Chapter-III

Methodology
In the previous chapter theoretical concepts underlying the research findings have been highlighted and the status of the presently available research documents in this area has been described. In the present section specific research objectives, research design, the tools used to assess the variables, the methodology applied to reach the objectives will be discussed. The procedure for data collection and statistical tools employed will also be discussed.

3.1 Research objectives

1) To determine whether the profile of ego functions differ between normal and 'attempted suicide' groups.

2) To determine whether number of stressful life events differ between normal and 'attempted suicide' groups.

3) To determine whether cognitive styles (world, self and future) differs between normal and 'attempted suicide' groups.

4) To determine whether severity of depression differs between normal and 'attempted suicide' group.

5) To determine the relationship between suicidal ideation and other predictor variables namely, ego functions, number of stressful life events, cognitive styles and depression in normal group.
6) To determine the relationship between suicidal ideation and other predictor variables namely- ego functions, number of stressful life events, cognitive styles and depression in 'attempted suicide' group.

7) To determine whether ego functions significantly predict suicidal ideation in normal group.

8) To determine whether ego functions significantly predict suicidal ideation in 'attempted suicide' group.

9) To determine whether number of stressful life events in last one year significantly predict suicidal ideations beyond the impact of ego functions in normal group.

10) To determine whether number of stressful life events in last one year significantly predict suicidal ideations beyond the impact of ego functions in 'attempted suicide' group.

11) To determine whether cognitive styles (world, self and future) significantly predict suicidal ideations beyond the impact of ego functions and number of stressful life events in normal group.

12) To determine whether cognitive styles (world, self and future) significantly predict suicidal ideations beyond the impact of ego functions and stressful life events in 'attempted suicide' group.

13) To determine whether depression predicts suicidal ideations beyond the impact of ego functions, number of stressful life events and cognitive styles in normal group.

14) To determine whether depression predicts suicidal ideations beyond the impact of ego functions, number of stressful life events and cognitive styles in 'attempted suicide' group.

15) To determine whether ego functions predict cognitive styles (world, self and future) in normal group.
To determine whether ego functions predict cognitive styles (world, self and future) in 'attempted suicide' group.

To determine whether number of stressful life events predict cognitive styles (world, self and future) beyond the impact of ego functions in normal group.

To determine whether number of stressful life events predict cognitive styles (world, self and future) beyond the impact of ego functions in 'attempted suicide' group.

To determine whether ego functions significantly predict depression in normal group.

To determine whether ego functions significantly predict depression in 'attempted suicide' group.

To determine whether number of stressful life events predict depression beyond the impact of ego functions in normal group.

To determine whether number of stressful life events predict depression beyond the impact of ego functions in 'attempted suicide' group.

To determine whether cognitive styles predict depression beyond the impact of ego functions and number of stressful life events in normal group.

To determine whether cognitive styles predict depression beyond the impact of ego functions and number of stressful life events in 'attempted suicide' group.
3.2 Plan of Work

N=200
Age: 18-45 years
Minimum secondary level of education

Normal Group
N=100
M=50, F=50

Attempted Suicide Group
N=100
M=50, F=50

Purposive Sampling

PREDICTOR VARIABLES

Ego Functions
RT, JD, SR, DC, OR, TP, AR, DF, SB, AF, SF, MC

Number of Stressful Life Events (in last 1 yr)

Cognitive Styles
World, Self, & Future

Severity of Depression

CRITERION VARIABLE

As measured by EFA (M) (Bellak, 1989)

As measured by PSLES (Singh et al., 1984)

As measured by CST (Blackburn et al., 1986)

As measured by BDI (Beck, 1961)

Suicidal Ideation in Normal Group

Suicide Attempt in Attempted Suicide Group

As measured by ASIQ (Reynolds, 1991)
3.3 Research Design

The research design has been schematically presented in figure in the previous page. Its details have been presented in the following sections.

3.3.1 Type of research employed in the present study

The study is *ex post facto* in nature. Attempts have been made to find out whether there exist any significant difference between normal and 'attempted suicide' group regarding ego function profile (RT, JD, SR, DC, OR, TP, AR, DF, SB, AF, SF and MC), number of stressful life events in last one year, cognitive styles (world, self and future) and severity of depression. The study also aimed to determine the relationship between suicidal ideation and ego functions, suicidal ideation and stressful life events in last one year, suicidal ideation and cognitive styles, and suicidal ideation and depression in normal and 'attempted suicide' group.

