

ANXIETY, REPRESSION, AND DENIAL ON BYRNE'S  
REPRESSION-SENSITIZATION SCALE

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A Thesis  
Presented to  
the Faculty of the Department of Psychology  
University of Houston

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In Partial Fulfillment  
of the Requirements for the Degree  
Master of Arts

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By  
Bruce Elbert Harrison  
May, 1971

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## ABSTRACT

The purpose of the study was to develop and evaluate a rationale for the repeatedly occurring empirical finding that the Byrne (1963) Repression-Sensitization (R-S) scale is moderately negatively related to indices of, or related to, psychological adjustment. The R-S scale (high scoring indicating sensitization) was postulated to essentially be a self-report measure of anxiety, and the concepts "repression" and "denial" were advanced as alternative defense mechanisms which would account for the apparent tendency of subjects not manifesting an extremely high degree of sensitization to have high interpersonal variability in level of psychological adjustment.

Anxiety was defined as the combination of a rapidly increasing and/or relatively high level of physiological arousal and the arising to awareness of the concept "threatening" as a response to an environmental demand. Repression (Rp) was defined as the process of automatically expunging from awareness the concept "threatening," with the result that the physiological arousal elicited by the perception of the environmental demand remains available for coping purposes. Denial (Dn) was considered to be a result of the inability to effectively exercise Rp, and was defined as the abandoning of a concept and/or percept of an environmental demand from conscious awareness in order to eliminate the accompanying concept "threatening,"

with the result that the physiological arousal originally stimulated by awareness of the environmental demand is left without a causative source and, consequently, is dissipated. It was postulated, therefore, that there may be two distinctively different ego defensive styles which both would tend to make it less likely that a person using them would score as an extreme sensitizer (i.e., as highly anxious), Rp, which would lessen the need to rely on rigid, less adaptive modes of ego defense, and Dn, which ignores the existence and/or importance of coping with environmental demands which otherwise would sharply increase the intensity and frequency of the experiencing of anxiety.

The two research questions investigated were whether the R-S scale functions essentially similarly to anxiety as measured using the same method (i.e., a self-report questionnaire), and whether Rp and Dn are useful in accounting for variance in pattern of responding to the R-S scale? The predictions related to the first question were: (a) the  $r$  between the R-S scale and Sixteen Personality Factor Questionnaire (16 PF) anxiety (Ax) will exceed .71, (b) in a multi-factor space factor analysis the R-S scale will load significantly only on the anxiety factor, and (c) the R-S scale will be significantly moderately negatively correlated with 16 PF extraversion (Ex), poise (Ps), and independence (Ind), and significantly moderately positively correlated with 16 PF neuroticism

(without its anxiety components) (Nwa), and Rotter's measure of tendency to believe in external control of rewards (I-E). The predictions related to the second question were: (d) the R-S scale will be significantly correlated with tendency to have an R-S scale response pattern similar to each of the factor-analytically defined Rp and Dn grouping tendencies, and (e) two grouping tendencies (factors) will emerge in a factor analysis of R-S scale response patterns with one being significantly positively correlated with Ex and negatively correlated with Nwa and I-E, and the other being significantly negatively correlated with Ex and positively correlated with Nwa and I-E.

A sample of 107 undergraduates completed the revised R-S scale, the 16 PF, and the I-E scale. The first factor analysis was performed on 29 variables taken from the questionnaires using the responses of all 107 subjects. The second factor analysis was performed on the R-S scale response patterns (using each subject's response pattern as one variable) of the 50 subjects who satisfied the twin criteria of not being extreme sensitizers (i.e., extremely anxious) and not scoring sufficiently near to the scale's lower limit to force their response patterns to be highly similar. The respective results in terms of the five predictions were as follows: (a) R-S correlated .73 ( $p < .001$ ) with Ax, (b) R-S loaded significantly ( $p < .05$ ) on

the anxiety (-.77) and intelligence (.23) factors out of seven factors extracted, with the former clearly showing predominance, (c) R-S correlated -.21 with Ex ( $p < .05$ ), -.08 with Ps ( $p > .10$ ), .02 with Nwa ( $p > .10$ ), and .40 with I-E ( $p < .001$ ), (d) R-S correlated -.34 ( $p < .05$ ) with the Dn and .15 ( $p > .10$ ) with the Rp grouping tendencies, and (e) the first grouping tendency to emerge correlated -.34 with Ex ( $p < .05$ ), .20 with Nwa ( $p > .10$ ), and .04 with I-E ( $p > .10$ ), and the second grouping tendency to emerge correlated .43 with Ex ( $p < .01$ ), -.47 with Nwa ( $p < .001$ ), and .03 with I-E ( $p > .10$ ).

In light of the pattern of the partial confirmation of the predictions it was concluded that: (a) the R-S scale is greatly similar to self-report measures of anxiety, (b) the R-S scale is probably no more than moderately related to self-report measures thought to bear some relation to adjustment, but which are not strongly related to anxiety, (c) Dn shows a negative relation to R-S, but Rp appears to be relatively independent of it, and (d) Rp and Dn appear to both be operating in R-S scale responding.

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## CHAPTER I

### SENSITIZATION AND THE ANXIETY-REPRESSION-DENIAL MODEL

The purpose of the current study was to develop and test a rationale for the repeatedly occurring empirical finding that the Byrne Repression-Sensitization (R-S) scale (Byrne, Barry & Nelson, 1963) was moderately negatively related to indices of, or related to, psychological adjustment. The rationale is intended to be consistent with the findings of prior R-S scale research, described below.

In the present investigation it was contended that the R-S scale does not perform its ostensible function of distinguishing between two defensive styles which are mutually exclusive at their extremes. It is instead measuring a single dimension which might be called emotional sensitization to threatening stimuli (Sn). A person manifesting Sn essentially admits being consciously aware of a wide range of problems, troubles, and aggravations. In other words, the content of the R-S scale is markedly similar to traditional self-report anxiety scales. However, to the extent that an individual does not obtain an extremely high score, probably what has been discovered is that he does not admit to being consciously aware of experiencing these anxiety type symptoms. This phenomenon probably occurs because the scale uses items which were

originally included in the MMPI because they differentiated clinical from nonclinical populations. Individuals in a nonclinical population are certainly not all well adjusted. In fact, a sizable minority of those who are nominally "normal" probably have a substantial degree of pathology. It, therefore, might be expected that the R-S scale items, being from the MMPI, would tend to identify anxious and troubled persons who are actively preoccupied with their personality problems. These individuals would tend to obtain extremely high R-S scale scores and extremely low scores on typical self-report indices of adjustment. This suggestion is consistent with the fact that 96% of the R-S scale items, in the sensitization-keyed direction, were classified as minority or deviant responses in the MMPI normative sample (Dahlstrom & Welsh, 1960, pp. 397-399). It is probable, however, that individuals can be poorly adjusted and still obtain low or intermediate R-S scores if they are not actively thinking about and/or preoccupied with their personality problems and perhaps are refusing to admit to themselves (i.e., denying) that they do have problems. At a more general level their defensive approach might take the form of denying that they have an emotionally unsatisfying life.

The user of the R-S scale in its present form, therefore, seemed to be faced with the problem of being able to group the extremely high scorers as relatively

homogenous on a high versus low Sn dimension of ego-defensive style, but not being able to infer an equivalent homogeneity among persons scoring at other levels. In logical terminology, the scale is probably not measuring A versus B (A being one type of defensive style, sensitization, and B being an entirely different one, repression). Instead, the scale would seem to be measuring A versus  $\bar{A}$  (i.e., the degree to which A, sensitization, is present or absent).

If the above analysis was correct, the problem remained as to the meaning of a low or intermediate R-S score. It has already been suggested that due to the nature of the R-S items, low and intermediate scorers do not form a homogenous group with regard to ego-defensive style. The present contention was that within the defensive mode of functioning conceptually defined as repression, there are two primary, distinctively different modes of ego-defense which are both distinguished from sensitization by virtue of a lack of awareness of strong anxiety and/or personality difficulty (i.e., nonsensitization), and which are distinguished from each other by difference on the dimension effectiveness of repression.

The theoretical rationale underlying the current study was postulated to include the concepts of (a) anxiety, (b) repression, and (c) denial. Anxiety was defined as the combination of a rapidly increasing and/or

relatively high level of physiological arousal and the rising to conscious awareness of the concept "threatening." Grinker (1966) and Malmö (1966) have both argued that anxiety is primarily a product of an excessive level of somatic activation. Others (Mandler & Watson, 1966; Schacter, 1966), however, have stressed the need for the activation to be in conjunction with the cognition of being helpless and disorganized. Izard and Tomkins (1966) further developed this idea by conceiving of anxiety as a moderately sharp increase in the rate of neural firing in combination with a remembered or anticipated threat to the body, and/or the psychological self, or an acquired habitual tendency to label somatic arousal as anxiety (i.e., threatening). The current conception of anxiety was essentially similar to a combination of the views presented above. Hence, anxiety as experienced was thought to probably always be a combination of both (a) some type of physiological arousal and (b) the idea that a threat to the self is present.

Repression was postulated to be the foundation upon which optimal personality growth is constructed. This notion appeared to differ somewhat from the psychoanalytic interpretation (Freud, 1966, pp. 294-296, 380) which emphasized the repressive function of containing the "forbidden," primarily sexual impulses of the Id within the Unconscious. The present emphasis was on a learned potential for feeling threatened which rises to awareness

rather than on innate, instinctual, and essentially destructive libidinal impulses which cause anxiety when emerging into awareness and, hence, which must be repressed.

