.	Unwanted										
10.	Fine										
11.	Broken-hearted										
12.	Down-cast										
13.	Enthusiastic										
14.	Failure										
15.	Afflicted										
16.	Active										
17.	Strong										
18.	Tortured										
19.	Listless										
20.	Sunny										
21.	Destroyed										
22.	Wretched										
23.	Broken										
24.	Light-hearted										
25.	Criticized										
26.	Grieved										
27.	Dreamy										

1	10	20	30	40	50	60	70	80	90	99
COMPLETELY INACCURATE				UNCERTAIN				COMPLETELY ACCURATE		

28. Hopeless
29. Oppressed
30. Joyous
31. Weary
32. Droopy

APPENDIX G: FEAR SURVEY SCHEDULE

Instructions: The next group of items refer to experiences and things that may cause fear or other unpleasant feelings. If "1" represents "not at all afraid" and "99" represents "very much afraid," record a number from 1-99 for each item that describes how you are disturbed by it nowadays.

It is not necessary to think over any item very long. Mark your answer quickly and go on to the next item.

Be sure to mark how you actually feel, not how you think you should feel.

Use the following scale for the next series of items:

1	10	20	30	40	50	60	70	80	90	99
NOT AT ALL				SOMEWHAT				VERY MUCH		
AFRAID				AFRAID				AFRAID		

- | | |
|--|-------|
| 1. Noise of vacuum cleaner | _____ |
| 2. Open wound | _____ |
| 3. Being alone | _____ |
| 4. Being in a strange place | _____ |
| 5. Loud voices | _____ |
| 6. Dead people | _____ |
| 7. Speaking in public | _____ |
| 8. Crossing streets | _____ |
| 9. People who seem insane | _____ |
| 10. Falling | _____ |
| 11. Automobiles | _____ |
| 12. Being teased | _____ |
| 13. Dentists | _____ |
| 14. Thunder | _____ |
| 15. Sirens | _____ |
| 16. Failure | _____ |
| 17. Entering a room when other people are already seated | _____ |
| 18. High places on land | _____ |
| 19. People with deformities | _____ |
| 20. Worms | _____ |
| 21. Imaginary creatures | _____ |
| 22. Receiving injections | _____ |
| 23. Strangers | _____ |
| 24. Bats | _____ |

APPENDIX I: TENNESSEE SELF-CONCEPT SCALE

Instructions: The following statements are to help you describe yourself as you see yourself. Please respond to them as if you were describing yourself to yourself. Do not omit any items!

Read each statement carefully; then respond from 1-99 where "1" means "completely false" and "99" means "completely true."

It is not necessary to think over any item for very long. Mark your answer quickly and go on to the next statement.

When responding to each statement according to whether it is true or false, use the following scale:

1	10	20	30	40	50	60	70	80	90	99
COMPLETELY			UNCERTAIN				COMPLETELY			
FALSE							TRUE			

- | | |
|--|-------|
| 1. I have a healthy body. | _____ |
| 2. I am an attractive person. | _____ |
| 3. I consider myself a sloppy person. | _____ |
| 4. I am a decent sort of person. | _____ |
| 5. I am an honest person. | _____ |
| 6. I am a bad person. | _____ |
| 7. I am a cheerful person. | _____ |
| 8. I am a calm and easy-going person. | _____ |
| 9. I am a nobody. | _____ |
| 10. I have a family that would help me in any kind of trouble. | _____ |
| 11. I am a member of a happy family. | _____ |
| 12. My friends have no confidence in me. | _____ |
| 13. I am a friendly person. | _____ |
| 14. I am popular with men. | _____ |
| 15. I am not interested in what other people do. | _____ |
| 16. I do not always tell the truth. | _____ |
| 17. I get angry. | _____ |
| 18. I like to look nice and neat. | _____ |
| 19. I am full of aches and pains. | _____ |
| 20. I am a sick person. | _____ |
| 21. I am a religious person. | _____ |
| 22. I am a moral failure. | _____ |

