CHAPTER III

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The present investigation was designed to test various hypotheses concerning "correlates of suicide ideation among homogeneous groups of psychosis prone university students". The empirical verification of the proposed hypotheses, however, is dependent, firstly, on the reliable measurements of the variables of ultimate interest; and secondly, on the methods and procedures employed for deriving conclusions. This required:

(a) selection of an adequate sample;
(b) selection of appropriate tools that could be profitably used for reliable measures; and
(c) selecting suitable statistical techniques for analyzing the data.

Thus, it is pertinent to describe the sample, the specific tools, and the methods and procedures employed in completing the research being reported.

The description of the sample providing data for testing the proposed hypotheses is given in the subsequent pages. This chapter also describes the tools which have been used for collecting data: in addition the information concerning administration
and scoring of the tests used is also given in subsequent pages. Moreover, the procedure of analyses has also been discussed in this chapter.

**SAMPLE:**

The subjects were drawn from Kurukshetra University, Kurukshetra and Panjab University, Chandigarh.

Participants were 500 post-graduate university students. The sample of 500 university students comprised of 250 males and 250 females. The age of 250 males ranged from 18 to 28 years (M=21.77, SD=2.02), whereas for 250 females, the age ranged from 18 to 26 years (M=20.67, SD=1.53). Frequency distributions of the age of the subjects are presented in Table 3.1.

| Table 3.1 | Frequency distributions of the age of subjects |
|-----------|--|--|--|
|           | Males $f$ | Females $f$ | Total $f$ |
| 17-18     | 19         | 49         | 68        |
| 19-20     | 108        | 137        | 245       |
| 21-22     | 79         | 50         | 129       |
| 23-24     | 32         | 13         | 45        |
| 25-26     | 09         | 01         | 10        |
| 27-28     | 03         | 00         | 03        |
| N         | 250        | 250        | 500       |
| Mean=     | 21.77      | 20.67      | 21.22     |
| SD=       | 2.02       | 1.53       | 1.78      |
The reasons for selecting males and females are given earlier. The variables of marital status, employment status, and urbanism were controlled since all the subjects were unemployed, unmarried, and belonged to urban area. Moreover, majority of the subjects belonged to middle socio-economic status. More precisely speaking, subjects were similar in income, education, marital status, employment status, and area of residence. It is significant to emphasize that in addition to the advantage of homogeneity which resulted from this type of control, there is also an increased danger of bias. Thus in interpreting the results of the study, one must be aware of that potential. Still, the characteristics of these subjects are similar to those of large segments of the population, and this should enhance the generalizability of the findings. Also, this type of control is appropriate for examining suicide ideation.

DESCRIPTION OF TESTS

The following tests were used:

(A) Scale for Suicide Ideation (Beck, Kovacs, & Weissman, 1979);
(B) Beck Depression Inventory (BDI: Beck, Ward, Mendelson, Mock, & Erbaugh, 1961);
(C) P Scale of Eysenck Personality Questionnaire (Eysenck & Eysenck, 1975);
Dysfunctional Attitude Scale (DAS: Form A, Weissman, 1978; Weissman & Beck, 1978);
Hopelessness Scale (Beck, Weissman, Lester, & Trexler, 1974);
Torrance Test of Creative Thinking: Verbal and Figural Form A (Torrance, 1966);
Embedded Figure Test (Witkin, 1966);
Life Experiences Survey (Sarason, Johnson, & Siegal 1978).

The Scale for Suicide Ideation (Beck, Kovacs, & Weissman, 1979)

Since suicide is one of the leading causes of death in the present time, the measurement of suicidal risk and the identification of persons likely to make fatal or non-fatal suicide attempts remain high priorities. In recent years, these goals have been pursued primarily through the assessment of psychological, psychiatric, and demographic variables. According to extensive reviews of the literature (Brown & Sheran, 1972; Lester, 1970, 1974), standard psychological tests such as the Rorschach, the TAT, and the MMPI cannot differentiate suicidal from nonsuicidal individuals and have not been found to be useful predictors of suicidal risk. These same reviewers suggest that at the present time, the best predictors of the criterion
behaviour are specially constructed scales that encompass various attributes of suicidal behaviours (cf. Beck, Kovacs, & Weissman, 1979, p.343).

In recent years, the bulk of the work in suicidology has been targeted on two of the three populations, namely attempted suicides and completed suicides. The third category of suicidal behaviours, namely suicide ideators has not been given much attention. Suicide ideators are individuals who currently have plans and wishes to commit suicide but have not made any recent overt suicide attempt (Beck et al., 1972). Since suicide ideation logically precedes a suicide attempt or completed suicide, it seems appropriate to focus on the intensity, pervasiveness, and characteristics of the ideation and wish in order to assess current suicidal intention and potentiality to predict later suicidal risk.