Effective repression was distinguished from ineffective repression in that the former was viewed as the process of automatically expunging from awareness the concept "threatening" and the latter was viewed as the failure of this process with the consequent continuation in awareness of the disturbing thought. It was postulated that the degree of effective repression which occurs in a variety of situations is a positive influence on the amount of personality growth which can occur in these situations. A person was thought to have essentially three ways of reacting emotionally to a demanding problem or situation with which he is confronted in his physical and/or social environment (hereafter referred to as an environmental demand): (a) anxiety, (b) repression, or (c) denial. (In practice, a combination of the three, in varying intensities, can be operating in a specific person or situation, but for simplification they will be discussed as though they function mutually exclusively). If he reacts only with ineffectively repressed anxiety he will remain physiologically aroused and preoccupied with the thought of being threatened. If he relatively effectively represses the conceptual part of the anxiety (i.e., expunges the thought of being threatened) from awareness, he is left with the physiological arousal, which, through being

associated with other concepts, can be experienced as energy potentially available for mobilizing his thinking, feeling, and behaving capabilities in attempting to cope with the environmental demand. The constructive mobilization would be particularly likely to occur if the person, through his past experiences, had learned to become predisposed to associating the concept "challenging" with his perceptions of demanding situations. If his repression is relatively ineffective and the attendant anxiety is too painful to be tolerated, the third way of emotionally reacting, denial, may become operative.

Denial was defined as the abandoning of a concept and/or percept of an environmental demand from conscious awareness in order to eliminate the accompanying concept "threatening," with the result that the physiological arousal originally stimulated by awareness of the environmental demand is left without a causative source and, consequently, is dissipated. Denial might be manifested by the person coming to the conclusion that meeting a particular important environmental demand isn't really that important and, therefore, isn't worth trying to meet, although in an objective or socially shared sense this judgment may be inappropriate and/or incorrect. The unfortunate result of the process is that the person, in withdrawing from demanding environmental situations, misses out on opportunities for personality growth. For

example, an adolescent who tends to withdraw from socially interacting with his peers because of the anxiety involved will pass up numerous opportunities to learn and practice socially appropriate behavior (the environmental demand) in peer oriented interpersonal situations. The concept he might be abandoning might be the awareness that peer relations can be important, worthwhile, and emotionally satisfying.

No distinction was made between realistic and neurotic anxiety, such as was made by Freud (1966, pp. 393-405). He described realistic anxiety as "a reaction to a perception of an external danger (p. 394) . . .," and although he recognized that in extreme amounts it can paralyze all action, in moderate amounts it was thought to provide a signal which alerted the person for action. In contrast, under conditions of neurotic anxiety "the ego is making...(an) attempt at flight from the demand of its libido, that is, it is treating this internal danger as though it were an external one (p. 405)." The internal versus external distinction was not considered to be important in relation to the present definition of anxiety. If a person feels threatened, as would be the case under either Freud's excessive realistic or regular neurotic anxiety, it may little matter whether the threat is being stimulated by an external danger or the rising to awareness of an idea the person finds threatening. The individual's capacity to handle the situation would seem to

be much more highly dependent on how he handles the feeling of being threatened. If he is able to effectively repress the feeling of threat, he is no longer anxious. He may still be physiologically aroused, but he no longer feels threatened.

Freud (1946) and Jacobson (1957) distinguished between repression and denial as arising in reaction to internal (instinctual) and external threats, respectively. Denial was regarded largely as a primitive defense through which normal children disclaim portions of reality and substitute a fantasy construction. Repression was viewed as a later developing but extremely powerful process that could cause "the withdrawal of consciousness from whole tracts of instinctual life (and thereby) may destroy the integrity of the personality for good and all (Freud, 1946, p. 53)." This view was in contrast with the present view of repression as being an element primarily only in healthy personality development. The primary reason for this difference appeared to be differing conceptions as to what was potentially arising to awareness and, therefore, what was repressed. Since in psychoanalytic theory an object oriented instinctual impulse was repressed, a new object must be found for its expression. If sublimation occurred the new object choice was constructive. If not, symptom formation was a distinct possibility. In the present theory the disturbing concept that rises to awareness, a feeling of threat, has no object other than the environmental demand



which stimulated its emergence. To the extent that the feeling of threat is expunged from awareness while the environmental demand is still present in awareness, it, in effect, becomes objectless. The physiological arousal remains, but it is postulated that there is no threatening impulse lurking in the unconscious which must be sublimated or converted into a symptom.

The denial which frequently occurs when repression fails would probably be labeled repression in psychoanalytic terminology. It seemed more appropriate, however, to term it denial on the grounds that it is essentially a more mature equivalent of the denial in fantasy frequently practiced by children. Although the nonpsychotic adult may not be denying a physical fact, he is denying an environmental demand, or, more specifically, the importance of coping with the demand. The denial, if effective, removes the source of the stimulation (the environmental demand) from awareness and thereby eliminates the physiological arousal which is the basic energy underlying both anxiety and constructive coping behavior. Since the denial mechanism, in effect, eliminates everything associated with the demand, instead of just eliminating the feeling of threat (as in repression), it was termed denial. It appeared that the closest psychoanalytic theory comes to recognizing the process as denial is Freud's (1946, pp. 100-109) concept of restriction of the ego. However, the emphasis remained on avoiding disagreeable external

impressions, with an analogous avoidance of conscious contact with internal impressions being termed inhibition, a process which she differentiated from denial. The present concept of denial included Freud's (1946) concepts of restriction of the ego and inhibition.

Effective repression in the present context was viewed as an unconscious mechanism which automatically expunges from awareness the feeling of threat which can arise in an individual faced with a demanding environmental situation. For example, a man who had an important and difficult project (the environmental demand) to accomplish as a part of his job might have feelings of inadequacy and a fear of failure (the content of the threatening idea) which would have accompanying physiological arousal. In this situation an effectively functioning repression mechanism would not allow the feeling of being threatened to remain in awareness. In the same situation a characteristically ineffectively functioning repression mechanism would be unable to keep the feeling of threat associated with awareness of the possibility of inadequacy and failure from rising to consciousness.

A person experiencing ineffective repression should tend to react to the environmental demand in one of two general styles of ego-defense. First, he could spend a great deal of time and energy worrying about the possibility of failure while he works at completing the project. An individual who characteristically employs this approach

to demanding environmental situations should score as highly sensitized on the R-S scale. Second, he could use an adult form of denial in order to avoid the necessity of experiencing the full intensity of the anxiety associated with the possibility of failure. In the above example, he could claim, and actually believe, that it doesn't really matter how well he produces on the project since 'promotions are really based on favoritism anyway,' or that he doesn't really like the job that well and is 'thinking of looking for another one.' An individual who characteristically employs the denying approach to demanding situations should not score as highly sensitized on the R-S scale, because he would have a lesser tendency to experience the anxiety type symptoms and responses included in the R-S (MMPI) items.

The main point of the foregoing discussion was that there may be two distinctively different ego-defensive styles which both would tend to make it less likely that a person using them would score as an extreme sensitizer, effective repression (hereafter to be called Rp) which would lessen the need to rely on rigid, less adaptive modes of ego-defense, and denial (hereafter to be called Dn) which ignores the existence and/or the importance of coping with the environmental demands which otherwise would sharply increase the intensity and frequency of the experiencing of anxiety. Persons assumed to be predominately manifesting either Rp or Dn, as defined above, were referred to as Rps and Dns, respectively, in the present study.

Repression, as an unabbreviated term, was used to refer to the traditional concept of repression as psychoanalytically conceptualized and as operationalized in terms of the R-S scale.

## CHAPTER II

### REVIEW OF REPRESSION-SENSITIZATION SCALE RESEARCH

The Repression-Sensitization (R-S) scale was developed by Byrne (1964) in 1961 as a refinement of a previously developed repression-sensitization scale (Altrocchi, Parsons, & Dickoff, 1960). In 1963, Byrne (1964) further refined the R-S scale through correlating each component item with the total scale, and rejecting those items showing an insufficiently significant relationship to the total scale. This procedure resulted in a 127 item MMPI scale which ostensibly measured the degree to which an individual characteristically approached (sensitized) or avoided (repressed) threatening stimuli. Extensive validation research (Byrne, 1964) demonstrated that R-S scale scores were related, in the appropriate direction, to clinical judgments of repression-sensitization, selective forgetting, and reported anxiety. Byrne (1964) concluded, "the construct validity of the scale as a measure of differences in defenses seems moderately well established (p. 186)."

The next stage of the R-S scale research program included a series of studies which investigated the relationship between the R-S scale and personality maladjustment. Byrne (1964, p. 190) hypothesized that since the highest and lowest R-S scale scores represented extremes of the two respective styles of ego-defense, there should

be a curvilinear relationship between the R-S scale and measures of psychological adjustment. It was felt that well adjusted individuals, with their presumably superior capacity to handle emotionally threatening stimuli, would tend to be characteristically less defensive. Since either extreme of the R-S scale was thought to represent a defense, it was thought that well adjusted individuals would tend to score nearer to the mean of the population R-S scale score distribution. Less well adjusted persons, by virtue of their higher defensiveness, would tend to be distributed nearer to the two extremes. In other words, the less well adjusted individual would tend to be either an extreme repressor or extreme sensitizer. Research using a variety of approaches (Byrne, 1964), including paper and pencil 'desirable versus undesirable' personality trait measurement, real versus ideal-self discrepancy, deviant versus socially desirable responding, and frequency of sociometric choice by peers, was performed. Instead of the hypothesized curvilinear relationship between the R-S scale and the adjustment measures, the data suggested a moderately negative linear relationship (with high R-S scale scoring indicating sensitization).