The present study also tried to find out whether ego functions (RT, JD, SR, DC, OR, TP, AR, DF, SB, AF, SF and MC) significantly predict suicidal ideation in normal and 'attempted suicide' group, whether stressful life events in last one year significantly predict suicidal ideation beyond the impact of ego functions in both the groups, to determine whether cognitive styles (world, self & future) significantly predict suicidal ideation beyond the impact of ego functions and stressful life events in both the groups and finally whether depression predicts suicidal ideation beyond the impact of ego functions, number of stressful life events and cognitive styles in normal and 'attempted suicide' group.

In the present study ego functions, number of stressful life events in last one year, cognitive styles (world, self & future), and depression were treated as predictor variables and suicidal ideation as criterion variable. The researcher did not have the direct control over the predictor variables as their manifestations have already been occurred or because they are not manipulable in nature (ego functions profile, cognitive style pattern).
Inferences about the relations among variables have been made without direct interventions, from concomitant variation of predictor variables (ego functions, cognitive styles, number of stressful life events, and depression) and criterion variable (suicidal ideation) by appropriate statistical analysis.

Correlation technique has also been done to find out the relationships between ego functions, cognitive styles, number of stressful life events, and depression with suicidal ideation in both normal and 'attempted suicide' groups.

3.4 Sample

The sample consisted of a group of 100 normal subjects and a group of 100 subjects who 'attempted suicide' for the first time. Each group consisted of 50 males and 50 females.

3.4.1 Normal Group

This group consisted of 100 subjects including 50 males & 50 females. The subjects were approached and objectives of the study were discussed with them. Those who gave consent were taken as sample. Normal matched group sample was taken from general population. This group was screened by General Health Questionnaire-28 (Goldberg & Hiller, 1979).

3.4.1.1 General Inclusion Criteria for Normal Group

1) Bengali speaking.

2) Age between 18 to 45 years.

3) Minimum of secondary level education.

4) Score on GHQ-28 is 4 or below 4.

3.4.1.2 General Exclusion Criteria for Normal Group

1) Person with any past history of psychiatric disorder.

2) Person with chronic physical illness/disability.

3) Person with any organic involvement.
3.4.2 ‘Attempted Suicide’ Group

This group consisted of 100 subjects including 50 males and 50 females. The contacts were made during their first visit to psychiatry outdoors of Govt. hospitals and other clinics of Kolkata and outskirts. The objectives were discussed with them and only willing patients were selected for the study. The data were taken generally within to 15 days of their first attempt, however only from those patients who were in a position to communicate.

3.4.2.1 General Inclusion Criteria for ‘Attempted Suicide’ Group

1) Bengali speaking.
2) Age between 18 to 45 years.
3) Minimum of secondary level education.
4) Person attempted suicide for the first time.
5) Besides attempt to suicide if the person have anxiety, depression (Mild, moderate or severe depression without psychotic symptom according to DSM-IV TR) or adjustment disorder were included in the study.

3.4.2.2 General Exclusion Criteria for ‘Attempted Suicide’ Group

1) Person having organic brain disorder.
2) Person having past history of any psychiatric disorder.
3) Person with concurrent diagnosis of psychosis.
4) Person with chemical/substance dependence.
5) Person having personality disorder.
6) Person having any psychiatric disorders except the above mentioned ones.
3.4.3 Selection of sample

Purposive sampling was used in this research. Subjects were approached individually and those who agreed and met the criterion were included.

The final sample

On the whole 132 data were collected for the 'attempted suicide' group. 32 patients were eliminated from the 'attempted suicide' group due to incomplete data submission. Finally 200 data were selected that formed the two groups of which 100 subjects (50 males and 50 females) were in normal group and 100 subjects (50 males and 50 females) were in 'attempted suicide' group.