1	10	20	30	40	50	60	70	80	90	99
COMPLETELY			UNCERTAIN				COMPLETELY			
FALSE							TRUE			

- | | |
|---|-------|
| 23. I am a morally weak person. | _____ |
| 24. I have self-control. | _____ |
| 25. I am a hateful person. | _____ |
| 26. I am losing my mind. | _____ |
| 27. I am an important person to my friends and family. | _____ |
| 28. I am not loved by my family. | _____ |
| 29. I feel that my family doesn't trust me. | _____ |
| 30. I am popular with women. | _____ |
| 31. I am mad at the whole world. | _____ |
| 32. I am hard to be friendly with. | _____ |
| 33. I think of things too bad to talk about. | _____ |
| 34. When I'm not feeling well, I can be cross. | _____ |
| 35. I am neither too fat nor too thin. | _____ |
| 36. I like my looks just the way they are. | _____ |
| 37. I would like to change my body. | _____ |
| 38. I am satisfied with my moral behavior. | _____ |
| 39. I am satisfied with my relationship with God. | _____ |
| 40. I ought to go to church more. | _____ |
| 41. I am satisfied to be just what I am. | _____ |
| 42. I am just as nice as I should be. | _____ |
| 43. I despise myself. | _____ |
| 44. I am satisfied with my family relationships. | _____ |
| 45. I understand my family as well as I should. | _____ |
| 46. I should trust my family more. | _____ |
| 47. I am as sociable as I want to be. | _____ |
| 48. I try to please others, but I don't overdo it. | _____ |
| 49. I am no good at all from a social standpoint. | _____ |
| 50. I do not like everyone I know. | _____ |
| 51. I can laugh at dirty jokes. | _____ |
| 52. I am neither too tall nor too short. | _____ |
| 53. I don't feel as well as I should. | _____ |
| 54. I should have more sex appeal. | _____ |
| 55. I am as religious as I want to be. | _____ |
| 56. I wish I could be more trustworthy. | _____ |
| 57. I shouldn't tell so many lies. | _____ |
| 58. I am as smart as I want to be. | _____ |
| 59. I am not the person I would like to be. | _____ |
| 60. I wish I didn't give up as easily as I do. | _____ |
| 61. I treat my parents as well as I should. (Use
past tense if parents are not living) | _____ |
| 62. I am too sensitive to things my family say. | _____ |

1	10	20	30	40	50	60	70	80	90	99
COMPLETELY FALSE				UNCERTAIN				COMPLETELY TRUE		

63. I should love my family more. _____
64. I am satisfied with the way I treat other people. _____
65. I should be more polite with others. _____
66. I ought to get along better with other people. _____
67. I gossip. _____
68. I have felt like swearing. _____
69. I take good care of myself physically. _____
70. I try to be careful about my appearance. _____
71. I act like I'm all thumbs. _____
72. I am true to my religion in my everyday life. _____
73. I try to change when I know that I'm doing things that
are wrong. _____
74. I have done very bad things. _____
75. I can take care of myself in any situation. _____
76. I take the blame for things without getting mad. _____
77. I do things without thinking about them first. _____
78. I try to play fair with my friends and family. _____
79. I take a real interest in my family. _____
80. I give in to my parents (Use past tense if parents
are not living). _____
81. I try to understand the other person's point of view. _____
82. I get along well with other people. _____
83. I do not forgive others easily. _____
84. I would rather win than lose in a game. _____
85. I usually feel good. _____
86. I do poorly in sports and games. _____
87. I am a poor sleeper. _____
88. I do what is right. _____
89. I have used unfair means to get ahead. _____
90. I have trouble doing the things that are right. _____
91. I solve my problems easily. _____
92. I change my mind. _____
93. I try to run away from my problems. _____
94. I do my share of work at home. _____
95. I quarrel with my family. _____
96. I do not act like my family thinks I should. _____
97. I see good points in all the people I meet. _____
98. I do not feel at ease with other people. _____
99. I find it hard to talk with strangers. _____
100. I have put off until tomorrow what I ought to do today. _____