Byrne (1964) did not attempt an explanation of this result which did not support his hypothesis except to suggest that most questionnaire measures of adjustment require the subject to admit to having various troubles

or problems in order to be classified as poorly adjusted. In other words, adjustment questionnaires tend to be poorly disguised and open to the influence of socially desirable responding. Since some poorly adjusted individuals might be expected to deny or forget the troubles or problems they do have, it may be that their scores on adjustment indices are artificially improved. Although Byrne's point is well taken, the fact remains that repressors tended to rate as better adjusted than sensitizers on some measures not involving self-ratings, such as sociometric choice by peers, neuropsychiatric patients versus non-patients, and alcoholics versus non-alcoholics (Byrne, 1964).

Subsequent to Byrne's (1964) review of prior research with the R-S scale, a great deal of additional empirical material has accumulated. Studies have tended to focus in the following six general areas: (a) R-S scale reliability, (b) the relations between repression-sensitization and measures of ability and performance, (c) the relations between repression-sensitization and the perception of self and environment, (d) the relations between repression-sensitization and characteristic response patterns, (e) the relation between repression-sensitization and manner of approaching the environment, and (f) the relations between repression-sensitization and anxiety and personality adjustment.

The revised R-S scale has been found to have very good internal consistency reliability. In three studies a corrected split-half  $r$  equal to or greater than .90 was obtained (Bernhardson, 1967a, 1967b; Byrne, Blaylock, & Goldberg, 1966).

There seems to be no consistent association between the R-S scale and measures of either intellectual ability or task performance. No significant relationships were found between R-S and Scholastic Aptitude Test verbal scores (Tolor & Reznikoff, 1967), School and College Ability Test scores (Brodsky & Dixon, 1968), and the Shipley-Hartford Vocabulary Test (Lomont, 1965). Repressors were found to not differ from sensitizers in time required to complete group tasks requiring written communication (Cohen & Carrera, 1967), degree of interpersonal insight (Tolor & Reznikoff, 1967), and ability to predict degree of repression and sensitization in other people from biographical data (Dana & Smith, 1968). However, not all studies relating repression-sensitization to predictive and judgmental ability have failed to find a relationship. Kaplan (1967b) found that repressors were better able than sensitizers to predict the adjectives that others would regard as most descriptive of themselves, although subjects scoring in the midrange of the R-S scale were superior to both repressors and sensitizers in making the predictions. Dublin (1968) found that repressors required significantly



less time than sensitizers to make judgments as to degree of ambiguity of pictures and statements, although the two groups did not differ on the degree of ambiguity assigned to the stimuli. In terms of actual task performance, Petzel and Gynther (1968) found that repressors were more successful at solving anagrams under task-oriented conditions where it was emphasized that the outcome would largely depend on luck, and sensitizers were more successful under conditions designed to enhance their ego involvement.

Repressors and sensitizers appear to perceive themselves and their environment in somewhat different ways. Feder (1968) found that repressors perceived themselves as more similar to their ideal-self concept than did sensitizers. Lomont (1966) found that repressors viewed themselves as more dominant than did sensitizers, and were also rated as more dominant by peers. However, the former relationship was substantially greater than the latter one. Parsons, Fulgenzi, and Edelberg (1969) found that sensitizers were less likely than repressors to concur with judges' evaluations of their group facilitation oriented behavior, and repressors were less likely to agree with judges' evaluations of their hostilely aggressive verbal behavior. Repressors and sensitizers have also been found to differ in the way they perceive their environment. Although they didn't appear to differ on degree of ambiguity (Dublin, 1968), or complexity and variability

(Duke & Wrightsman, 1968) they ascribed to it, they seemed to have a tendency to perceive it differently in terms of how certain aspects of the environment were likely to relate to them. For example, Duke and Wrightsman (1968) found that repressors were more likely than sensitizers to view human nature as positive. In addition, Tolor and Reznikoff (1967) found that repressors were more likely than sensitizers to view rewards accruing to them from the environment as being primarily from their own efforts, instead of being primarily under the control of persons in authority or accruing on a random basis. In combination, these latter two studies suggested that repressors probably tend to have a more benign view of the world as a place where constructive effort will normally bring rewards, and that sensitizers may well view the world as a more threatening place where there is a much lower likelihood of constructively gaining rewards, and one, therefore, must be satisfied to merely minimize the negatives of life.

Repression-sensitization appears to be related to a number of characteristic response styles. Feder (1967) obtained a positive relationship between the R-S scale and a measure of acquiescence set. Golin, Herron, Lakota, and Reineck (1967) found a positive relationship between the R-S scale and a measure of acquiescence to conforming responses in social situations. In three studies a negative relationship was found between the R-S scale and

tendency toward socially desirable responding ( $r_s$  ranged from  $-.36$  to  $-.45$  with a mean of  $-.41$ ) (Bernhardson, 1967a, 1967b; Feder, 1967). Bernhardson (1967a) and Byrne, Blaylock, and Goldberg (1966) obtained positive correlations between the R-S scale and scores on Rokeach's Dogmatism scale. Sensitizers have been found to respond with a greater degree of verbalized emotionality (Lefcourt, 1966), but were found to be less likely than repressors to use emotional cues in making judgments about other people (Dana & Smith, 1968). In terms of patterns of language responding no differences were found between repressors and sensitizers on action versus description orientation, variety of words, or degree of "certainty" expressed (Brotsky, 1968). In general, then, repressors, in comparison to sensitizers, appear to have a lesser tendency to acquiesce, a greater tendency to respond in a socially approved fashion, a lesser tendency toward dogmatism and rigidity, and less expression of emotionality, although "emotional" material is evidently admitted to awareness in making personal judgments.

Although the early theorizing regarding the R-S scale postulated that sensitizers would tend to use approach mechanisms with regard to stimuli from the environment, and repressors would tend to use avoidance mechanisms, subsequent research showed mixed results regarding the relationship of the R-S scale to various approach versus

avoidance dimensions. In terms of dominance, for example, Byrne, Golightly, and Sheffield (1965) found no significant relationship between the R-S scale and dominance as measured by the California Personality Inventory. In addition, Parsons, Fulgenzi, and Edelberg (1969) found that repressors and sensitizers engaged in a group discussion task did not differ significantly in their degree of domination of the conversation. In contrast to these findings, Kaplan (1967a) found that sensitizers acting as interviewers tended to spend more time speaking than repressors playing the same role. Additional contrast is provided by Lomont's (1966) finding that repressors not only rated themselves as more dominant than did sensitizers, but that this negative relationship between the R-S scale and dominance was sustained, although to a lesser extent, when dominance was measured through peer ratings. The question may arise as to what form dominance takes as it is pursued by repressors and sensitizers. Is it primarily manifested as a benign, friendly extraversion, or might it be more of a hostile, aggressive, and controlling approach toward other people. In this area, as in dominance in general, results have been somewhat inconsistent. For example, Fulgenzi (1965) found that in a group interpersonal interaction task clinical psychologist judges rated repressors as more aggressive than sensitizers, but the two groups did not differ in amount of hostile content demonstrated on a projective

test. Golin, Herron, Lakota, and Reineck (1967) found a substantial relationship between the R-S scale and manifest hostility, but the latter variable was measured by a self-report questionnaire. Parsons, Fulgenzi, and Edelberg (1969) found that sensitizers rated themselves as being more hostilely aggressive during a group interaction task, but that repressors were rated as more hostilely aggressive by judges in the same situation. These findings suggest that repressors may have a greater tendency than sensitizers to use hostility and aggressiveness in their approach to other people, but the repressors may not be aware of it. Never-the-less, repressors may still be able to interact more effectively than sensitizers in interpersonal situations as is suggested by the negative relationships found between the R-S scale and measures of general extraversion (Golin, Herron, Lakota, & Reineck, 1967) and social extraversion or sociability (Becker, 1967).