The development of the Scale for Suicide Ideation was prompted by the need for a valid research instrument to identify suicidal individuals and to investigate meaningful correlates of suicidal ideation. The Scale for Suicide Ideation was designed to quantify the intensity of current conscious suicidal intent by scaling various dimensions of self-destruction thoughts or wishes. Suicidal ideation also encompasses
"suicidal threats" that have been expressed in overt behaviour or verbalized to others. The authors emphasised that at present, the Scale for Suicide Ideation is primarily a research tool to be employed in the investigation of suicidal ideation and its correlates (p.344).

The items on the scale were partly clinically derived and partly rationally derived. Systematic observations and interviews of suicidal patients yielded a list of salient preoccupations, concerns and wishes, and thinking and behaviour patterns. Those areas were then selected which seemed to reflect the spectrum of suicidal preoccupations most frequently observed in the patients' verbalizations and behaviours. Previously reported research studies yielded additional content areas. An initially devised 30-items scale was administered to 35 suicidal patients. Those items were eliminated that were found to overlap other items, that were unwieldy, or that were difficult to score. On the basis of this selection process, the clarity and wording of the remaining items were improved and a 19-items scale was constructed. Each item consists of three alternative statements graded in intensity from 0 to 2. The total score is computed by adding the individual item scores. Thus, the possible range of scores is 0 to 38.
The items assess the extent of suicidal thoughts and their characteristics as well as the patients attitude towards them; the extent of the wish to die, the desire to make an actual suicide attempt and details of plans, if any; internal deterrents to an active attempt; and subjective feelings of control and/or courage regarding a proposed attempt (Appendix I).

The internal consistency of the SSI was evaluated through two methods. First, an item analysis showed that each item had a positive correlation with the total scale score and that 16 of the 19 coefficients were significant. The second method of evaluating internal consistency was the determination of coefficient alpha, KR-20 (Cronbach, 1951). For the 90 cases, a reliability coefficient of .89 was obtained.

With respect to interrater reliability, twenty-five of the 90 consecutively admitted patients were seen concurrently by two clinicians who alternated in interviewing successive patients. Following the interview, each clinician independently completed the SSI. The interrator reliability coefficient was .83 (p < .001). Puri (1988) after administering this scale to the University students in India found coefficient alpha (KR-20) to be equal to .90.
Concurrent validity of the SSI was evaluated by determining how well the scale scores correlated with other measures of suicidal ideation or suicidal risk such as clinical evaluations and psychological inventory scores.

The SSI scores were also compared to the "Self-harm" item of the Beck Depression Inventory (BDI: Beck, 1972), independently obtained by a research assistant. The correlation between ideation scores and the BDI item was .41 (p < .001). The relatively low correlation may reflect the limited range (0-3) on the BDI item.

Since the SSI was partly designed as a research screening instrument, it may be expected to discriminate between groups who, on a priori basis, can be assumed to differ in degree of suicidal intent. Comparisons of the SSI scores of the 90 patients hospitalized for suicidal ideation (M=9.43, SD=8.44) and 50 outpatients who sought psychiatric treatment for their depression (M=4.42, SD=5.77) yielded a significant between - groups difference, t=4.14, p < .001. The two groups were similar in degree of depression as measured by the Beck Depression Inventory, t=.67, NS. Evidence for construct validity was also obtained. The construct validity of the scale has been also confirmed by Wetzel (1975).
SSI provides an ideal tool as an independent variable in the investigation of psychological and clinical correlates of suicidal ideation. It may also be employed as a dependent variable measure in studies that assess the efficacy of treatment intervention with suicidal individuals. At the present time, the SSI appears to have real potential as a research instrument. It may be used not only as an independent variable to discriminate among individuals varying in degree of suicidal ideation but also as a dependent measure to quantify change resulting from treatment interventions. Moreover, the scale may also be of help to the clinician in the systematic gathering and quantification of data relevant to patients' or clients' thoughts, plans and wishes about suicide (cf. Beck, Kovacs, & Weissman, 1979, p.351).

(B) Beck Depression Inventory (BDI: Beck, Ward, Mendelson, Mock, & Erbaugh, 1961)

Self-report checklists of depression characteristics with some established validity, reliability, the factorial structure include the 21-item Beck Depression Inventory (BDI: Beck, 1961, 1970), the 20-item Zung-Rating Depression Scale (ZSRS: Zung, 1965), the Clinical Analysis Questionnaire (Delhees & Cattell, 1975), the Depression Scale (Krug & Laughlin, 1976), the Eight State Questionnaire (Institute for
Personality and Ability Testing, 1976), and of course, the oldest of all standardized multivariate and multidimensional personality measures, the Minnesota Multiphasic Personality Inventory (MMPI-D Scale).

Beck Depression Inventory, however, was selected because the Beck Depression Inventory in its various forms (Beck, 1967, 1972; Beck & Beck, 1972; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) is one of the most frequently used self-report depression inventories in contemporary clinical research. Originally designed to be "interviewer" assisted, current practice appears to be to allow respondents to self-administer the inventory by marking their responses on a paper and pencil type form of the BDI. Although the inventory was designed as a clinical instrument, in practice it is frequently employed in studies using college populations, dichotomizing students into "depressed" and "nondepressed" groups based on self-administered BDI responses obtained during large screening sessions.