3.5 Tools used

1. Personal Information Schedule.
5. Beck Depression Inventory (BDI) by Beck et al. (1961).
7. The Adult Suicidal Ideation Questionnaire (ASIQ) by Reynolds (1991)

3.5.1 Personal Information Schedule

It consists of information on name, age, sex, address, religion, education, occupation, marital status, type of family, number of family members, family income, sexual orientation and other relevant areas. An interview regarding the details of suicide attempts was conducted for the 'attempted suicide' group only.

English Version of Personal Information Schedule has been given on Appendix-I.
3.5.2 General Health Questionnaire-28 (GHQ-28) (Goldberg & Hiller, 1979)

Description of the tool

General Health Questionnaire (GHQ) was designed to be a self administered screening questionnaire aimed at detecting those with a psychiatric disorder. The questionnaire was designed to be easy to administer, acceptable to respondents, fairly short and objective in the sense that it did not require the person administering it to make subjective assessment about respondents.

There are different versions of GHQ available depending upon the nature of items. GHQ-28 containing 28 items is derived from factor analysis of GHQ-60 and consists of 4 subscales for somatic symptoms, anxiety and insomnia, social dysfunction and severe depression. It is as good as any other version of GHQ as a case detector, at the same time it gives sub-scores. Each item has 4 response alternatives.

In the present study, Bengali adaptation (Basu & Dasgupta, 1996) of GHQ-28 was used.

Administration

This is a self administering screening test. There is no time limit to complete it. The instructions to complete it precede the inventory.

Scoring and interpretation

Scoring was done by GHQ method (0-0-1-1) as suggested by Goldberg and Williams (1988). Threshold for case identification was taken as 4/5, i.e., score 4 signifies a non psychiatric case and 5 signifies a psychiatric case. Total score ranges from 0 to 28.

Reliability and validity

In the Bengali adaptation each item significantly contributes to total score as correlation coefficient of each item with total score is significant at 0.01 level. Its split half reliability is 0.97. Its sensitivity and specificity are 1.00 and 0.88 respectively.
Selection of the tool

In the present study, the GHQ-28 is used among normal subjects to screen out those with a psychiatric disorder.

This questionnaire has been used in the Indian population by Basu et al. (1997) and Mukherjee & Basu (2008).

English & Bengali Versions of General Health Questionnaire-28 has been given on Appendix-IIa & IIb respectively.

3.5.3 The Ego Function Assessment Scale-Modified (EFA-M) by Bellak (1989)

Description of the tool

The Ego Function Assessment Scale (Modified) (EFA-M) contains 12 subscales; each subscale assesses separate Ego Functions (EFs). Each subscale contains 10 questions and hence the total scale consists of 120 questions or items. Each of the question provides 3 alternative responses, i.e., rarely, sometimes and often. Validity of this scale relies on original scale (EFA) and Gruber's scale.

Bellak et al. (1973) described 12 ego functions each of which was defined in terms of major components. These 12 ego functions are as follows: 1) Reality testing (RT), 2) Judgment (JD), 3) Sense of reality (SR), 4) Drive control (DC), 5) Object relation (OR), 6) Thought process (TP), 7) Adaptive regression in the service of the ego (AR), 8) Defensive functioning (DF), 9) Stimulus barrier (SB), 10) Autonomous functioning (AF), 11) Synthetic integrative functioning (SF) and 12) Mastery competence (MC).

Bellak's EFA has been used as a diagnostic tool in psychiatric evaluation, in predicting analyzability, in the evaluation of ongoing treatment process, and as an adjunct of research with normals as well as with the mentally ill. It is therefore an important addition to the existing method of assessing mental functioning.
Administration

It is a self administering questionnaire with no time limit. Instructions are given in the beginning of the questionnaire. However, subject responds for each item after discussing with the interviewer and hence EFA-M works like a structured interview schedule rather than a questionnaire.

Scoring and Interpretation

Some of the items are scored 0, 1, 2, for rarely, sometimes, and often respectively and for some other items scoring is done in a reversed way. Scores of each function are summed up separately. Higher score indicates better adaptive functioning in those specific EFs. Total score for each function of sub-scale ranges from 0 to 20.