The R-S scale tends to relate fairly consistently positively to measures assessing awareness of anxiety and maladjustment. It has been found that repressors are more likely than sensitizers to score highly on MMPI scales K and L (Golin, Herron, Lakota, & Reineck, 1967), to be inhibited (Bernhardson, 1967b), to have higher recognition thresholds for nonsense syllables which have previously been paired with sexually taboo words (Hutt & Anderson, 1967). Consistent with the above reported negative

relationship between R-S and measures of lack of awareness of anxiety, the R-S scale has been found to correlate positively with self-report measures of manifest, test, MMPI, and death anxiety (Golin, Herron, Lakota, & Reineck, 1967; Hare, 1966; Tolor & Reznikoff, 1967). An additional study which found a positive relationship between R-S and a questionnaire measure of anxiety (Lomont, 1965) also found a negative relationship between R-S and signs of disturbance on a word association test. This sample, however, consisted entirely of psychiatric patients who, if they scored as repressors, would almost have had to be masking their pathology on the R-S scale and the self-report anxiety measure. Hence, it may be inappropriate to generalize the finding to a non-psychiatric population. In contrast to the positive relationships between R-S and admitted anxiety, a number of studies have found negative relationships between the R-S scale and measures of physiological arousal. For example, Parsons, Fulgenzi, and Edelberg (1969) found a negative relationship between R-S and skin conductance during a group discussion task, and Hare (1966) discovered a similar relationship in a study in which subjects were periodically electrically shocked. Iazarus and Alfert (1964) failed to find a consistent relationship between R-S and either GSR or heart rate during a potentially anxiety arousing film, but did find relationships between these physiological variables

and other measures which seem conceptually similar to the R-S scale (MMPI K, Dn, and Welsh R). The tendency of repressors in some of the above studies to have experienced higher levels of physiological arousal than were experienced by sensitizers has been interpreted as indicating that repressors, although less likely to show higher levels of anxiety on self-report measures, manifest more disturbance on measures over which they have less conscious control. However, an equally plausible interpretation may be that repressors tend to be more energized in demanding situations, and the greater amount of energy they have available to aid them in coping with the situation is what is manifested by their higher levels on physiological variables. In fact, Parsons, Fulgenzi, and Edelberg (1969) cited a study by Lacey (1959) in which he theorized that an increase in skin conductance, in the absence of an increase in heart rate, is excitatory and suggests an openness to the environment and a willingness to receive stimulation. In contrast, Lacey theorized that an increase in heart rate, without a corresponding increase in skin conductance, is associated with rejection of the environment and "internal elaboration" of the arousal. It may be that the former state is characteristic of repressors and the latter of sensitizers. This theorizing seemed consistent with the work of Merbaum and Badia (1967) who found that male repressors were able to tolerate higher

levels of noxious stimulation (electric shock) than were male sensitizers. It may be that repressors can tolerate physiological arousal better than sensitizers because the repressors can release tension in other ways, instead of experiencing tension and anxiety in the situation in which they become aroused. This idea would seem consistent with the finding of Pivik and Foulkes (1966) that when the intensity of dream content of repressors and sensitizers was studied under the conditions of maximal and minimal interruption of dreaming (defined as periods of REM sleep), the sensitizers did not increase significantly in intensity from the minimal to the maximal condition, but the repressors did show a significant increase.

The relationships between repression-sensitization and more general measures of adjustment have been consistently negative, but usually only moderate in strength. Golin, Herron, Lakota, and Reineck (1967) found that sensitizers tended to show poorer adjustment on Eysenck's Neuroticism scale. Byrne, Golightly, and Sheffield (1965) related the R-S scale to all of the subscales of the California Personality Inventory (CPI), and found that all of the correlations except one were negative, with 61% of them being significant at the .05 level and 45% of them being significant at the .01 level. Pivik and Foulkes (1966) found that sensitizers had more abnormal MMPI profiles than repressors. Paris and Goodstein (1966) found



that female sensitizers rated themselves as more emotionally upset than did female repressors after reading material with either death or sexual content. Tempone and Lamb (1967) found that sensitizers were more likely to demonstrate conflict on a sentence completion test, and also were more likely to endorse logically conflicting MMPI statements. Feder (1967) found that sensitizers tended to show a greater degree of maladjustment on the Cornell Index than repressors. All of the above general assessments of adjustment, of course, were basically of a self-report nature, and, therefore, ran the risk of being influenced by degree of frankness and tendency toward socially desirable responding. The following two studies, which showed a relationship between R-S and adjustment similar to the studies reported above, should have been less susceptible to these influences. Gayton and Bernstein (1969) related R-S scale scores to degree of strength of incompatible needs on the Edwards Personal Preference Schedule (e.g., deference versus aggression), and found that sensitizers tended to have greater degrees of incompatibility of need. This finding appeared to suggest that sensitizers have less well integrated personalities than repressors. Byrne, Steinberg, and Schwartz (1968) found that sensitizers had a greater tendency to have physical complaints than repressors, and that male sensitizers made significantly more visits to the university health center

during an academic year than male repressors. These two studies lend support to the idea that although a sensitizer's probably greater tendency toward frankness and a repressor's probably greater tendency to respond in a socially desirable fashion may account for part of the relationship between R-S and measures of adjustment, there appears to still be a substantial portion of the covariance which is not merely due to response sets.

In summary, the R-S scale has been found to generally be: (a) reliable, (b) unrelated to intellectual ability and performance, (c) related to differences in perception of self and environment, (d) related to a variety of characteristic response styles, (e) inconsistently related to manner of approaching the environment, and (f) positively related to measures assessing awareness of anxiety and maladjustment.

### CHAPTER III

#### THE PROBLEM AND THE HYPOTHESES INVESTIGATED

The general problem investigated was whether the above model was useful in understanding the currently accumulated empirical findings of research using Byrne's (1964) repression-sensitization (R-S) scale. The general problem was expressed in the following two research questions: (a) does the R-S scale function essentially similarly to anxiety as measured using the same method (i.e., self-report questionnaire), and (b) to what extent does the Rp versus Dn (Rp-Dn) model offer constructs which are useful in accounting for variance in pattern of responding to the R-S scale? These questions were important because the Rp-Dn model assumes that these two ego-defensive styles are alternative ways of handling the anxiety potentially arising from exposure to environmental demands, and the R-S scale is postulated to measure the generalized tendency of an individual to experience environmental demands as threatening, i.e., tendency to experience anxiety.

The relationship between R-S and anxiety was investigated in terms of the following hypotheses:

1. The first hypothesis was that the R-S scale is predominantly a self-report measure of anxiety. In accordance with the hypothesis it was predicted that for the total N a product-moment correlation (r) greater than .71

(not corrected for attenuation) would be obtained between the R-S scale and the anxiety (Ax) measure of the Sixteen Personality Factor Questionnaire (16 PF) (Cattell, Eber & Tatsuoka, 1970). In addition, in a factor analysis of a group of 29 variables ranging from those having a substantial relation to anxiety to ones essentially orthogonal in relation to anxiety, the R-S scale will load significantly ( $p < .05$ ) only on the anxiety factor.

Previously obtained  $r$ s between R-S and self-report measures of anxiety have ranged from .51 to .87, with the mean of those values being .66 (Golin, Herron, Lakota, & Reineck, 1967; Hare, 1966; Lomont, 1965; Tolor & Reznikoff, 1967). An  $r > .71$  between R-S and Ax suggests that the two variables share a majority of their combined total variance, and, therefore, would provide support for the first hypothesis.

2. The second hypothesis was that the R-S scale is moderately negatively related to variables (other than anxiety) which are usually associated with better psychological adjustment, and moderately positively related to variables (other than anxiety) which are usually associated with poorer psychological adjustment. In accordance with the hypothesis, it was predicted that for the total  $N$  the R-S scale would be significantly ( $p < .05$ ) negatively correlated, but with an  $r$  lower than  $-.50$ , with 16 PF extraversion (high scoring direction) versus introversion (Ex), poise (high scoring direction) versus

emotionalism (Ps), and independence (high scoring direction) versus dependence (Ind); it would be significantly ( $p < .05$ ) positively correlated, but with an  $r$  lower than .50, with neuroticism (without its anxiety components) (Nwa), and tendency to believe in external control of rewards (I-E). The predicted relationships were based on relatively consistent moderately negative relationships which have been obtained between the R-S scale and self-report and other measures of or related to adjustment, as discussed above (Byrne, 1964; Byrne, Golightly, & Sheffield, 1965; Byrne, Steinberg, & Schwartz, 1968; Feder, 1967; Gayton & Bernstein, 1969; Golin, Herron, Lakota, & Reineck, 1967; Paris & Goodstein, 1966; Pivik & Foulkes, 1966; Tempone & Lamb, 1967). The only reported  $r$  between R-S and a measure being used to investigate the second hypothesis was Tolor's and Reznikoff's (1967) finding of an  $r$  of .34 ( $p < .01$ ) with the I-E scale, which suggested that sensitizers, compared to repressors, have a moderately greater tendency to believe in external control of rewards.

The extent to which the Rp-Dn model offers constructs which are useful in accounting for variance in R-S scale response patterns was investigated in terms of the following hypotheses:

3. The third hypothesis was that Rp and Dn are meaningfully associated with repression-sensitization. In accordance with the hypothesis it was predicted that

the extent to which subjects are members of either the Rp or Dn group will be significantly ( $p < .05$ ) correlated with their R-S scores. This analysis was directed toward resolving the issue raised by Byrne as to whether the relationship between the R-S scale and adjustment is linear. Byrne (1964) had originally hypothesized a curvilinear relationship, but the evidence then accumulated (obtained primarily with self-report questionnaires) suggested a negative relationship of weak to moderate strength (high R-S scores indicating sensitization). An underlying assumption of the present study was that individuals at a given level of R-S scoring can obtain that degree of lack of emotionally threatening sensitization (Sn) to environmental demands through varying combinations of Rp and Dn. Although Rp and Dn are mutually exclusive defense mechanisms in the theoretical model, a given individual is probably likely to be able to use Rp in relation to some environmental demands, but probably relies on Dn in relation to other demands. His classification as an Rp or Dn would depend on the relative predominance of the two mechanisms in his psychological functioning, and would be relatively independent of his overall level of R-S scoring (except at extremely high levels of R-S). Hence, a significant relationship between either the Rp or Dn grouping tendency (factor representing a tendency toward similarity of answer pattern) and R-S would suggest that the R-S scale is

measuring more than just lack of Sn at the low scoring pole.

