CHAPTER –III

METHODOLOGY

The present study is carried out to examine Tripartite Model of Anxiety and Depression among Indian adults.

The present chapter is subdivided under following headings.

- Sample
- Measuring tests
- Administration of the tests
- Scoring of the test
- Analysis of the data

SAMPLE:

The sample for the present study consists of 321 (153 men and 168 women) adults with a principal ICD-10 diagnosis of various anxiety disorders (e.g. Generalized anxiety disorders, Obsessive Compulsive disorder, Phobia, panic disorders etc.) and depressive disorders (Major depression, Moderate depression, Psychotic depression etc) along with 200 normal adults. Of the clinical participants, 155 received diagnosis of anxiety disorders, and 166 received diagnosis of depressive disorders.

The clinical sample is collected from Postgraduate Institute of Medical Sciences (PGIMS), Rohtak (n = 100), Loknayak Jai Parkash Hospital (LNJP), Kurukshetra (n = 171), and Bathla Psychiatric Hospital, Karnal (n = 50). Normal sample is collected from university students, Housewives, and individuals working at different places. The age of the selected sample range from 20 to 55 with a mean age of 36. The majority of participants are Hindu. Only those patients are included who gave written consent to participate in the study. The study is carried out on patients diagnosed with anxiety and depressive disorders who were attending outpatient services at institute/hospital. Patients attending psychiatry OPD are screened for the purpose of the study.
Inclusion and Exclusion Criteria for the patients were as below:

**Inclusion Criteria:**

1. Age 20 - 55 years
2. Written consent
3. Should meet ICD-10 Criteria for Anxiety or Depressive disorder (only for clinical patients).
4. Total duration of illness more than one year (only for clinical patients).
5. Availability of family members for help in assessment (only for clinical patients).

**Exclusion Criteria:**

1. Accompanying chronic physical illness.
2. Co-morbid substance abuse disorder.

Twenty Patients and Ten normal adults (10 each diagnosed with anxiety and depression) are included in the pilot phase of the study. This phase is included to find any problems regarding the suitability of tools on the sample. No major problem was faced though some minor modifications were done in the tests.

**MEASURING TESTS**

A data sheet was specifically prepared for the study which consisted of written consent form, socio-demographic details of the patient as well as all the four testes i.e. Mood and Anxiety Symptoms Questionnaire (MASQ), Positive and Negative Affect Schedule (PANAS-X), Beck Depression Inventory-II (BDI-II), and Hamilton Anxiety Rating Scale (HAM-A). The Socio-demographic performa extracted the details concerning age, sex, marital status, occupation, income, religion, etc.

**Mood and Anxiety Symptom Questionnaire (Watson & Clark, 1991):** The Mood and Anxiety Symptom Questionnaire (MASQ) have been put forward as a valid measure of the tripartite model of anxiety and depression symptoms by Clark and Watson (1991). The MASQ
has also been used to aid the measurement and discrimination between anxiety and depression. The MASQ is a 90-item questionnaire designed to assess the validity of the tripartite model of anxiety and depression. Subjects are required to respond on a Likert-type scale, ranging from 1 (“Not at All”) to 5 (“Extremely”) indicating how much they have experienced each symptom during the past week, including the day of testing, as to the presence and severity of a series of symptoms of anxiety and depression. Items were derived by the scale’s authors from the symptoms listed in the diagnostic criteria of several anxiety and mood disorders. As originally constructed, the MASQ consists of four subscales.

1. MASQ Anxious Arousal (AA:17 items)
2. MASQ Anhedonic Depression (AD: 22 items)
3. MASQ General Distress Anxiety (GDA: 11 items)
4. General Distress Depression (GDD: 12 items)