Reliability and validity

In the present study, the Bengali adaptation of the scale (Basu et al., 1996) was used. The Bengali adaptation of this scale demonstrated adequate reliability coefficients (split-half reliability coefficient ranges from 0.52 to 0.88 and Chronbach’s alpha ranged from 0.50 to 0.77 for different subscales). Item total correlation-coefficients between each item and its corresponding subscale score of the EFA-M were found to be significant at 0.01 level for 119 items and at 0.05 level for 1 item. The criteria-related validities were found to be satisfactory.

Selection of the tool

This scale has been used in present study to assess ego functions (EFs) objectively in attempted suicide as well as in normal groups. Various researchers attempted to assess EFs at different times. An early attempt was made by Green (1954). Scores on 10 EFs reflected a child’s or adult’s ability to perform a given function in conformity with his/her age and social setting. Karush et al. (1964) reported a method for profiling ego strength. Bellak & Rosenberg (1966) published a drug study which employed a Global Ego Strength scale with psychological and behavioural characteristics for each of 7 EFs as
proposed by Beres (1956). However, systematic ego function assessment in the area of psychopathology had its origin in the attempt to deal rationally with problems presented in the diagnosis of schizophrenia (Bellak, 1958). In the context of a study of schizophrenics, neurotics and normal, Bellak et al. (1973) described a method for studying 12 EFs. This method is designated as Ego Function Assessment (EFA) and is in essence a rating scale based on interview conducted to tap each ego functions. The EFA manual provides a guide for the detailed interview. Various questions concerned with all the components of each of the 12 EFs are formed. Then the interview material is submitted to at least 2 raters well acquainted with the concepts. Their major task is to make a rating of each function on a 7 point or 13 point scale following the rating guidelines provided by Bellak. Finally a global rating for the total scale can be arrived at.

The full EFA, however, does have some limitations. First, it is lengthy; second, it requires psychoanalytically oriented clinicians who have been trained in the procedure. On the basis of EFA, Gruber et al. (1984) structured questions and used in screening civil service applicants. Bellak (1984) developed a shorter questionnaire for the interview that requires less psychoanalytical skill on the part of the interviewer. This version was used in research to separate schizophrenics from patients with psychosis plus attention deficit disorder. To enhance its applicability in clinical as well as in general population, a 120 item questionnaire version of the same has been prepared (Bellak, 1989) and named as Ego Function Assessment Scale (Modified) or EFA-M has been selected in the present study as it is easy to administer, at the same time it assesses 12 EFs quantitatively so that these measures can be used for further analysis.

Mukherjee & Basu (2008), Basu et al. (2005), Basu et al. (2000), Basu et al., (1999), Dhar & Basu (2006) have used this questionnaire on Indian population. This scale has been used in the present study to assess ego functions objectively in the normal and attempted suicide groups.

English & Bengali Versions of Ego Function Assessment Scale (Modified) has been given on Appendix-IIIa & IIIb respectively.
3.5.4  *Cognitive Style Test (CST) by Blackburn et al. (1986)*

**Description of the tool**

The Cognitive Style Test (CST) consists of 30 short descriptions of everyday events. The events are classified into 3 themes which relate to Beck's cognitive triad of self (events of an interpersonal nature, relating particularly to self image), world (situations which are more tasks oriented) and future (dealing with anticipated responses and plans).

**Administration**

Subjects are asked to choose one of four possible cognitive responses to the situation. It can be presented in written format or using a card format, which enables randomization of the types of events. In the latter case, the experimenter reads the situation aloud and then presents the responses visually which are printed on the reverse side of the same card. The responses are chosen to present degrees of depressive distortion. The extreme responses include cognitive errors listed by Beck arbitrary inference, selective abstraction, over generalization, magnification, minimization and personalization.

**Scoring and interpretation**

The statements are enlisted in random order for degree of positive and negative attitude: 4 = very negative; 3 = negative with some qualification; 2 = positive with some qualification; 1 = very positive. Norms for the depressed group showed a mean CST of 70 (SD = 10.8) and for the non-depressed group the mean CST was 58.6 (SD = 8.4) (Blackburn *et al.*, 1986).