4. The fourth hypothesis was that two grouping tendencies would occur among the subjects with respect to the way they obtain their degree of absence of emotionally threatening sensitization (Sn) to environmental demands. In addition, the extent to which persons relate to one of the grouping tendencies was hypothesized to be positively related to extraversion (Ex), and negatively related to a combination of traits associated with neuroticism not including anxiety (neuroticism without anxiety or Nwa) and the extent to which personal success and failure is believed to result from matters beyond the individual's control (external control of reinforcement or E-E). It was hypothesized that the other grouping tendency would be related to each of the above variables in the opposite direction. The former grouping tendency was characterized as Rp and the latter as Dn in accordance with the Rp-Dn model.

In accordance with the fourth hypothesis it was predicted that the Z-transformed factor loadings representing the similarity of subjects' answer patterns to the former grouping tendency would be significantly ( $p < .05$ ) positively correlated with 16 PF Ex, and would be significantly ( $p < .05$ ) negatively correlated with 16 PF Nwa and Rotter's (1966) I-E scale. In addition, it was predicted that the

Z-transformed factor loadings representing the similarity of subjects' R-S response patterns to the latter grouping tendency would also be significantly ( $p < .05$ ) correlated with the same variables, but with the relationship in the opposite direction.

No previous studies had correlated R-S with 16 PF Ex, but data was available showing  $r_s$  of  $-.39$  ( $p < .001$ ) between R-S and Eysenck's measure of extraversion (Golin, Herron, Lakota, & Reineck, 1967), and between R-S and the Guilford-Zimmerman Temperament Survey measures of rathymia ( $r = .13$ ,  $p > .05$ ), sociability ( $r = -.38$ ,  $p < .01$ ), and thoughtfulness ( $r = -.10$ ,  $p > .05$ ) (Becker, 1967). These findings suggested that 16 PF Ex would probably be only slightly to moderately related to R-S, which was thought to increase the probability that Ex would be able to differentiate between Rps and Dns if both groups were essentially similar on level of R-S scale scoring. Further evidence that Ex would not be substantially correlated with R-S was provided by low  $r_s$  of  $-.18$  (Cattell & Gibbons, 1968) and  $-.06$  (Gorsuch & Cattell, 1967) being found between second-order 16 PF anxiety and extraversion factors, since R-S was substantially related to measures of anxiety, as discussed above. The theoretical rationale underlying the relations between Ex, Rp, and Dn was that Rps automatically expunge the concept "threatening" from awareness and are left with sufficient physiological arousal to



energize them in coping with an environmental demand, whereas Dns deny the importance of coping with the environmental demand in order to allow themselves to be unaware of the concept "threatening." As a result, the Dns lose the physiological arousal which would normally be stimulated by the person's awareness of the importance of an environmental demand and, therefore, have less energy available for coping activities. Since one environmental demand with which everyone is faced is the importance of dealing adequately with social reality, it was expected that Rps would show a stronger tendency to be able to effectively repress the potential threat involved and, as a result, would tend to develop an extraverted orientation with regard to their environment. The Dns, on the other hand, would tend to avoid perceiving the importance of the demand and would, therefore, be less likely to develop an extraverted orientation.

Regarding the hypothesized relations between Rp, Dn, and Nwa, it was assumed that since Rps tend to experience less threat in the presence of environmental demands and are more likely to constructively approach them, they would be less likely than Dns to develop personality characteristics associated with clinically judged neuroticism. Since the current study postulated that Rps and Dns would perform similarly on self-report measures of anxiety, only traits substantially associated with neuroticism, but not with anxiety, were considered to be relevant

in differentiating Rp from Dn.

In addition, it was assumed that the theoretically greater tendency for Rps to attempt to cope with environmental demands would provide them with more experiences where success followed their coping efforts, hence reinforcing the development of a belief in internal control. In contrast, Dns, because of their theoretically greater tendency to try to avoid coping with difficult environmental demands whenever possible, would be exposed to more experiences where either success or failure followed relatively little constructive coping activity on their part, thereby reinforcing the development of a belief in external control.

## CHAPTER IV

### METHOD

A sample of 50 male and 57 female subjects (ss) was selected from the introductory psychology subject pool and an undergraduate behavioral management science course at the University of Houston. The mean age of the sample was 22.9 years with a standard deviation of 3.9 years. ss completed the revised R-S scale (Byrne, et al., 1963), the 1967 edition of Form A of the 16 PF (Cattell, et al., 1970), and the revised I-E scale (Rotter, 1966). The introductory psychology students participated on a voluntary basis in a group administration in order to receive extra credit toward their course requirements. The behavioral management science students participated on a voluntary basis and completed the questionnaires during a class period in order that feedback could be given them which would be related to their course work. All protocols for both groups were anonymous.

The nature of the R-S scale has been described above.

The I-E Scale (Rotter, 1966) is a 23 item self-report questionnaire measuring external versus internal control of reinforcement. To the extent that a person believes in internal control he views reinforcement as resulting primarily from his own behavior or characteristics. To the extent that a person believes in external control he views reinforcement as resulting primarily from luck,

fate, chance, the dictates of powerful others, and/or is unpredictable. Higher scores indicate a greater degree of external control.

The 1967 edition of the 16 PF (Form A) (Cattell, et al., 1970) is an 187 item self-report questionnaire measuring 16 first order personality factor source traits from which a number of second order source traits and criterion scores can be calculated using linear combinations of the first order traits. The 16 PF first order factor variables included in the present investigation, listed in their popular nomenclature, were as follows (high scoring direction listed first): (a) outgoing versus reserved (A), (b) bright (intelligent) versus dull (B), (c) emotionally stable versus affected by feelings (C), (d) assertive versus humble (E), (e) happy-go-lucky versus sober (F), (f) conscientious versus expedient (G), (g) venturesome versus shy (H), (h) tender-minded versus tough-minded (I), (i) suspicious versus trusting (L), (j) imaginative versus practical (M), (k) astute versus forthright (N), (l) apprehensive versus self-assured (O), (m) experimenting versus conservative (Q1), (n) self-sufficient versus group dependent (Q2), (o) controlled versus undisciplined self-conflict (Q3), and (p) tense versus relaxed (Q4).

The 16 PF second order factor variables were computed according to the separate formulas given for each sex by

Cattell, et al., (1970, pp. 128-129) and included the following variables listed in their popular nomenclature (high scoring direction listed first): (a) extraversion versus introversion(Ex), (b) high anxiety versus low anxiety (Ax), (c) tough poise versus sensitivity and emotionalism (Ps), and (d) independence versus dependence (Ind).

Three of the criterion scores were computed according to formulas given by Cattell et al., (1970, p. 129) and included the following variables: (a) leadership (Lr), (b) creativity (Cr), and (c) neuroticism (Nr). The remaining criterion variable, neuroticism without anxiety (Nwa) was computed through a modification of the Cattell et al., (1970, p. 129) formula for predicting neuroticism from the 16 first order factors. The modification was to insert a constant of 5.5 (the standardization sample standard score mean) instead of the subjects' obtained standard scores as their scores on the first order factors which substantially contribute to variance on the second order anxiety factor. The definition of "a substantial contribution" was that the first order factor had a beta weight in the linear equation for estimating scores on the second order anxiety factor (males and females combined) which was higher than the mean of all 16 first order factor beta weights contained in the equation. As a result, first order factors C, H, L, O, Q3, and Q4 were held constant in the Nwa computation. It was assumed that the

above procedure would result in a distribution of Nwa scores which would essentially reflect the subjects' varying levels of neuroticism relatively independent of differences among them in characteristic level of anxiety.

In addition to the above variables, sex (a score of one indicating male, and a score of zero indicating female) age in years, and class (a score of one indicating introductory psychology and a score of zero indicating behavioral management science) were routinely included in order that any undue influence they might have had on any of the empirical relationships would have been discernible.

Although the majority of the above variables weren't specifically included in the formal hypotheses, they were included in the statistical analysis for the following reasons: (a) they were obtainable from the 16 PF at no increase in test administration time; and (b) they provided a larger, more comprehensive matrix of variables for the factor analysis used as a partial test of the first hypothesis.

The basic statistical procedures used were two factor analyses, each using the principle components method with a varimax (orthogonal) rotation to simple structure. In the first factor analysis all factors accounting for at least 1% of the total variance were extracted. The first factor analysis included the total sample ( $N = 107$ ) and all 29 variables. The purpose was to provide (a) a 29 X

29 product-moment correlation matrix (Table 2) and (b) a 29 X (number of factors emerging) factor matrix (Table 3) to use in examining the first two hypotheses. The entire sample was used because the relations predicted in the first and second hypotheses referred to the entire range of the R-S scale score distribution. All 29 variables were included to provide a relatively diversified factor space in order that the first hypothesis could be more fully evaluated. If, instead, substantially fewer variables had been used the factor space might have included only one or two factors and, thereby, masked a strong relation between R-S and a non-anxiety factor. The statistical result might have implied stronger support for the hypothesis than was warranted. Inclusion of the additional variables, however, allowed the loading of the R-S scale on a number of factors to be determined, thus more fully specifying its nature as a construct.