The Inventory is a 21-item self-report test that also assesses symptom severity (range: 0-63). A series of validity and reliability studies (Beck & Beamesderfer, 1974; Pichot & Lemperiere, 1974; Beck, 1967) generally support the BDI as a measure of depressive
severity (e.g., 0-9: normal; 10-18: Mild; 19-25: moderate; and 26 and above: moderately severe to severe).

In practice, the range of cutoff scores in research is highly variable. A review of recent literature involving the BDI revealed that the criteria for non-depressed groups ranged from $< 2$ (Carson & Adams, 1980) to $\leq 13$ (Roth & Rehm, 1980) on the standard length inventory. On the short form of the inventory (Beck & Beck, 1972) cutoffs for the depressed categories ranged from 7 (Kilpatrick-Tabak & Roth, 1978) to $\leq 21$ (Johnson & Crockett, 1982). Clearly a subject designed as depressed in one study may not be similarly designed in another (cf. Hatzenbuehler, Parpal, & Matthews, 1983, p.360).

Focusing on the use of the BDI with college students, Sacco (1981) challenged the test-retest reliability of the depression inventory. His concerns about the temporal stability of the BDI are based largely on his experience with classifying college students as depressed on one day using their BDI scores only to have their classification change on readministering the BDI on another day (Sacco & Hokanson, 1978). According to Sacco, failure to assess depression level just prior to conducting an experiment thus leads
to misleading if not invalid results. Sacco's concern about the test-retest reliability of the BDI, are not without rebuttal. (cf. Hatzenbuehler, Parpal, & Matthews, 1983, p.361).

Using non-depressed college students, Miller & Seligman (1973) reported a test-retest reliability coefficient (r) of .74 after a three month interval, and Pehm (1976) reported an r of .75 after one month. Oliver & Burkham (1979) reported a test-retest coefficient of .78 for college students over a week's period. Retesting psychiatrically hospitalized adolescents, Strober, Green, & Carlson (1981) reported an r of .69. Gallagher, Nies, & Thompson (1982) reported even more impressive test-retest coefficients with normal (r=.86) and depressed (r=.79) elderly. The time interval between administrations for the latter study ranged from 6 to 21 days. Although the published reliability coefficients are impressive, they do not specifically address Sacco's concern about the ability of the BDI to classify an individual within the same depression category on two occasions.

Hatzenbuehler, Parpal, & Matthews (1983) while classifying college students as depressed or non-depressed found that whereas the overall test-
retest reliability coefficients were acceptable, particularly when both administrations of the BDI occurred on the same day, the consistency of classification of subjects into the mild and moderate levels of depression was poor.

More recently, Schaefer et al., (1985) found alpha coefficients for the BDI measures of men to be .94 (psychiatric ward) and .88 (chemical dependency ward).

The present study, however, did not attempt to use BDI for the purpose of classifying subjects in two different groups on the basis of individual's depression level. The BDI was selected to provide a single measure of severity of depression.

(C) Eysenck Personality Questionnaire (EPQ: Eysenck & Eysenck, 1975)

Eysenck's earlier measure of personality, that is, Eysenck Personality Inventory was concerned with three major dimensions: Extraversion (E), Neuroticism (N) and social desirability (L). The EPQ in addition to the E, N, and L-scales provides an additional scale to measure psychoticism (P), also called "tough-mindedness".
To measure this concept of psychoticism, the authors have sought over the years and through an extensive, iterative series of analyses a set of questions which would have the three main properties (they theoretically) would demand in a measure of P: (1) the questions must correlate together, so as to define a common factor; (2) the questions must discriminate between normals, on the one hand, and psychotic and criminal groups, on the other; (3) the scale must not correlate to any appreciable extent with E and N (Eysenck & Eysenck, 1976, p.39). The P-scale of the EPQ is the result of this prolonged effort, having undergone numerous item revisions and tunings of item amalgams along the way to better meet the several theoretically given desiderata.

H. Eysenck & M. Eysenck (1985, pp. 14-15) have pictured the subtraits of E, N, and P as follows: E: sociable, lively, active, assertive, sensation seeking, carefree, dominant, surgent, and venturesome; N: anxious, depressed, guilt feelings, low self-esteem, tense, irrational, shy, moody, and emotional; and P: aggressive, cold, egocentric, impersonal, impulsive, antisocial, unempathic, creative, and tough-minded.
Eysenck & Eysenck's psychoticism (P) scale and psychosis have been the subject of continued concerns. Bishop (1977) made an appraisal of P-scale. The author concluded: "in their most recent work, Eysenck & Eysenck clearly state that the P scale measures the predisposition to psychosis, and that only a very small proportion of people with high P scores are likely to develop a psychosis" (p.5). In this case, the P scale cannot be used alone as a diagnostic tool, since it does not discriminate the mentally ill from the healthy. The value of the P scale therefore rests on its validity as a measure of predisposition to psychosis. It is shown that validation data presented by Eysenck & Eysenck are at best unconvincing and, at worst, contrary to their hypothesis" (p.127).