**Reliability and validity**

Cognitive Style Test (CST) reflects the individual's trend of cognitive responses to a situation. The validity and reliability of the scale have been found to be satisfactory (Blackburn *et al.*, 1986).
The present researcher has determined the internal consistency reliability during pilot study (N=60). Internal consistency reliabilities for world, self and future have been found to be alpha = 0.65, alpha = 0.60 and alpha = 0.54 respectively.

**Selection of the tool**

This test was satisfactorily used to assess cognitive style in several Indian studies by various researchers (Mukherjee, 2004; Guha et al., 2006). Hence, this test has been used in the present study to assess the degree of depressive distortion and style of response that affects the thinking pattern of the normal and 'attempted suicide' groups.

English & Bengali Versions of Cognitive Style Test has been given on Appendix-IVa & IVb respectively.

3.5.5  **Beck Depression Inventory (BDI) by Beck et al. (1961)**

**Description of the tool**

Beck Depression Inventory (BDI) consists of 21 items, each containing 4 or 5 statements ranked in order of severity. The subject chooses the statement closest to his present mental state. It is widely used to measure severity of depression. The split half reliability is reported to be around 0.9 and its test–retest reliability is approximately 0.75. It has consistently been found to correlate well with clinician ratings of severity of depression, as well as other measures of depression (Beck et al., 1988).

**Administration**

BDI is a self-administering inventory. There is no time limit to complete it. The instructions to complete it precede the inventory. Each of 21 items, ranging from A to U, has got several choices. For each item one has to read through all the statements and then has to choose the statement which fits the way he/she feels at that moment.
Scoring and interpretations

A score of 0 to 3 is assigned to each of the statement chosen, depending upon the severity of symptom of depression, and the total score is obtained by summing up the sub-scores. The total score ranges from 0 to 63. The higher the score, the greater is the level of depression.

Reliability and validity

In the Bengali adaptation, item total correlation coefficients of 20 items were found to be significant at 0.01 level and for 1 item it was found to be significant at 0.05 level. Split-half reliability reported to be satisfactory (0.81). Clinical validity was found to be adequate.

Selection of the tool

In the present study, Bengali Adaptation of BDI (Basu et al., 1995) was used to assess severity of depression. This inventory has been used in the present study to assess severity of depression that has been taken as one of the variables important for the development of suicidal ideation. BDI being a self rating scale is easy to administer, with satisfactory reliability and validity and assesses depression at current level and hence it is selected. This scale has been used by previous researchers on Indian population, e.g., Guha et al. (2006).

English & Bengali Versions of Beck Depression Inventory has been given on Appendix-Va & Vb respectively.
3.5.6  *Presumptive Stressful Life Events Scale (PSLES) by Singh et al. (1984)*

**Description of the tool**

PSLES consists of 51 life events. This scale is based on Social Readjustment Rating Questionnaire by Holmes & Rahe (1967) consisting of 43 items or life events. This scale is especially prepared for adult Indian population. This scale assesses number of life events experienced in past one year, frequency of occurrence of each event and quantitative estimate of presumptive stress of each of the life events. No significant difference was observed between males and females, young and older age groups, married population and single, in terms of number of events experienced in life time and in past one year.

However, it was observed that subjects with high neuroticism score experienced significantly greater presumptive stress than those with low neuroticism score. No significant differences were observed in the reported stress in different age groups, marital status and educated and illiterate groups. Norms obtained for adult Indian population suggests that an average individual experience an average of 10 common stressful events in a life time without suffering any obvious adverse physical or psychological disturbance. Similarly mean number of stressful life events experienced in a year is approximately two (Singh et al., 1984).

In the present study, Bengali version of this scale (Indian Institute of Bio-behavioural Sciences, 1990) has been used.

**Administration**

The questionnaire is self administering in nature. Verbal instructions are given before administering the questionnaire though clear instructions are printed on the questionnaire. In the present study, the subject is presented the list of 51 life events and is asked to indicate the life events which he / she experienced in last one year by putting a tick mark in the appropriate column alongside each event. There is no time limit to complete the questionnaire.
Scoring and interpretation

In the present study, total number of life events is counted and is used for further analysis.