The second factor analysis was based on the assumption that Rps and Dns may obtain their R-S scale scores in somewhat different fashions. Some R-S items might have had a higher probability of being answered in a repression-keyed direction by Rps than Dns. Other R-S items might have had a higher probability of being answered in a repression-keyed direction by Dns than Rps. If, in fact, two different subgroups of R-S scale items tended to be systematically used by Rps and Dns, respectively, to obtain

their R-S scores, the response patterns of the individuals within each group should have tended to correlate more with each other than they do with response patterns of individuals in the other group. In order to investigate the third and fourth hypotheses it was assumed that the Rp and Dn groups, with their differential response pattern tendencies, existed. A correlation matrix was formed with the response pattern of each subject constituting one variable.

Since the Rp-Dn model didn't apply to individuals with an extremely great tendency toward emotional sensitization to possibly threatening stimuli (Sn) (i.e., anxiety toward environmental demands), all subjects with raw scores of 64 or greater on the R-S scale were eliminated from the following analysis. To obtain a score less than 64 required a subject to have answered a simple majority (64 of 127) of the items in the repression-keyed direction. Hence, all subjects who answered a majority of the items in the sensitization keyed direction ( $N = 14 = 13.1\%$  of the total sample) were excluded. In addition, the 43 lowest scoring subjects on the R-S scale (raw score less than 32) (40.2% of the total sample) were excluded because the nearness of their R-S scores to the lower limit of the scale resulted in their R-S scale answer patterns having to be over 50% similar, a statistical artifact which would have forced the emergence in the factor analysis of a factor excessively dominated by these low scoring subjects. Hence, the



delimited sample for the second factor analysis consisted of 50 ss (25 males and 25 females) who constituted that 47% of the R-S scale distribution ranging between the fortieth and eighty-seventh percentiles. (A preliminary factor analysis using subjects between the thirteenth and sixty-fifth percentiles of the total sample of R-S scores produced a first factor accounting for 33% of the total variance which was highly negatively correlated with the R-S scale ( $r = -.66$ ,  $p < .001$ ) and essentially defined by the low R-S scorers. Hence, it was necessary to eliminate the bottom 40% of the R-S distribution, as described above).

In the second factor analysis three factors were extracted which accounted for 33% of the total variance. Only three factors were considered to be relevant because the Rp-Dn effect was postulated to be more powerful, in terms of competition for variance, than any effect other than the overall R-S effect. In addition, the Rp-Dn effect was expected to manifest itself in one of the following two ways: (a) since a large portion of the R-S distribution was eliminated from the analysis the R-S variance might have been sufficiently reduced to allow Dn and Rp to emerge as the first and second factors; or (b) sufficient R-S variance might have remained to cause R-S to emerge as the first factor, with Dn and Rp emerging as the second and third factors.

After the rotation was completed the loadings of the

50 ss on each of the three factors (i.e., grouping tendencies) were transformed into Z-scores and correlated with their scores on each of the 29 variables described above (Table 4) in order to determine the variables to which the grouping tendencies were most strongly related, and, thereby, determine which of the grouping tendencies, in terms of relations hypothesized above, appeared to be manifesting the operation of the Rp and Dn constructs.

A p of .05 (two-tailed test) was accepted as the criterion for statistical significance in evaluating all of the correlational comparisons in the present study, although ps of .01 and .001 are reported in those instances where they were attained.

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## CHAPTER V

### RESULTS

#### First Factor Analysis

Means and standard deviations of the 29 variables included in the first factor analysis are presented in Table 1. The factor analysis of the matrix of inter-correlation (Table 2) of these variables (using the total sample of 107 subjects) resulted in the emergence of seven factors (Table 3). Factors I, II, III, and IV were most highly loaded by Ax (.94), Ex (.93), Ind (.93), and Ps (.84), respectively, and appeared to be similar to the 16 PF second order anxiety, extraversion, independence, and poise factors, respectively. Factor V was most highly loaded by G (.75), Q3 (.69), and I-E (-.56), and appeared to deserve the name persistence, since the three variables, in combination, imply that a person who scored in the direction of the loadings would tend to be more conscientious, controlled, and likely to believe in internal control of reinforcement. Factors VI and VII seemed to essentially be sex (loading = .82) and intelligence (B) (loading = .80), respectively. In combination, the seven factors accounted for 73% of the total variance.

First hypothesis. The first hypothesis was that the R-S scale is predominantly a self-report measure of anxiety. In accordance with the hypothesis it was predicted that for the total N a product-moment correlation (r) greater than

TABLE 1  
Means and Standard Deviations on 29 Variables  
(N = 107)

Variable	Mean	Standard Deviation
Sex	.48	.50
Age	22.95	3.89
Class	.48	.50
R-S	40.02	19.40
I-E	9.22	4.37
Ex	5.27	1.80
Ax	5.24	1.90
Ps	5.65	1.79
Ind	5.95	1.95
Nwa	5.45	1.05
Nr	5.31	1.85
Lr	5.65	1.69
Cr	6.09	1.94
A	5.37	2.12
B	5.91	1.72
C	5.59	1.83
E	5.93	2.14
F	5.07	1.96
G	5.62	1.97
H	5.32	2.06
I	5.37	2.17
L	4.95	2.15
M	5.49	2.11
N	5.54	2.04
O	4.93	1.91
Q1	6.36	2.06
Q2	6.01	2.01
Q3	5.77	1.90
Q4	5.76	2.57

Note.--Sex, age, class, R-S, and I-E are presented in raw score units. The remaining variables are presented in sten (standard score) units.

TABLE 2  
Product-Moment Intercorrelations of 29 Variables  
(N = 107)

Variable	Variable									
	1	2	3	4	5	6	7	8	9	10
1. Sex	100									
2. Age	27	100								
3. Class	-33	-22	100							
4. R-S	-18	-35	14	100						
5. I-E	-07	-24	13	40	100					
6. Ex	10	12	-16	-21	-11	100				
7. Ax	-24	-29	15	73	32	-12	100			
8. Ps	26	07	11	-08	-02	28	-08	100		
9. Ind	13	00	15	02	-17	30	-17	27	100	
10. Nwa	-13	-05	08	13	15	-71	21	-54	-40	100
11. Nr	-22	-19	14	58	24	-45	83	-33	-24	67
12. Lr	21	30	-23	-64	-34	49	-75	26	03	-53
13. Cr	09	10	26	01	-09	-34	-10	-04	58	25
14. A	-02	00	-20	-11	05	58	-03	-36	-12	-12
15. B	-07	11	11	-08	-03	01	-05	-06	03	-05
16. C	13	17	-21	-64	-15	13	-74	-02	-14	-12
17. E	11	-00	07	11	-04	46	-01	37	78	-55
18. F	10	-02	-07	-17	-08	77	-15	19	21	-79
19. G	04	20	-27	-19	-19	02	-17	-07	-34	-02
20. H	15	27	-08	-48	-28	73	-43	22	39	-47
21. I	-09	-04	07	02	05	07	12	-50	17	41
22. L	-23	-27	26	45	11	19	52	24	32	-21
23. M	09	08	08	-15	-25	10	-30	-01	64	-14
24. N	-30	-12	-06	06	01	-26	16	-32	-40	28
25. O	-10	-27	10	61	22	-22	77	-12	-25	25
26. Q1	-04	02	15	09	-17	17	09	05	66	-29
27. Q2	16	02	19	-01	03	-58	-10	-07	12	30
28. Q3	21	23	-20	-32	-31	-13	-46	-03	-14	05
29. Q4	-15	07	13	42	13	-05	66	04	-03	08

Note.--Decimal points omitted.

$r > .19 = p < .05$

$r > .25 = p < .01$

$r > .32 = p < .001$

TABLE 2 (Continued)

Variable	Variable									
	11	12	13	14	15	16	17	18	19	20
11, Nr	100									
12, Lr	-83	100								
13, Cr	17	-26	100							
14, A	-11	24	-45	100						
15, B	-05	09	32	-02	100					
16, C	-67	62	-17	13	-02	100				
17, E	-21	08	38	-04	05	-14	100			
18, F	-54	41	-39	34	-10	13	28	100		
19, G	-14	48	-20	09	-01	25	-20	-15	100	
20, H	-46	59	03	33	-02	27	44	46	09	100
21, I	34	-27	42	26	03	-11	08	-01	-13	14
22, L	23	-27	02	-03	-04	-48	37	11	-14	-03
23, M	-19	-01	50	-05	03	00	39	10	-08	29
24, N	27	-03	-31	10	-05	-06	-31	-25	21	-15
25, O	72	-64	-02	-12	-03	-51	-04	-25	00	-31
26, Q1	-13	-06	40	-04	-02	-17	41	14	-32	18
27, Q2	13	-17	55	-34	-07	-05	-04	-32	-10	-24
28, Q3	-27	57	-01	-01	00	34	-21	-19	50	04
29, Q4	57	-46	02	-08	10	-52	04	-08	-17	-24

Note.--Decimal points omitted

r > .19 = p < .05

r > .25 = p < .01

r > .32 = p < .001

TABLE 2 (Continued)

Variable		Variable								
		21	22	23	24	25	26	27	28	29
21. I	100									
22. L	01	100								
23. M	27	03	100							
24. N	-01	-07	-23	100						
25. O	05	34	-21	16	100					
26. Q1	14	18	38	-26	-14	100				
27. Q2	07	-16	08	-05	-06	-01	100			
28. Q3	-13	-25	-06	16	-29	-06	-13	100		
29. Q4	07	26	-24	09	39	05	-03	-26	100	

