

**DEVELOPMENT OF THEMATIC APPERCEPTION TEST  
STIMULI FOR ASSESSMENT OF ADJUSTMENT AMONG  
SENIOR SECONDARY SCHOOL STUDENTS**

Thesis Submitted for the Award of the Degree of

**DOCTOR OF PHILOSOPHY**  
**in**  
**Psychology**

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**LOVELY PROFESSIONAL UNIVERSITY, PUNJAB**  
**2024**

## DECLARATION

I, hereby declared that the presented work in the thesis entitled “**Development of Thematic Apperception Test stimuli for assessment of adjustment among Senior Secondary School Students**” in fulfilment of degree of **Doctor of Philosophy (Ph. D.)** is outcome of research work carried out by me under the supervision of **Dr. Zahoor Ahmad Lone**, working as **Assistant Professor**, in the **Department of Psychology** of Lovely Professional University, Punjab, India. In keeping with general practice of reporting scientific observations, due acknowledgements have been made whenever work described here has been based on findings of other investigator. This work has not been submitted in part or full to any other University or Institute for the award of any degree.



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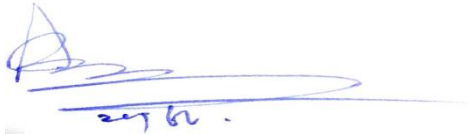
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Dated: 10<sup>th</sup> June 2024

## CERTIFICATE

This is to certify that the work reported in the Ph. D. thesis entitled “**Development of Thematic Apperception Test stimuli for assessment of adjustment among Senior Secondary School Students**” submitted in fulfillment of the requirement for the award of degree of **Doctor of Philosophy (Ph. D.)** in the **Department of Psychology**, is a research work carried out by **Umesh Lamba, 41800560**, is bonafide record of his original work carried out under my supervision and that no part of thesis has been submitted for any other degree, diploma or equivalent course.



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## ABSTRACT

The Thematic Apperception Test (TAT) or Thematic Apperceptive Techniques (TATs) involve storytelling in response to pictures showing day to day life situations. Stories are then interpreted / scored according to clinician's theoretical orientation or available scoring/ interpretive systems. The goal of this study was to develop a Thematic Apperception Test stimuli or picture set for use with Indian senior secondary school students or adolescents. Literature had been reviewed and strength of using Thematic Apperceptive Techniques (TATs), a projective method, over use of objective/ self-report techniques in assessing psychological constructs have been highlighted. Also, scientific credentials and importance of TATs have been discussed. Adjustment and its importance at the stage of adolescence has been discussed. Various areas of adjustment which are salient for Indian adolescents or senior secondary school students were identified. Various modifications in TATs stimuli and scoring systems, along with reasons for such modifications (wherever mentioned in literature), since introduction of TAT by Morgan and Murray in 1935, have been discussed. On this basis, it has been argued that there is a need to develop TAT stimuli for use with Indian adolescents or senior secondary school students on the premise that this is an important stage of life and only TAT stimuli set available for Indian adolescents is Indian Modification of TAT by Uma Chowdhury in 1960 which contains 14 pictures. Pictures in this 63 years old set depict ambition, aggression, triangular situations, and family life situations of that time. Moreover, characters in all the pictures are not adolescents and situations shown do not depict contemporary issues/ situations. Research has shown that this might lead to lack of identification on part of storyteller, resulting in low revelation on his part, finally leading to ineffectiveness in eliciting important information which will adversely affect assessment. Thus, given the uniqueness and importance of TATs, designing and validating a TATs stimuli set for Indian adolescents is opined as a great and highly significant contribution to adolescent personality assessment (including adjustment) of Indian Adolescents.