Selection of the tool

Presumptive Stressful Life Events Scale or PSLES has been used in the present study to estimate the number of life events occurred in the subjects in past one year. This scale has satisfactory psychometric properties. It has been prepared in Indian context and a self rating scale. Hence it is selected in the present study. This questionnaire has been used by previous researchers (Mukherjee & Basu, 2008; Guha et al., 2006; Basu et al., 2004; Basu et al., 1997; Srivastava & Sinha, 1989).

English & Bengali Versions of Presumptive Stressful Life Events Scale has been given on Appendix-Vla & Vlb respectively.

3.5.7 The Adult Suicidal Ideation Questionnaire (ASIQ) by Reynolds (1991)

Description of the tool

Adult Suicidal Ideation Questionnaire (ASIQ) consists of 25 items addressing suicidal ideation and behaviour in adults. Each item measures a specific suicidal behaviour or thought. Item content ranges from general wishes that one were dead or never born to distinctive risk factors such as thoughts of how and when to kill oneself. Other items evaluate the perceived response of others to a suicide attempt and the belief that suicide is a possible solution to one’s problems.

Administration

ASIQ is a self report measure. The respondent rates each ASIQ item on a 7 point scale which assesses the frequency of occurrence within the past month. The scale ranges from 0 ("I never had this thought") to 6 ("Almost everyday"). Corresponding t-scores and
percentile scores are calculated on the basis of normative samples. The measure takes approximately 5 minutes to complete.

**Scoring and interpretation**

The raw ASIQ total score is obtained by summing the point values of each item responses. The maximum possible raw ASIQ total score is 150 with higher scores indicating more numerous and/or more frequent suicidal thoughts. A score approaching this value would suggest that the respondent endorsed almost every item (cognition) as occurring almost everyday.

**Reliability and Validity**

The ASIQ has high internal consistency with Cronbach Alpha Coefficient ranging from 0.96 to 0.98 in clinical and non-clinical samples (Reynolds, 1991; Osman *et al.*, 1999). The test also has high test-retest reliability (r = 0.95). ASIQ is significantly correlated with the measure of depression (r = 0.60), hopelessness (r = 0.53), low self-esteem (r = 0.48), and the history of prior suicidal attempts (r = 0.33) (Reynolds, 1991). Internal consistency, test-retest reliability and concurrent validity of the measure have been established. Also, the predictive validity of this measure has been documented for non-fatal suicide attempts (Osman *et al.*, 1998).

The present researcher has determined the internal consistency reliability during pilot study (N=60). Internal consistency reliability has been found to be alpha = 0.74.

**Selection of the tool**

Bengali version of this questionnaire was satisfactorily used to assess suicidal ideation by several Indian studies (Guha *et al.*, 2005; Guha *et al.*, 2006; Dhar and Basu, 2006; Thakur & Basu, 2006; Dogra *et al.*, 2007). Hence this questionnaire has been used to assess the suicidal ideation of attempted suicide patients in the present study.

**English & Bengali Versions of The Adult Suicidal Ideation Questionnaire** has been given on Appendix-VIIa & VIIb respectively.
3.6 Procedure

The study was carried out in two phases:

a) Pilot study

b) Main study.

3.6.1 The Pilot Study

The objectives of the Pilot Study are as follows:

1) To familiarize the researcher with the administration of the scales, scoring and interpretation.

2) To decode whether subjects were able to comprehend the questionnaires and respond accordingly.

3) To find out internal consistency and reliabilities of CST and ASIQ.

3.6.1.1 Procedure of the Pilot Study

The pilot study was conducted on 30 suicide attempters (15 males and 15 females) and 30 normals (15 males and 15 females). They were contacted from mainly emergency wards and psychiatric outdoors of Govt. Hospitals of Kolkata. Normals were screened by GHQ-28. The objectives of the study were discussed with them and the willing patients were taken. The questionnaires were administered one after another in a systematic order (first, the socio demographic data sheet, followed by EFA-M, PSLES, CST, BDI, and lastly ASIQ) within 2 to 3 days. Adequate rests were given to all the patients considering the severity of their condition. The patients were individually asked whether they had encountered any difficulty in understanding the instruction or the meaning of the questions.

3.6.1.2 Result of the Pilot Study

1) The researcher did not find any difficulty in administering the scales.
2) It was found that patients were able to understand the questions presented to them.