Two of these are thought to be comprised of symptoms which are specific to either anxiety or depression. The MASQ Anxious Arousal (MASQ-AA) and MASQ Anhedonic Depression (MASQ-AD) subscales are proposed as being specific to anxiety and depression respectively. The MASQ-AA subscale consists of items that assess physiological hyperarousal or somatic symptoms thought to be relatively unique to anxiety disorders (e.g., “was trembling or shaking”; “Hands were cold or sweaty”). The MASQ-AD subscale consists of 8 items positive-keyed that assess anhedonia and loss of interest (e.g., “Felt like it took extra effort to get started”; “Felt like there wasn’t anything interesting or fun to do”) and 14 reverse-keyed items that assess positive emotional experiences (e.g., “Felt like I was having a lot of fun”; “Looked forward to things with enjoyment”). Two non-specific (“general distress”) subscales can also be scored. The MASQ General Distress Anxiety (MASQ-GDA) and General Distress Depression (MASQ-GDD) are comprised of symptoms thought to show less specificity to either anxiety or depression, commonly occurring in either condition. The MASQ-GDA and MASQ-GDD subscales contain items that do not tend to strongly differentiate the two syndromes and assess general distress symptoms commonly associated with anxiety (e.g., “Felt nervous”; “Muscles were tense or sore”) and depression (e.g., “Felt discouraged”; “Felt sluggish or tired”), respectively. The authors reported that the MASQ subscales all show adequate reliability ($\alpha \geq$
.78) in five different samples, including student, community and clinical participants. The authors also asserted that the MASQ subscales showed good convergent and discriminant validity across their five samples (Watson, Clark, et al., 1995; Watson, Weber, et al., 1995). In subsequent studies by other authors MASQ have demonstrated acceptable psychometric characteristics (Beurs et al., 2007, Koegh & Reidy, 2000). With regard to the convergent and discriminant validity of the MASQ subscales, Hughes et al. (2006) found that they may not clearly differentiate anxiety and depression in individuals with social phobia.

In a recent study, Bedford et al. (2010) found that MASQ factor structure does not fit with the expected structure of test constructors. Hence is not suitable for assessing the tripartite model of adverse mood states in British clinical samples.

**Positive and Negative Affect Schedule - Expanded Form (PANAS-X)** The PANAS-X (Watson & Clark, 1990) is an expanded version of the PANAS (Watson, Clark & Tellegen, 1988). In recent research, two broad, general factors—typically labeled Positive Affect (PA) and Negative Affect (NA)—have emerged as the dominant dimensions of emotional experience. These factors have been identified in both intra-and interindividual analyses, and they emerge consistently across languages and cultures (Almagor & Ben-Porath, 1989; Mayer & Gaschke, 1988; Meyer & Shack, 1989; Tellegen, 1985; Watson, 1988b; Watson, Clark, & Tellegen, 1984; Watson & Tellegen, 1985; Zevon & Tellegen, 1982). To measure these factors, Watson, Clark, and Tellegen (1988) developed the Positive and Negative Affect Schedule (PANAS), which consists of two 10-item scales for PA and NA, respectively. These two general dimensions account for most of the variance in self-rated affect—together (Watson, 1988b; Watson & Tellegen, 1985). Nevertheless, specific emotional states can also be identified in the same data. In fact, on the basis of earlier work by Tellegen, Watson and Tellegen (1985) proposed a hierarchical taxonomic scheme in which the two broad, higher order dimensions are each composed of several correlated, yet ultimately distinguishable affective states (Watson & Clark, 1989, Watson & Clark, 1992a). In this model, the higher level reflects the *valence* of the mood descriptors (i.e., whether they represent negative or positive states), whereas the lower level reflects their specific *content* (i.e., the distinctive qualities of the individual affects).

To assess these specific emotional states, Watson & Clark (1990) created the PANAS-X. It is a 60-item adjective-rating scale designed to measure higher and lower order factors associated
with the two-factor structure of affect. The items of the scale consist of words and phrases that describe different feelings and emotions. Each item is rated on a 5-point scale from 1 (very slightly/not at all) to 5 (extremely) to indicate how much the item describes the way the respondent feels. In this way, in addition to the two original higher order scales, i.e., Positive Affect, and Negative Affect, the PANAS-X measures 11 specific affects: Fear, Sadness, Guilt, Hostility, Shyness, Fatigue, Surprise, Joviality, Self-Assurance, Attentiveness, and Serenity. The PANAS-X thus provides for mood measurement at two different levels.

The PANAS-X is simple and easy to administer. It was created in three relatively distinct stages. The two higher order scales were developed first. Seven specific affect scales primarily involving different negative affects were constructed next. Finally, four specific positive affect scales were created.

The goal in developing these scales was to create reliable and valid measures that were also brief and simple to administer. The primary concern was to select descriptors that were relatively pure markers of either Negative Affect or Positive Affect.