A set of 22 pictures was developed out of which 09 pictures each meant exclusively for boys and girls and 04 were meant for both the genders. Hence, there

were 13 pictures for administration and storytelling with respect to each gender. The pictures depicted various scenes related to day-to-day functioning of Indian adolescents or senior secondary school students in the areas of social relations (parents, peers/sibling, opposite sex, and teachers), education, and health and body image. The development and face validation/ correction of the picture set was done with the guidance of three experts (all three RCI registered clinical psychologists and one of them was ICMR scientist) and an artist who had drawn the pictures.

For the validation purpose, stimuli set was administered to senior secondary school students. Pilot study was carried to identify minor issues and on the basis of pilot study, administration instructions for TAT were modified suit the needs of the students. In main study, the sample composed of 151 boys and 148 girls of three schools/ institutions of Nashik, Maharashtra. Participants were to write stories in response to 13 pictures and to respond to 90 item Adjustment Inventory by MSL Saxena in the same session. Data for 24 boys and 15 girls was rejected due to various reason's viz., incompleteness, non-apperceptive responses, and language/ handwriting not understandable. The Final sample size consisted of 127 boys and 133 girls. The sample was further divided in to four groups viz., adjusted boys (N=58), maladjusted boys (N=69), adjusted girls (N=74), and maladjusted girls (N=59) on the basis of total adjustment scores on Adjustment Inventory and its norms.

Each story written by a student was assigned ratings on eight variables of SCORS-G viz., Understanding of Social Causality (SC), Complexity of representation of people (COM), Self-Esteem (SE), Identity and Coherence of Self (ICS), Emotional Investment in Values and Moral Standards (EIM), Emotional Investment in Relationships (EIR), Experience and management of Aggressive impulses (AGG), and Affective Quality of Representations (AFF). The researcher has learned SCORS-G rating system and achieved mean inter-rater reliability of .84. Overall Composite Rating (OCR) or SCORS-G Composite was calculated by averaging the score on the ibid eight dimensions. OCR or SCORS-G composite for the total protocol (i.e., all the 13 stories combined) reflect global object relations. Lower scores point towards pathological aspects object representations and scores on higher side suggest more mature and

adaptive functioning. In addition to this, Picture-wise Composite Rating (PCR), calculated by averaging all eight dimensions on story told in response to a specific picture, is also used in this study to compare ratings obtained by adjusted and maladjusted participants on individual pictures.

For the known group's validation, t-tests were carried to know whether the groups (i.e., adjusted vs maladjusted boys and girls) differed significantly on OCR. It was found that the adjusted & maladjusted boys/girls groups differed significantly on OCR with large effect size. Similarly, significance of difference of PCR was checked for each of the picture administered, i.e., total 26 t-tests (13 for boys and 13 for girls) were carried out. It was found that each picture differentiated significantly between adjusted and maladjusted boys/girls group with effect sizes ranging from small to large. It was concluded that the set as a whole as well as individual pictures differentiated significantly between adjusted and maladjusted boys in expected and meaningful direction, with adjusted students getting significantly higher OCR/ PCR than maladjusted, when stories are coded using SCORS-G rating system.

For testing reliability, 38 boys and 40 girls were requested for retesting after a period of not less than six weeks for any student. Data for 05 boys and 02 girls was rejected due to some of the reasons mentioned earlier. Final sample size included 33 boys and 38 girls. Pre-test and post-test OCR/PCR were compared using Pearson's r. It was found that the OCR was significantly positively correlated with large effect size for both boys and girls groups. As far as PCR is concerned, for each of the 26 ratings compared (13 pictures for boys + 13 pictures for girls), it was found significantly positively correlated with effect sizes which range from medium to large.