Eysenck (1977) in a brief rejoinder to Bishop's critique of the Eysenck Personality Questionnaire, and in particular the concept of psychoticism (P), emphasised that when all the evidence now available is taken into account and when the theory is seen in its proper development, the criticisms advanced by Bishop will be seen not to be tenable. The author concluded that there is much evidence for the validity of the concept of psychoticism and for the validity of the questionnaire measurement of P.
Block (1977) emphasised: the reply by Eysenck (1977) to Bishop's (1977) criticisms of the psychoticism (P) scale of the Eysenck & Eysenck Personality Questionnaire (EPQ: Eysenck & Eysenck, 1975) relies heavily for its rebuttal on information and argument contained in a new book by the Eysencks (Eysenck & Eysenck, 1976). This volume, unavailable to Bishop for her critique, contains data and reasoning that go well beyond what earlier was presented in the EPQ manual. However, evaluation of this new additional evidence does not provide reassurance against the concerns expressed by Bishop and held by others (e.g., Davis, 1974). The author concluded that more work is needed on the P scale before it is offered for use to the scientific and professional communities.

More recently, Zuckerman, Kuhlman, & Camac (1988) emphasised that even if it is true that E, N, and P do describe three major dimensions of personality, the nature of these three factors is still debated. It is difficult to characterize the P factor in terms of a single normal trait name because of the number of traits involved in the factor and the authors chosen the name Impulsive Unsocialized Sensation Seeking (P-Imp USS) as a label, because it incorporates three of the traits comprising the factor. The authors further remarked that if one were pushed to find a more abstract term for the factor, social deviance
or nonconformity might be appropriate.

Regarding the scores on L-scale of the EPQ which is modeled after the Lie-scale of the Minnesota Multiphasic Personality Inventory (MMPI), a number of interpretations have been offered by different persons. It is variously described as "desire to conform to social norms" (Edwards & Heathers, 1962; Edwards, 1959), "ideal self" (Michaelis & Eysenck, 1971), "nice personality" (Skinner et al. 1970), "motivational distortion" (Cattell, 1965), etc. It is also called "faking good" response set. The subject has a motivation to give a false picture of self, rather a better picture of self than he really is. This tendency has been viewed as more or less an error to be avoided or response bias to be overcome, counterbalanced or suitably corrected. Lately there has been a tendency amongst various investigators to consider it as a separate, independent and powerful personality factor, to be measured in its own right (Verma, 1977; Michaelis & Eysenck, 1971; Edwards, 1964). Nevid (1983) argued that the "sacred cow" status of social desirability as a potential confound to the interpretability of psychological tests should be reexamined. The author further argued that social desirability responding may reflect a dimension of personality
that is similarly tapped by other tests of personality (e.g., the factor of the Minnesota Multiphasic Personality Inventory) rather than simply a test taking style (Block, 1965). The present study did not attempt to exclude cases on the basis of lie-scale, instead lie-scale has been used as an important dimension of personality, to be measured in its own right.

Despite its recent origin, the questionnaire is backed by a growing body of evidence bearing on such matters as factor stability and reliability (Eysenck & Eysenck, 1968, 1975, 1976), differentiation of drug users from non-drug users (Teasdale, Segraves, & Zacune, 1971), as well as imprisoned criminals and matched controls (Eysenck & Eysenck, 1971). In addition, Farley & Goh (1976) found that most of the reliability estimates are satisfactory for most uses.

The test has been used in India and found suitable (Kaur, 1989; Upmanyu & Singh, 1984; Upmanyu, Gill, & Singh, 1982; Hundal & Upmanyu, 1981; Verma & Wig, 1972). In brief, despite important concerns mentioned in the preceding paragraphs, Eysenck Personality Questionnaire which is fairly reliable and valid has been extensively used* for deriving measures.

* Professor V. Mohan, Professor J. Mohan (Panjab University, Chandigarh) and Professor B.S. Gupta (Banaras Hindu University, Varanasi) have used Eysenck Personality Questionnaire extensively and found it useful and adequate for measuring extraversion, neuroticism, psychoticism, and social desirability.
pertaining to psychoticism, neuroticism, extraversion and dissimulation.

(D) **Dysfunctional Attitude Scale (DAS: Form A, Weissman, 1978; Weissman & Beck, 1978)**

Because of the crucial importance of eliciting the silent assumptions that give rise to an individual's mood swings, Weissman developed the Dysfunctional Attitude Scale (DAS). An initial pool of items was written with the goal that they should reflect the relative presence or absence of the appropriate distorted, idiosyncratic beliefs that characterize depressed patients in Beck's system. This scale was then administered to a group of residents in psychiatry at the University of Pennsylvania who were apprised of the purpose of the test and who provided their opinions regarding the face validity and comprehensibility of the items. Further modifications in wording were made on the basis of the opinions obtained from these sources, resulting in 100 items.