The authors calculated cronbach alpha coefficients for the general Positive Affect and Negative Affect Scales for these different time instructions in various samples. The alpha reliabilities for both scales are high generally ranging from .83 to .90 for Positive Affect and from .84 to .93 for Negative Affect (Watson & Clark, 1990). The correlation between the Positive Affect and Negative Affect scales is generally low, typically ranging from -.05 to -.35 (Watson & Clark, 1990). These discriminant values indicate independence between subscales. Watson et al. (1988) reported that the PANAS-X scales offer high convergent correlation ranging from .90 to .95 for Positive Affect, and from .92 to .95 for Negative Affect and it also showed adequate discriminant correlational pattern, ranging from -.02 to -.28 for Positive Affect, and from .00 to -.16 for Negative Affect. It demonstrates that the general Negative Affect and Positive Affect scales of the PANAS-X are excellent measures of the underlying higher order factors.

Similarly, the specific scales of the PANAS-X have also shown acceptable psychometric characteristics. These scales have demonstrated that the alpha reliabilities of the longer (i.e., 5-8 items) of the specific scales of the PANAS-X are high. Joviality is both the longest and the most reliable of the lower order scales, with a median internal consistency estimate of .93 (range from .88 to .94) across the 11 samples. Furthermore, Fear (median \(\alpha = .87\)), Sadness (median \(\alpha = .87\)), Guilt (median \(\alpha = .88\)), Hostility (median \(\alpha = .85\)), Fatigue (median \(\alpha = .88\)), Self-Assurance
(median $\alpha = .83$) and Shyness (median $\alpha = .83$) also consistently show good reliabilities. In contrast, three of the shorter (i.e., 3-4 item) scales—Attentiveness, Serenity, and Surprise—yielded slightly lower reliability estimates; across the 11 different samples using different time instructions (Watson & Clark, 1990). These scales had median internal consistency values of .78, .76, and .77, respectively.

**Beck Depression Inventory-Second Edition (BDI-II)**

The Beck Depression Inventory (BDI) is a self report inventory that is one of the most widely used instruments for measuring the severity of depression. The BDI is widely used as an assessment tool by healthcare professionals and researchers in a variety of settings. There are three versions of BDI – The original BDI, first published in 1961 and later revised in 1971 as the BDI-1A, and the BDI-II, published in 1996. The BDI-II is a 21-item self-administered inventory designed to measure the intensity of depressive symptoms in psychiatric and nonpsychiatric populations of both adults and adolescents (Beck et al., 1996). It consists of items relating to depression symptoms such as hopelessness and irritability, cognitions such as guilt or feelings of being punished, as well as physical symptoms related items as fatigue, weight loss, and lack of interest in sex. Each item contains a header that is intended to focus the examinee on the general purpose of the response options. Directly below this label are four statements listed in order of increasing severity. Respondents are instructed to choose the alternative that best describes how they felt during the “past two weeks, including today.”

When the test is scored, Items are rated on a 4-point scale (0 to 3) and total scores are obtained by tallying the ratings for all 21 items. Scores range from 0 to 63, with higher scores reflecting increased depressive severity. BDI-II requires approximately 5 to 10 minutes to complete and may be administered to individuals from 13 to 80 years of age. Although this instrument is typically self-administered, it can also be administered orally with only slight modification to the instructions. Beck et al. (1996) have reported a two-factor structure, with Cognitive and Affective symptoms loading onto one factor and Somatic symptoms loading onto a second factor (“CA-S” structure) by using a sample of college students. Somatic and Affective items loading onto one factor and Cognitive items loading onto a second factor (“SA-C” structure) was also reported in a sample of
psychiatric outpatients. Finally, Kaiser, Hunka, and Bianchini’s (1971) factor-matching procedure was used to compare both these factor patterns, and the result revealed that BDI-II represents two highly correlated underlying cognitive-affective and somatic dimensions for both psychiatric outpatients and students.

Thus, on the basis of this two factor approach, BDI-II can be separated into two subscales.

1. Cognitive-Affective (e.g. mood)
2. Somatic (e.g. loss of appetite)

The purpose of the subscales is to help determine the primary cause of a patient’s depression.

The cognitive-affective subscale contains fifteen items: sadness, pessimism, past failure, guilty feelings, punishment feelings, self-dislike, self-criticalness, suicidal thoughts or wishes, crying, agitation, loss of interest, indecisiveness, worthlessness and irritability. The somatic subscale consists of the other six items: loss of energy, change in sleep pattern, change in appetite, concentration difficulties, tiredness and/or fatigue, and loss of interest in sex. The two subscales were moderately correlated at .057, and suggesting that the physical and psychological aspects of depression are closely related rather than totally distinct. The instrument remains widely used in research.