Note.--Decimal points omitted

$r > .19 = p < .05$

$r > .25 = p < .01$

$r > .32 = p < .001$

TABLE 3  
Factor Analysis of 29 Variables  
(N = 107)

Item	First factor analysis factor loadings							<u>h</u> <sup>2</sup>
	I	II	III	IV	V	VI	VII	
Sex	14	06	-09	-18	02	82	11	74
Age	17	-03	-02	00	-26	54	-49	63
Class	-07	21	-20	-12	28	-59	-21	58
R-S	-77	10	-01	-06	18	-15	23	71
I-E	-21	05	28	02	56	-05	13	46
Ex	11	-93	-24	-08	03	13	-06	97
Ax	-94	-02	16	05	17	-11	03	95
Ps	01	-12	-18	-84	07	14	-05	77
Ind	03	-07	-93	-12	11	02	00	91
Nwa	-18	64	31	60	01	-02	-01	90
Nr	-81	34	-16	38	06	-04	-04	94
Lr	70	-40	02	-26	-44	09	-09	93
Cr	-02	57	-69	16	06	07	-33	94
A	10	-68	14	49	00	04	09	74
B	04	01	-02	00	01	-16	-80	66
C	81	-08	19	01	-09	07	03	72
E	-12	-29	-75	-25	06	06	-03	73
F	21	-75	-15	-23	24	05	11	76
G	10	-06	26	-02	-75	10	02	66
H	34	-58	-41	04	-17	17	-12	70
I	-10	-03	-32	80	13	03	-08	77
L	-57	-22	-32	-25	-01	-32	12	65
M	19	05	-73	19	-04	02	06	62
N	-14	04	39	24	-42	-35	11	54
O	-79	09	16	05	00	-02	10	67
Q1	-02	-05	-71	00	06	-11	02	52
Q2	10	70	-17	02	09	13	06	56
Q3	35	19	09	-05	-69	12	03	67
Q4	-70	-04	07	-04	09	04	-39	66
% of total variance	24	15	12	07	06	05	04	

Note.--Decimal points omitted.  
Factor matrix rotated using varimax (orthogonal) solution.



.71 would be obtained between the R-S scale and Ax. An  $r$  (not corrected for attenuation) of .73 ( $p < .001$ ) was obtained between the two variables, indicating that a majority (53%) of the R-S scale variance was shared with Ax. In addition, it was predicted that in the factor analysis of 29 variables ranging from those having a substantial relation to anxiety to ones essentially orthogonal in relation to anxiety, the R-S scale would load significantly only on the anxiety factor. The result obtained was that R-S loaded significantly ( $p < .05$ ) on Factors I (.77) and VII (-.23), with the difference in magnitude of the loadings clearly suggesting that R-S aligned more closely with the anxiety factor (I). On the basis of the above evidence it was concluded that the first hypothesis was supported.

Second hypothesis. The second hypothesis was that the R-S scale is moderately negatively related to variables (other than anxiety) which are usually associated with better psychological adjustment, and moderately positively related to variables (other than anxiety) which are usually associated with poorer psychological adjustment. In accordance with the hypothesis it was predicted that for the total  $N$  the R-S scale would be significantly negatively correlated, but with an  $r$  lower than  $-.50$ , with Ex, Ps, and Ind; it would be significantly positively correlated, but with an  $r$  lower than  $.50$ , with Nwa and I-E. The

obtained  $r$ s of R-S with Ex, Ps, Ind, Nwa, and I-E were  $-.21$  ( $p < .05$ ),  $-.08$  ( $p > .10$ ),  $.02$  ( $p > .10$ ),  $.13$  ( $p > .10$ ), and  $.40$  ( $p < .001$ ), respectively. These results partially supported the second hypothesis in that all of the correlations were below the hypothesized maximum of  $.50$ , thus indicating that the relations between R-S and the relevant several variables were of no more than moderate strength, as hypothesized. However, three of the five comparisons did not show significant relationships ( $p < .05$ ) as predicted, which suggests that the R-S scale may not consistently show moderate relations to self-report measures of which one end of the scale is usually considered to be more socially desirable or indicative of better adjustment.

### Second Factor Analysis

The second factor analysis (with the response pattern — — — of each of the 50  $S$ s constituting one variable) yielded three factors which accounted for 33% of the total variance. Factors I, II, and III accounted for 23%, 6%, and 4% of the total variance, respectively. Factor I was significantly ( $p < .05$ ) correlated (Table 4), in descending magnitude, with L ( $-.41$ ), Ex ( $-.34$ ), R-S ( $-.34$ ), Q4 ( $-.32$ ), and E ( $-.30$ ). Since E is a major computational component of Ex, and L and Q4 are major computational components of Ax (which was shown above to have had an  $r$  of  $.73$  with R-S), it appeared that the factor I grouping tendency was primarily

TABLE 4

Correlations Between 29 Variables and Z-transformed  
Factor Loadings on R-S Scale  
Response Pattern Factors  
( $N = 50$ )

Variable	Factors (grouping tendencies)		
	I	II	III
Sex	05	34*	-29
Age	-12	34*	-47***
Class	-05	-22	16
R-S	-34*	15	-31*
I-E	04	03	-13
Ex	-34*	43**	05
Ax	-27	18	-10
Ps	-09	41**	-31*
Ind	-26	21	02
Nwa	20	-47***	12
Nr	-08	-21	16
Lr	-04	28	-22
Cr	03	-15	00
A	-28	08	21
B	-01	-24	20
C	26	-36*	-09
E	-30*	33*	-03
F	-24	40**	-04
G	06	-01	-21
H	-19	31*	03
I	-18	-19	19
L	-41**	24	-05
M	-07	-18	07
N	02	-16	08
O	-02	-18	13
Q1	-23	22	15
Q2	12	06	-31*
Q3	01	-05	-20
Q4	-32*	16	07

Note.--Decimal points omitted

\*  $p < .05$

\*\*  $p < .01$

\*\*\*  $p < .001$

associated with lowered scoring on Ex and R-S. Factor II was significantly ( $p < .05$ ) correlated (Table 4), in descending magnitude, with Nwa (-.47), Ex (.43), Ps (.41), F (.40), C (-.36), age (.34), male sex (.34), E (.33), and H (.31). Since E, F, and H are major computational components of both Ex and Ps, it appeared that the Factor II grouping tendency was primarily associated with lower scoring on Nwa, higher scoring on Ex and Ps, and was more prevalent in males and older subjects. The negative correlation with C is inconsistent with the "socially desirable--better adjusted" direction of the other correlations. This contradictory finding may have reflected an increased willingness to admit being affected by feelings (as opposed to being more emotionally stable) on the part of subjects more closely related to the Factor II grouping tendency. Alternatively, it may have been a Type I error with the  $\underline{r}$  falling in the rejection region for the null hypothesis. Factor III was significantly ( $p < .05$ ) correlated (Table 4), in descending magnitude, with age (-.47), R-S (-.31), Q2 (-.31), and Ps (-.31), a pattern which was not interpretable in terms of the Rp-Dn theoretical model. Hence, Factor III received no further consideration in the present investigation.

Third hypothesis. The third hypothesis was that Rp and Dn are meaningfully associated with R-S. In accordance with the hypothesis it was predicted that the extent to

which subjects are associated with either the Rp or Dn grouping tendencies will be significantly correlated with their R-S scores. The R-S scores of the ss included in the second factor analysis were correlated (Table 4)  $-.34$  ( $p < .05$ ) with their loadings on Factor I, and  $.15$  ( $p > .10$ ) with their loadings on Factor II. Since only one of the rs was statistically significant, the third hypothesis was only partially confirmed. It was concluded that the first grouping tendency seemed to be greater at lower R-S scoring levels, whereas the second grouping tendency showed no consistent linear relation to R-S. The former relationship was inconsistent with the theoretical model presented in the present study, because both Dn and Rp were postulated to function relatively orthogonally to R-S.

Fourth hypothesis. The fourth hypothesis was that two grouping tendencies would occur among the subjects with respect to the way they obtained their degree of absence of emotionally threatening sensitization to environmental demands. In accordance with the fourth hypothesis it was predicted that the Z-transformed factor loadings representing the similarity of subjects' answer patterns to one of the grouping tendencies would be significantly positively correlated with Ex, and significantly negatively correlated with Nwa and I-E. In addition, it was predicted that the Z-transformed factor loadings representing the similarity of subjects' R-S response patterns to the

other grouping tendency would also be significantly correlated with the same variables, but with the relationship in the opposite direction. Factor I was significantly negatively correlated (Table 4) with Ex ( $\underline{r} = .34$ ,  $p < .05$ ), but was not significantly related to either Nwa or I-E. Factor II was significantly positively correlated (Table 4) with Ex ( $\underline{r} = .43$ ,  $p < .01$ ), and significantly negatively correlated with Nwa ( $\underline{r} = -.47$ ,  $p < .001$ ), but was not significantly related to I-E. Hence, the fourth hypothesis was partially supported. The only one of the three hypothesized variables which differentiated between both grouping tendencies was Ex, which suggested that the first grouping tendency was more likely to be associated with introversion and the second with extraversion. In addition, the second grouping tendency was associated with low neuroticism (with anxiety variance largely controlled). These relationships, in view of the theoretical model, were consistent with the identification of Factor I as a Dn grouping tendency and Factor II as an Rp grouping tendency. Although I-E was hypothesized to differentiate between the Rp and Dn tendencies, it apparently did not perform this function. A clue to the reason for this failure may lie in the low  $\underline{r}$ s of I-E with Ex ( $\underline{r} = -.11$ ,  $p > .10$ ) and Nwa ( $\underline{r} = -.16$ ,  $p > .05$ ) in the total sample ( $N = 107$ ), as compared to the  $\underline{r}$  of  $-.71$  ( $p < .001$ ) between Ex and Nwa. I-E does not appear to have shared in the

Ex-Nwa covariance and, therefore, probably could not be expected to have accounted for either Dn or Rp variance in the same fashion as Ex and Nwa.