3) Internal consistency reliabilities of CST and ASIQ have been found out.

### 3.6.2 The Main Study

On the basis of pilot study and according to the availability of the attempted suicide patients the Government Hospitals were selected. The Head of the Psychiatry Department were approached for their approval. On the basis of their approval the patients were contacted.

Consent was taken from every individual included in the study. After that, questionnaire was administered individually to all the subjects in both the groups. The subjects fulfilling the criterion were taken as subjects of the present study after discussing the objectives and their consents. The clinical subjects were taken generally within 7 to 15 days of their first attempt.

All the data for attempted suicide group were collected between 2002 to 2005 from emergency ward and psychiatric outdoor unit of three Government hospitals in Kolkata and other private clinics of Howrah and outskirts. Normal matched group sample was taken from general population.

Data were collected in two sessions—in the first session EFA and PSLES were administered, and in the 2nd session CST, BDI and ASIQ were administered.

In normal group GHQ-28 was administered initially before the 1st session. Clear instructions were given before administering each questionnaire. Ambiguities if any were clarified by the researcher during the administration. All subjects were thanked for their co-operation.

### 3.7 Examination, Scoring and Statistical Treatment of Data

After finishing data collection, the responses were scrutinized and scored.
Scoring for all the scales were done by hand according to the manuals. Then the statistical treatments were done by using SPSS version 17.0. Probability values to be accepted for the tests of significance were equal to or beyond 0.05 level.

3.7.1 The Statistical Tools

Mean, Standard Deviation, ANOVA, Correlation and Hierarchical Multiple Regression Analysis were done to fulfil the objectives of the study.

1) Descriptive statistics (Mean & SD) were done to show the nature of the data. Means and Standard Deviations were calculated for the two groups (normal and attempted suicide) separately, as well as for the male and female groups.

2) Two way analysis of variances were done to find out whether all the predictor variables and criterion variable differ among two groups, between sexes and by interactions of sexes and groups or not. This was done to fulfil objectives 1-4. As the findings revealed that males and females do not significantly on criterion variable (suicidal ideation) except in 2 ego function, e.g. DF and MC, further analysis were done combining the two sexes together.

3) Pearson’s Product moment Correlation Coefficients were done to find out the relationship between criterion variable and predictor variables. This was done to fulfil the objective number 5 and 6.

4) For fulfilling research objectives 7 to 14, Hierarchical Multiple Regression Analyses (HMRA) was done. In HMRA, variables are entered into a specified order. The order specified should reflect some theoretical consideration or previous findings or specific research objectives. If there is reason for the researcher to believe that one predictor variable contributes beyond the variance of criterion variable predicted by another predictor variable or one predictor variable is likely to be more important than another, then this method is to be used. As each variable is entered into the model its contribution is assessed. If adding the variable does not significantly increase the predictive power of the model then the variable is dropped (Brace et al., 2003).
In the present study, HMRA is warranted as the researcher is interested to find out whether ego functions predict suicidal ideation in normal and 'attempted suicide' group beyond the impact of stressful life events in last one year, cognitive styles and severity of depression. This suggest that research objectives demand to assess the model first with various components of ego functions then in second step to introduce number of stressful life events in last one year, in 3rd step to introduce components of cognitive styles (world, self and future) and lastly in 4th step to introduce depression. If in each step, it is found out that introduction of new sets of variables [number of stressful life events, cognitive styles (world, self and future) and depression] significantly predict more variance of the criterion variable than predicted in the earlier step, it might be said that introduction of new set of predictor variable/s have significant effect on criterion variable beyond the effects of predictor variables in earlier step. This modelling procedure is called hierarchical as independent variables (or predictor variables) are entered on a basis of certain rules of hierarchy (Gaur & Gaur, 2006). In HMRA, the direction in which predictor variables are contributing (either positively or negatively) depends on the direction of the beta coefficient.

5) Further analysis of HMRA were done to find out contributions of ego functions and life events in predicting cognitive styles (world, self and future) and to find out contributions of ego functions, life events and cognitive styles in predicting depression in both normal and 'attempted suicide' group. This was done to fulfil the objectives No. 15 to 24. Due to theoretical consideration of the present research HMRA was used.