The reliability and validity of the BDI-II is well documented (Beck et al., 1996). Large number of studies have documented that the BDI-II exhibits high internal consistency ranging between .89 to .94 (Arnau et. al., 2001; Beck, Steer, & Brown, 1996; Buckley et al., 2001; Dozois et al., 1998; Whisman, Perez, & Ramel, 2000) A one-week test-retest reliability coefficient of .93 have been reported in the test manual (Beck et al., 1996), suggesting that it was not overly sensitive to daily variations in mood. The content validity of the BDI-II appears to be excellent. It covers all the major content domains of depression (e. i. sadness, loss of pleasure etc.). The convergent and divergent validity of the BDI-II also appears to be well supported. The BDI-II also correlates significantly with other indices of depression and depression-related constructs, including the BDI-IA (r = .93; Beck et al., 1996; Dozois et al., 1998), the Hamilton Rating Scale for Depression(r = .71), and the BHS (r = .68; Beck et al., 1996).
**Hamilton Anxiety Rating Scale**

The HAM-A was one of the first rating scales developed to measure the severity of anxiety symptoms, and is still widely used today in both clinical and research settings. The Hamilton Anxiety Scale (HAM-A or HAS) was developed by Max Hamilton in 1959. It is also sometimes called the Hamilton Anxiety Rating Scale (HARS).

The HAM-A (Hamilton, 1959) is a well-validated tool for measuring the severity of a patients’ anxiety as well as the severity of anxiety symptoms present in normal population.

The scale consists of 14 items, each defined by a series of symptoms. It provides measures of overall anxiety, psychic anxiety (mental agitation and psychological distress), and somatic anxiety (physical complaints related to anxiety). Hamilton developed the HAM-A to be appropriate for adults and children; although it is most often used for younger adults, there has been support for the test's use with older adults as well. Hamilton developed the scale by utilizing the statistical technique of factor analysis. Using this method, he was able to generate a set of symptoms related to anxiety and further determine which symptoms were related to psychic anxiety and which were related to somatic anxiety.

Because the HAM-A is an interviewer-administered and rated measure, there is some subjectivity when it comes to interpretation and scoring. Interviewer bias can impact the results. For this reason, some people prefer self-report measures where scores are completely based on the interviewee's responses.

The HAM-A is administered by an interviewer who asks a semi-structured series of questions related to symptoms of anxiety. HAM-A takes 15-20 minutes to complete the interview and score the results. The interviewer then rates the individuals on a five-point scale for each of the 14 items. Seven of the items specifically address psychic anxiety and the remaining seven items address somatic anxiety.

According to Hamilton, examples of psychic symptoms elicited by the HAS interview include a general anxious mood, heightened fears, feelings of tension, and difficulty concentrating. Examples of somatic symptoms include muscular pain, feelings of weakness, cardiovascular problems, and restlessness.
One reason that the HAM-A is widely used is that reliability studies have shown that it measures anxiety symptoms in a fairly consistent way. The validity of has also been supported by research. Estimates of internal consistency of the HARS range from adequate to good in one study ($\alpha=\cdot77$ to .81) (Moras, Di Nardo, & Barlow, 1992) to excellent ($\alpha=.92$) in another (Kobak, Reynolds, & Greist, 1993). HAMA scores show strong convergent (Beck & Steer, 1991; Maier, Buller, Philipp, & Heuser, 1988) and discriminant validity (Kobak et al., 1993). Studies have shown that individuals with anxiety disorders score fairly high on the HAM-A (Kummer, et al., 2010).