The test format used is that of the typical self-report attitude or value scale. For each belief or attitude (the items), seven response categories are presented (totally agree; agree very much; agree slightly, neutral; disagree slightly; disagree very much; totally disagree). On an a priori basis, deter-
minations were made as to whether a disagreement or an agreement response indicates an adaptive or maladaptive reaction to the belief in question. Scaling is on a modified Likert (1932) model, with the adaptive end of the scale assigned an arbitrary value of one, the next category is two, etc., and, with zero being used for omits on each item. Each individual, then has a score for every item, and his total DAS score is simply the sum of the scores he received on each item. The higher the total score, the more distorted is the individual's way of thinking. As an example, if the statement were: "I cannot be happy unless most people I know admire me" and the respondent decides that this statement is typical of his way of looking at things most of the time, he may reply that he agrees very much with this belief. Because his response is in the maladaptive direction, his score on this item would be +6.

The 100 attitudes were constructed in such a way as to represent seven major values systems: (1) approval, (2) love, (3) achievement, (4) perfectionism, (5) entitlement, (6) omnipotence and (7) autonomy.

The major criticism which was voiced related to the length of time required to complete the 100
items. Therefore, in an attempt to balance brevity and reliability, the data obtained from a sample of 275 undergraduates (100 males and 175 females) at the Pennsylvania State University were subjected to a factor analysis, and an adaptation of a method described in Gulliksen (1950) was employed to construct two parallel forms (DAS-A and DAS-B).

Another pilot testing was set up in order to see if these two forms of the DAS were in fact parallel. Seventy undergraduates (20 males and 50 females) initially received DAS-A and one week later, DAS-B. The correlation between total scores on DAS-A and DAS-B was .79. In addition, the mean scores for DAS-A was 113.01 and for DAS-B, 113.73. The reliabilities (coefficient alpha) of the two forms were .86 and .87 respectively. The results indicate that the DAS is a reliable instrument and support construct validity. Evidence reported also lends support to the cognitive position of depression.

(E) THE HOPELESSNESS SCALE (HS: BECK, WEISSMAN, LESTER, & TREXLER, 1974)

Two sources were utilized in selecting items for the 20-item true-false Hopelessness Scale. Nine items were selected from a test of attitudes about
the future structured in a semantic differential format (Heimberg, 1961). These items were then revised to make them appropriate for the present test. The remaining 11 items were drawn from a pool of pessimistic statements made by psychiatric patients who were adjudged by clinicians to appear hopeless. The statement which seemed to reflect different facets of the spectrum of negative attitudes about the future and which recurred frequently in the patients' verbalizations were selected (cf. Beck, Weissman, Lester, & Trexler, 1974).

The final format consisted of 20 true-false statements of which 9 were keyed false and 11 were keyed true. For every statement, each response was assigned a score of 0 or 1 and the "total hopelessness score" was the sum of the scores on the individual items. Thus, the possible range of scores is from 0 to 20.

A population of 294 hospitalized patients who had made recent suicide attempts provided the data for determination of the internal consistency of the Hopelessness scale. The internal consistency of the scale was analysed by means of coefficient alpha (KR-20), which yielded a reliability coefficient of .93. The item-total correlation coefficient ranged
from .39 to .76. Moreover, the scale showed a relatively high correlation with the clinical ratings of hopelessness and other self-administered measures of hopelessness.

The reliability and validity data presented for the hopelessness scale are deemed sufficient to justify its use on a continuing basis. This measure has been evaluated in a number of studies and has been found to be reliable, sensitive, and easily administered. The hopelessness scale is an instrument that may be used by both professional and para-professionals involved in the detection and assessment of hopelessness as an important variable in many psychopathological processes (cf. Beck, Weissman, Lester, & Trexler, 1974).

**(F)** Torrance Test of Creative Thinking—Verbal and Figural Form A (Torrance, 1966)

Torrance Test of Creative Thinking has been used extensively by researchers working in the area of creativity. The tests are appropriate for use in kindergarten through graduate school. For each test there is a manual designated as the Directions Manual and Scoring Guide, containing all information necessary to administer and score the test. A single Norms Technical Manual, covering all four tests, includes the theoretical and statistical background material.
underlying testing of creative thinking. It also includes normative information.

Following Guilford's line of approach to the assessment of creativity, E.P. Torrance devised a battery of creativity tests at the University of Minnesota. Some of his tests were quite different from the kind of tools designed by Guilford. Torrance employed verbal and figural tests, each of which was scored for (a) fluency (b) flexibility, (c) originality, and (d) elaboration and then summed up for an index of creativity.