### Conclusions

In general, then, the overall results appear to indicate that: (a) the R-S scale is greatly similar to self-report measures of anxiety; (b) the R-S scale is probably no more than moderately related to self-report measures thought to bear some relation to adjustment, but which are not strongly related to anxiety; (c) Dn shows a negative relation to R-S, but Rp appears to be relatively independent of it; and (d) Rp and Dn appear to both be operating in R-S scale responding.

## CHAPTER VI

### DISCUSSION AND IMPLICATIONS

#### Discussion

Since the sample was limited to undergraduates, it is difficult to generalize to a population other than college undergraduates. The results, however, would probably be generalizable to students in other settings, since the distribution of R-S scores in the present sample was similar to the distribution in the normative sample of 1,304 University of Texas at Austin students (Byrne, et. al., 1963). In that sample the R-S distribution had a mean of 42.7 and a standard deviation of 19.5, whereas, the present sample had a mean of 40.0 and a standard deviation of 19.4. Although the theoretical model was certainly not restricted to a student population, at the time of this writing, no data was available as to its applicability to a general population.

Although the results of the second factor analysis were moderately consistent with the Rp-Dn model, certain of the results differed from normal expectations. One inconsistency was that the first two factors only accounted for less than one-third of the total variance. If Rp and Dn are powerful influences in human functioning, it could be argued that they should account for more variance between persons across the array of 127 response behaviors



the ss emitted when completing the R-S scale. Another inconsistency involved the order of emergence of the Rp and Dn grouping tendencies. Since R-S has frequently (but not invariably) been moderately negatively related to variables associated with adjustment, it could be assumed that among those persons who weren't extremely highly sensitized, the majority would predominantly use Rp and the minority would predominantly use Dn. This characteristic would seem necessary in order that the Rp-Dn group would, on the average, be better adjusted than the Sn group, a presumably necessary condition for the emergence of the moderately negative relationship between R-S and adjustment.

Both of the above inconsistencies were probably a result of the nature of the pool of items forming the R-S scale. First, they were all originally selected from the MMPI, and, hence, could probably be expected to be more relevant, and have more of their variance related, to the identification of symptomatic personality abnormalities than to individual differences falling within the broad range of normal personality functioning. Since abnormality of functioning is theoretically more closely related to Dn than Rp, it is likely that more items contributed significant variance to the emergence of the Dn factor than the Rp factor. Since in the inverse factor analysis the "individual differences" were in pattern of responding to

items (instead of S's test scores as in the standard factor analysis format), the factor probably controlling the greater number of items (hence, the greater amount of item variance), the Dn factor, would have had to emerge prior to the Rp factor. An additional result of the pathologically oriented nature of the items is that relatively few of them would be effective in generating an Rp factor, since the Rp factor was extracted subsequent to the removal of the variance controlled by the Dn factor. On the basis of the above, it would appear reasonable for the Dn factor to have emerged first and to have controlled substantial variance (22% of the total variance) and for the Rp factor to have controlled a much smaller portion of the variance (6%), although still to have been important enough to have accounted for more variance than any factor other than Dn.

Nevertheless, since the combined Rp and Dn factors only accounted for a modest amount of the total variance, the conclusion that Rp and Dn, as defined in the theoretical model, are existent and potent psychological mechanisms of defense should be accepted with caution. Although it is herein argued that the relatively small portion of the variance was a result of the relatively narrow universe of content from which the R-S scale items were drawn, in the future it would seem important to attempt to identify Rp and Dn through an approach not manifesting this

variance-limiting characteristic. Only when evidence for the usefulness and potency of Rp and Dn mechanisms can be obtained through a variety of other approaches would it be appropriate to use the Rp and Dn constructs with confidence in understanding behavior.

The pattern of the correlations of the 29 variables with the Dn and Rp factor loadings, as reported above, did not, with the exception of Ex and one of the substantial computational contributors to Ex (E), show the same variables as having significant but inverse relations with Dn and Rp. Based on the pattern of correlations which emerged, Rp appears to be manifested as a dominant, assertive, energetic, poised, and enthusiastic orientation toward life, with little consistency appearing on level of R-S. Dn appears to be manifested as a more submissive and restrained (perhaps apathetic) orientation, with a clear tendency toward a lower level of R-S. The findings for Dn seemed consistent with the position expressed in the theoretical model that Dn is an avoidance or withdrawal mechanism which allows the individual to escape awareness of the importance of coping with environmental demands in order to reduce the feeling of threat which they elicit. A generalized emotionality (the opposite pole of the poise associated with Rp) does not appear to be associated with Dn, which suggests that although Rp tended to be associated with poise, a substitution of Dn

(for the person incapable of Rp) doesn't necessarily imply the emergence of an hysterical emotionality, but rather an attenuation of the emotion which would have served as motivation for action if Dn hadn't been activated as a substitute for Rp. Hence, in terms of the Rp-Dn model, the individual using Dn, in expunging the environmental demand from awareness, is left without a stimulus for physiological arousal and, in consequence, experiences apathy, submissiveness, and restraint. In return for the loss of arousal, the individual using Dn has gained a lesser tendency toward reacting with anxiety, hence, is less prone to experience the anxiety type symptoms which the R-S scale asks if he has experienced.

Whereas the propensity to use Dn could be viewed as a mechanism originally developing as a way of reducing and/or eliminating anxiety, and probably only later is automatically manifested in place of anxiety, the capacity to effectively use Rp probably originally develops as a result of successfully coping with age appropriate environmental demands, whether they be a set of developmental tasks (e.g., Erikson's eight ages of man) or more short range authority- or peer-imposed conditions for reward and/or acceptance. Hence, Dn can probably be appropriately classed as a "defense mechanism" in the traditional sense (i.e., against anxiety). In contrast, Rp should probably be viewed as a developed personality tendency to experience

environmental demands as other than threatening (e.g., as challenging or stimulating). In other words, relative to a specific environmental demand a person using Dn is defending against potentially intense anxiety. A person using Rp doesn't have to defend against potentially intense anxiety because of having a low probability of experiencing it. Hence, he is able to more readily approach the environmental demand.

### Implications

If the results of the present study should be subsequently sustained in studies using a variety of approaches, the current findings would seem to have implications in the following two areas: (a) the construct validity of the R-S scale, and (b) a reexamination of the traditional usage of the concept "repression."

As discussed earlier, the R-S scale (Byrne, 1964) was originally assumed to be measuring two distinctively different extremes of ego-defensive style with regard to threatening stimuli, repression (an avoidance tendency) and sensitization (an approach tendency). Byrne (1964) hypothesized a curvilinear relationship between R-S and psychological adjustment on the grounds that repression and sensitization were equally maladjustive, with optimum functioning being indicated by a score intermediate between the two. The balance of the evidence reviewed in the present study and that reviewed by Byrne (1964) did not

support that hypothesis. Where a relation was found between the R-S scale and adjustment it was usually negative, linear, and low to moderate in strength. In order to refine the R-S scale so as to make the "repression" pole a purer measure of an avoidance tendency (i.e., Dn in the theoretical model offered in the present study) it might be useful to correlate each R-S scale item with the Z-transformed factor loadings on the Dn and Rp grouping tendencies, respectively, and to delete from the R-S scale all of the items which showed a significant ( $p < .05$ ) correlation with the loadings on the Rp factor. This refinement should remove much of the variance theoretically contributed by Rp (as opposed to Dn) and might result in curvilinear relationships being more frequently obtained between R-S and measures of adjustment, especially those measures using a different methodology than the R-S scale self-report questionnaire format.

The remaining implication regards the nature of the concept "repression." Although repression, in an atheoretical sense, can be defined merely as "the exclusion of specific psychological activities or contents from conscious awareness by a process of which the individual is not directly aware....(English & English, 1958, p. 485), it appears that it is frequently used to describe the functioning of individuals considered to be apathetic, inhibited, unresponsive, and resistant to change. Although

these characteristics probably fit the person making extensive use of Dn, they wouldn't seem to be consistent with the functioning of a person making extensive use of Rp. If the theoretical model advanced in the present study subsequently proves useful in the understanding of human psychological functioning, it might be useful to modify the traditional conception of repression through more definitively differentiating between the aspects which are conducive to positive personality growth (e.g., Rp), and those which are inhibitive of it (e.g., Dn). The present study advanced Rp and Dn as being an appropriate way of dividing traditional repression functions, but, perhaps a better conceptualization will subsequently be forthcoming. In any case, there appears to be more clarity regarding the meaning and implications of the presence of high anxiety than regarding the absence of anxiety. The Rp-Dn model is offered in an attempt to reduce that disparity.

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