**ADMINISTRATION**

Firstly, the written consent was obtained from the participants, only those who were willing to participate in the study were included. Participants were assessed within 2 weeks of referral to Psychiatric Hospitals (Loknayak Jai Parkash Hospital, Kurukshetra; PGIMS, Rohtak; Bathla Psychiatric Hospital, Karnal) with four standard tests. The respondents were instructed to indicate the extent to which they experienced each symptom during the past week from 1 = not at all to 5 = extremely for the scales MASQ and PANAS-X respectively, and for the Beck Depression Inventory respondents were asked to choose one option among the four alternatives that best describes how they felt during the past two weeks. In general, the BDI-II requires between 5 to 10 minutes completing. But patients with severe depression or obsessional disorders often take longer than average. Although this instrument is typically self-administered, in present study, it was administered orally with only slight modification to the instructions of self administration as was given in BDI-II manual (Beck et al., 1996) “This is a questionnaire. On the questionnaire are groups of statements. I will read a group of statements; then I would like you to pick out the one statement in each group that best describes the way you have been feeling during the past two weeks, including today”. At the end of testing to ensure that no items have been skipped or left blank, all of the ratings were inspected carefully. HAM-A being an interviewer/clinician rating scale, responses were rated on the basis of series of semi-structured questions asked by the interviewer during the interview. The responses were rated on five point scale in accordance with increasing severity of anxiety symptoms. All the four measures along with a Socio-demographic performa took 30-35 minutes to administer in both anxiety and depressive patients.
In the present study, Hindi translated version of the tests were used. The tests were translated in to hindi with the help of an expert in language. The translated versions were later given to two external experts for assessing the equality of both Hindi and English version. The tests were modified as per the suggestions given by them. The modified versions were used in the pilot study to find out any problem faced by the test administrator or the patient. After getting the feedback, the tests were used for data collection.

**SCORING**
The scoring of the tests was done according to the procedure given by the test developer in the manual. Each item of MASQ scale is rated on a 5-point scale ranging from 1 to 5. To score MASQ scales, sum of the subject’s responses for each positively keyed scale item was taken. For each negatively keyed item, six was added and then the subject’s response was subtracted. Among all five subscale of MASQ, General Distress Mixed Symptoms (GDM) and Anhedonic Depression (AD) consist negatively keyed items. Other subscales, General Distress Anxiety, Anxious Arousal, and General Distress Depression contain positively keyed items. Thus, the score was obtained on all five subscales separately by adding the subject’s responses for items of these subscales.

To score PANAS-X scale, sum of subject’s responses for each scale item was taken. Each item is rated on 5-point scale ranging from 1 to 5. All subscales of PANAS-X were scored separately. Both higher order scales, General Positive Emotion and General Negative Emotion consist 20 items. 10 items to each respectively were scored by adding the responses on these 10 items. Eleven Specific subscales, i.e., Fear, Hostility, Guilt, Sadness, Joviality, Self-Assurance, Attentiveness, Shyness, Fatigue, Serenity and Surprise were also scored separately by taking the sum of subject’s responses for each item on these subscales. The number of items for each these specific subscales was as 6, 6, 6, 8, 6, 4, 4, 4, 3, and 3 respectively. All the items of a subscale give a composite score for that subscale. The score for Basic Positive Affect was calculated by taking the sum of scores of three subscales namely Joviality, Self-assurance, Attentiveness divided by three. Basic negative affect was scored by summing the scores of sadness, guilt, hostility, fear, and dividing it by four.
Each item of BDI is rated on a 4-point scale ranging from 0 to 3. If an examinee has made multiple endorsements for an item, the alternative with the highest rating is used. Scores range from 0 to 63, with higher scores reflecting increased depressive severity. The maximum total score is 63. The cognitive-affective subscale is scored by summing the ratings for 15 cognition and affect related items. Somatic subscale was scored by summing the ratings for 6 somatic items. The final score is obtained by adding the ratings for all the 21 items.

In Hamilton Anxiety rating scale, each item is scored on a 5-point scale, ranging from 0 (not present) to 4 (severe). The seven psychic anxiety items elicit a psychic anxiety score. The remaining seven items yield a somatic anxiety score. The psychic anxiety and somatic anxiety score was obtained by summing the ratings from psychic anxiety items and somatic anxiety items respectively. The final score of The Hamilton anxiety rating scale was obtained by summing the scores from all 14 parameters.

**STATISTICAL ANALYSIS:**
The obtained data were subjected to various statistical analyses taking into consideration the objectives of the study. Descriptive statistics like sociodemographic, correlational analysis were worked out by using statistical package for social sciences (SPSS) 12.1 for all the measures. Sociodemographics were conducted through cross-tabulations. Correlation coefficients among variables were computed through Pearson’s Product Moment Method. Subsequent confirmatory factor analyses were run under AMOS 5.0 using the same SPSS datafile. To find out the factor structure among Indian adults exploratory factor analysis has been used.