In general the Torrance test of creative thinking represents an improvement over those evolved by Guilford which seem to be too atomistic in nature. The unique feature of Torrance test is that the component items are constructed in a style that are models of the creative thinking process, each involving different kinds of thinking and each contributing something unique to the batteries developed. Torrance test tasks are fairly complex and have features that make use of "the creative thinking processes, the qualities of the creative products and creative potentialities". It comprises of 7 verbal and 3 figural tasks. A brief description of these tasks reveal their diversity:
I. **Verbal Tests**

1. Activity 1: Asking  
2. Activity 2: Guessing Causes  
3. Activity 3: Guessing Consequences  
4. Activity 4: Product Improvement  
5. Activity 5: Unusual uses of cardboard boxes  
6. Activity 6: Unusual questions  
7. Activity 7: Just Suppose

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<td>Activity 1: Asking</td>
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<td>Activity 2: Guessing Causes</td>
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<td>Activity 3: Guessing Consequences</td>
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<td>Activity 7: Just Suppose</td>
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II. **Figural Tests**

1. Activity 1: Picture Construction  
2. Activity 2: Picture Completion  
3. Activity 3: Parallel Lines

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<td>Activity 2: Picture Completion</td>
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<tr>
<td>Activity 3: Parallel Lines</td>
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The Torrance Tests of Creative Thinking, verbal forms, require written responses; administration to groups of pupils is recommended for fourth grade through graduate school. The figural forms of the Torrance Tests of Creative Thinking require responses that are mainly drawing or pictorial in nature. Use of Figural Test batteries is recommended in kindergarten through graduate school. A small amount of writing is required of the examinees when they are directed to label or name some of the pictures they have drawn.
VERBAL TESTS:

In the first three "Ask and Guess" activities, the subject is shown a picture of an elf-like form observing his reflection in the water. With respect to activity 1, the subject is asked to write out all the questions, he can think of about the picture. The subject is asked to write all of the questions he would need to ask to know for sure what is happening. For activity 2, the subject is asked to state as many possible causes as he can of the action shown in the picture, and finally for activity 3 he is requested to list as many possibilities as he can of what might happen as a result of what is taking place in the picture? The subject is encouraged to make as many guesses as he can.

For the "product improvement task" (Activity 4), a small stuffed toy elephant supplied in the examiner's kit is displayed and the subject is asked to list the cleverest, most interesting and unusual ways for changing this toy elephant so that children will have more fun playing with it. The subject is asked not to worry about how much the change would cost.

Activity 5: "Unusual use of cardboard boxes" requires that the subject list as many possible interes-
ting and unusual uses of the cardboard boxes. In the "unusual questions" task (Activity 6), the subject is to suggest as many questions as he can about cardboard boxes. These questions should lead to a variety of different answers and might arouse interest and curiosity in others concerning boxes.

Finally, in the "just suppose" (Activity 7), the subject is given an improbable situation—one that will probably never happen (clouds had strings attached to them which hang down to earth) and is asked to think out all of the other exciting things that would happen if this improbable situation were to come true. The subject is to list his ideas and guesses.

FIGURAL TESTS:

Activity 1: "Picture construction" requires the subject to stick a piece of coloured paper wherever he wants, to make the picture he has in mind. The subject is asked to think of a picture that no one else will think of. The subject is also asked to write up a clever and unusual name or title for the picture drawn by him.
"Picture completion", activity 2 presents the test taker with a variety of incomplete figures which he has to sketch into interesting pictures or objects. The subject is also asked to write up interesting title for each of his drawings.

Finally in the "parallel lines", activity 3; the subject has to sketch designs with the help of given pairs of straight parallel lines. The subject is also asked to think of a name or title for each of his drawings and to write it at the space provided. He is requested to think of a title as clever and unusual as possible, which he can also use it to help him tell his complete and interesting story as he can.

Although, the basic activities differ, each is scored for fluency, flexibility, originality and elaboration. This is done on the assumption that one can engage in the range of problem solving activities either creatively or uncreatively. The number of relevant responses produced by a subject yields the measure of fluency. The number of different categories of questions, causes, consequences, product, uses or pictures gives a measure of flexibility. The
statistical infrequency is the measure of originality* and the number of embellishments on responses provides on elaboration score. Scores for these four categories can be summed separately across all verbal and across all figural sub-tests, again suggesting similarity in the creative process across a variety of different activities. In the present study, however, the scores on fluency, flexibility, originality, and elaboration were treated separately for figural as well as verbal creativity.

Though Torrance Test Battery has been used quite extensively by researchers working in the field of creativity, some writers (Wallach, 1970; Wallach & Kogen, 1965) have critically alleged that Torrance tests of creative thinking possibly do not measure anything different from intelligence. Torrance, however, regards their assertion as incorrect and has provided acceptable rationale for and also empirical proof of the distinct nature of his tests which he feels operationalize what is known about the "nature of creative thinking process, the qualities of the creative products and creative personalities" (Torrance, 1967, 1968, 1969, 1974).

* For the present study, the obtained responses were tabulated and used for scoring statistical infrequency.
Torrance Tests of Creative Thinking: Verbal and Figural have been found to possess essential psychometric characteristics and extensively used by researchers working in the area of creativity.

(G) Embedded Figure Test (EFT: Witkin, 1966)

Research in psychological differentiation has traditionally employed the EFT as one of the number of perceptual tests. Where complex apparatus for such testing has not been available, a good number of researchers have effectively utilized the EFT alone. Witkin (1965) has indicated that in the absence of complete perceptual test equipment, the EFT along with the human figure drawing ratings could be used to assess differentiation.

Embedded Figure Test was developed by Witkin (1950) for the assessment of field-dependent-independent cognitive styles. The test is perceptual in nature and consists of eight simple figures (A, B, C, D, E, F, G, H) and twenty four complex figures all of which are coloured excepting one, namely figure designated A-2. Of the 24 complex figures, 5 contains simple figure A, two contains B, five contains C, two contains D, five contains E, and one contain F, three contains G, and one contain H. The test essentially requires the subject to trace the simple figure as it is embedded in the complex design. The simple figure is shown to the subjects for 15 seconds and a maximum 5 minutes
are allowed for disembedding the same from the complex design. Total time taken to discover all the simple figures determine subjects scores on field-independence.

Extensive use has been made of this test and it has been found to be fairly reliable and valid measures of field-dependent-independent cognitive styles. Witkin (1971) in the manual of test reported split-half reliabilities ranging from .92 to .97. In Indian setting also some writers have demonstrated the utility and reliabilities of Embedded Figures Test (EFT). In an intensive study of Embedded Figures Test (EFT) on Indian Sample, Pande (1970) found the split-half reliabilities for males and females samples to be .76 and .81 respectively. Sinha (1979) fruitfully adopting the EFT to Indian setting and making intensive use of it has demonstrated its reliability and validity for assessing field-dependent and field-independent cognitive styles in Indian setting. More recently, Minhas & Kaur (1982) found the test to be fairly reliable on University students in Panjab (India).

The original version of Embedded Figure Test as developed by Witkin is relatively lengthy and time consuming. Jackson (1956) in an attempt to reduce the length of the test has evolved a shorter
form of Embedded Figure Test, which comprises 12 items only. The time for the presentation of the test is 15 seconds while 3 minutes are allowed for disembedding the simple figure from the complex design. Jackson's shorter form of Embedded Figure Test (EFT) has a test-retest reliability of .92 (Dana & Goocher, 1959). Observations by other writers (Spotts & Mackler, 1967; Foddell & Phillips, 1959; Jackson, 1956) also reveal the shorter form to be reliable and economical measure of the process tapped by Witkin's Embedded Figures Tests. In the present study, however, Embedded Figures Test as given by Witkin was used keeping in view its extensive use as a measure of field-independence-dependence. The test possesses essential psychometric characteristics and its use as a possible correlate of suicide ideation is imperative.

(H) Life Experiences Survey (Sarason, Johnson, & Siegel, 1978)

During recent years, numerous studies have investigated the relationship between life stress and susceptibility to physical and psychological problems. Most of these studies have been based on the assumptions that (a) life changes require adaptation on the part of the individual and are stressful, and (b) persons experiencing marked degrees of life change during the recent past are susceptible to physical and psychiatric problems.
By far the most widely used instrument in life stress research is the Schedule of Recent Experiences (SRE: Holmes & Rahe, 1967). Although the development of the SRE represents a valuable initial attempt at the quantification of the impact of life change, its adequacy has been questioned on several counts (Rabkin & Struening, 1976). Sarason, Johnson, and Siegel (1978) emphasised that a measure of life stress should possess three characteristics. First, it should include a list of events experienced with at least some degree of frequency in the population being investigated. Second, it should allow for ratings, by respondents themselves, of the desirability or undesirability of the events. Third, it should allow for individualized ratings of the personal impact of the events experienced.

The Life Experiences Survey (LES) which is a 57-item self-report measure was constructed in accordance with the guidelines mentioned above. The scale has two portions: Section I, designed for all respondents, containing a list of 47 specific events plus few blank spaces in which subjects can indicate other events that they may have experienced. The events listed in Section I refer to life changes that are common to individuals in a wide variety of situations. The 10 events listed in Section II are designed primarily for use with students, but they can be adopted
for other populations. Section II deals specifically with changes experienced in the academic environment. Section I is appropriate for use with subjects drawn from the general population, whereas both sections are relevant to a student population. In the present research, responses to items of Section I and II were combined in deriving life change scores as this research was conducted with University students.

The LES items were chosen to represent life changes frequently experienced by individuals in the general population. Many of the items are based on existing life stress measures, particularly the SRE. Others were included because they were judged to be events that occur frequently and that potentially might exert a significant impact on the lives of persons experiencing them. Thirty-four of the events listed in the LES are similar in content to those found in the SRE (Holmes & Rahe, 1967). The format of the LES calls for subjects to rate separately the desirability and impact of events that they have experienced. Thus, they are asked to indicate those events experienced during the past year (0-6 months or 7 months-1 year).

* Although the LES provides for the assessment of life change occurring during the six-month interval, all analyses to date have involved change scores based on the entire preceding twelve month time period.
as well as (a) whether they viewed the event as being positive or negative and (b) the perceived impact of the particular event on their life at the time of occurrence. Ratings are on a 7-point scale ranging from extremely negative (-3) to extremely positive (+3). Summing the impact ratings of these events designated as positive by the subject provides a positive change score. A negative change score is derived by summing the impact ratings of those events experienced as negative by the subject. By adding these two values, a total change score can be obtained, representing the total amount of rated change (desirable and undesirable) experienced by the subject during the past year. It can be noted that the results of a number of studies with the LES have shown that the positive and negative life change scores are essentially uncorrelated.

The LES, which possesses sufficient reliability and correlates with a variety of relevant dependent measures, could be used in studies aimed at identifying moderator variables and their effects. The format of the LES allows for the individualized ratings of the impact of events plus the availability of separate measures of positive and negative change. This makes it especially appropriate for use in future research concerning how people deal with the stresses and strains of modern life.
ADMINISTRATION OF TESTS

Administration of tests required six sessions. The tests were administered in uniform sequence, generally on six consecutive days. In the first session, Torrance Test of Creative Thinking (Verbal) was administered. In the second session, Torrance Test of Creative Thinking (Figural) was completed. In the third session, Embedded Figure Test was administered, while Hopelessness Scale, Beck Depression Inventory and Eysenck Personality Questionnaire were administered in the fourth session with a time gap of 30 minutes in between different tests. In the fifth session, Dysfunctional Attitude Scale and Life Experiences Survey were administered respectively. The final session was used for administering Scale for Suicide Ideation. The time gap of thirty minutes was allowed in between the administration of two tests so that the effect of fatigue, if any, may be dissipated.

The testing sessions were conducted in the classrooms with adequate facilities for ventilation and proper sitting arrangements. The tests were administered to subjects in groups of 15 to 20 subjects in accordance with the instructions given by authors of the tests. However, Embedded Figure Test for measuring field-independence-dependence was administered individually.
Strict supervision was done to see that the subjects do not discuss or take help from each other while taking the tests. The general testing conditions were satisfactory. Sincere efforts were made to establish rapport with the subjects in order to elicit reliable and authentic information. Subjects were told that the information was being collected purely for research purpose. They were also assured that the information to be collected would remain strictly confidential and presented only in a form in which no person could be identified. The promise of privacy appears to have gone a long way in establishing psychological rapport, since a large number of subjects contacted the investigator later on and enquired about their performance in the tests used. Cooperation of various principals and teachers also helped in drawing out reliable information from the subjects.

The instructions for different tests were read aloud to the group comprising of fifteen to twenty subjects. The instructions in typed form were also provided to the subjects. The doubts of the subjects were removed before permitting them to take the test. Each form was checked to see if any omission was there and if so, the particular subject was asked to complete that question or questions.
SCORING OF THE TESTS

The tests were scored strictly in accordance with the procedure suggested by the authors. Following the procedure given in the manuals, figural form A of Torrance Test of Creative Thinking was scored for four measures of figural creativity (fluency, flexibility, originality, and elaboration), while verbal form A provided four measures of verbal creativity (fluency, flexibility, originality and elaboration).

Eysenck Personality Questionnaire was scored for extraversion, psychoticism, neuroticism and Lie-Scale measures which were labelled as E, P, N, and L. Hopelessness scale and Beck Depression Inventory were scored for two measures pertaining to hopelessness and Depression. Life Experiences Survey was scored for the measure of the impact of life events. Dysfunctional Attitude Scale and Scale for Suicide Ideation were scored for two measures pertaining to dysfunctional attitude and suicide ideation.

The measure concerning psychological differentiation was obtained by scoring Embedded Figure Test.

Thus, as a result of scoring different tests, 18 measures as mentioned below were obtained:
a) four measures of figural creativity;
b) four measures of verbal creativity;
c) four measures concerning extraversion, neuroticism, psychoticism, and social desirability;
d) one measure each of hopelessness and depression;
e) one measure each of impact of life events and dysfunctional attitude;
f) one measure each of suicide ideation and psychological differentiation (field-independence-dependence).

In addition to these eighteen measures, age was also included as one of the variables. Thus, in all nineteen measures were used for examining the structure of suicide ideation.

ANALYSES

The data were analyzed to obtain the following information:

(1) Frequency distribution, mean, median, standard deviation, skewness, kurtosis, and reliability coefficients for different measures.

Phase I

(2) Intercorrelations among different variables* separately for males and females were computed.

(3) Structural relationship among different variables separately for males and females.

* Psychosis proneness was included as one of the several variables included in the intercorrelation matrix.
Phase II

(4) Intercorrelations among different variables were computed separately for males and females scoring high** and low** on psychosis proneness.

(5) Structural relationships among different variables separately for males and females scoring high and low on psychosis proneness.

Separate analyses for males and females as well as high and low psychosis prone subjects were done keeping in view the importance of gender and psychosis proneness as significant moderating variables in identifying the correlates of suicide ideation.

** The measures of psychoticism were obtained from the P-scale of Eysenck Personality Questionnaire. \( P_{50} \) was used as the criterion for classifying subjects into two groups comprising of high and low psychosis prone. Subjects scoring above \( P_{50} \) were labelled as high psychosis prone, while subjects scoring below \( P_{50} \) were classified as low psychosis prone. This procedure was followed separately for males and females.