The study had following two objectives which were fulfilled:-

**Objective 1: To construct reliable and valid Thematic Apperceptive Techniques (TATs) stimuli for assessment of adjustment among senior secondary school students.**

**Objective 2: To compare the adjustment between adjusted and maladjusted students, as measured through newly constructed TATs stimuli.**

The hypothesis stated as below was rejected for both boys and girls groups:-

**Hypothesis: There exists no difference between composite score (or OCR) on SCORS-G of adjusted and maladjusted students.**

The outcome of the study is a remarkable contribution to the society. The researcher wishes to name the stimuli set as, ‘**The Thematic Apperceptive Techniques (TATs) stimuli for Indian Adolescents**’. The phrase “assessment of adjustment” used in the title of the thesis, has been removed from title of the stimuli set because of the beauty and flexibility of TATs. This stimuli set helps to elicit narratives in the form of story and scoring/interpreting these narrative responses only in terms of SCORS-G is unfair in the presence of wide variety of scoring/interpretive approaches (discussed in literature review chapter) devised for assessing numerous different psychological constructs. In other words, the stimuli developed and validated using SCORS-G, will be multipurpose and can be used to assess other personality constructs also, with respect to Indian adolescents. Although, SCORS-G is quite reputed and comprehensive coding system with good research base, and this was the reason for choosing it for current study for assessment of adjustment of participants.

Limitations have been described and future suggestions have been given.



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**CHAPTER ONE****INTRODUCTION****1.1 VARIOUS TECHNIQUES OF PERSONALITY ASSESSMENT**

A number of psychological tests are available to psychologists for assessment of personality. These tests are useful instruments for gathering information about people in various settings such as clinical, industrial (personnel selection), career counseling etc. The terms psychological testing & assessment are used interchangeably but they do not have same meaning. Psychological testing means administering & scoring a single test, whereas, psychological assessment means gathering information about the person from a variety of sources (psychological tests, interviews, behavioral observation etc.) and integrating that information to make a profile which can be used for intended purpose. The methods used for assessment/testing related to personality can be broadly classified as under:-

- (a) Behavioral Observation- In this, information about the person in question is gathered by a trained observer by taking careful notes about the target behavior in structured, semi-structured, or unstructured settings. Behavioral observation method may be time taking and expensive as it requires highly trained observer & target behavior may take time to occur in unstructured situations.
- (b) Personality inventories- Personality inventories contain multiple choice questions about the target behavior and are completed by subject him/herself or asked & filled up by trained person. There are thousands of standardized, reliable, and valid personality inventories which are meant for taking sample of thoughts, feelings, and behavior of the subject. Personality inventories are easy to administer and score, do not require much training, hence, are more convenient. However, due to their straightforwardness,

personality inventories are susceptible to deliberate/ indeliberate deception by the respondent.

(c) Interview method- Generally conducted face to face, Interview method is one of the most common methods used for personality assessment. In terms of questions asked and their sequence, it may range from totally unstructured to highly structured. Relatively unstructured interview by a highly trained interviewer may give very useful information about the person. In addition to things spoken by the subject, this method gives useful cues about body language and behavior of the subject.

(d) Case history- In case history, information about past life of the subject is taken from variety of sources such as the person him/herself, close relatives, friends, official records, medical records etc. This method gives useful information about personal, professional, and social life of the individual.

(e) Projective Techniques- Instead of asking directly, in projective techniques, the subject is asked to perform ambiguous and open-ended tasks such making stories, manipulating certain objects, responding to open ended paper-pen tests, perceiving inkblots etc. It is assumed that what one perceives & projects in unstructured and ambiguous environment, reveals innermost characteristics of individuals personality. Administration and scoring of projective techniques require highly trained person and it is generally costly & time-consuming method, however, provides information which a subject may be consciously or unconsciously motivated to hide.

## **1.2 PROJECTIVE TECHNIQUES (OR PERFORMANCE BASED MEASURES)**

According to Stricker and Lally (2015), projective techniques (or performance based measures, see, Teglasi, 2010) refers to category of psychological instruments which are designed to increase insight into individuals by allowing them to respond



freely to the stimuli which is ambiguous. The assumption behind working of these measures is that when individual faces ambiguous or unstructured stimuli, he reveals salient aspects of his personality, in an attempt to structure the material. Many experts believe that everything written or said in response to a stimulus has a meaning which is dynamic and people reveal anxieties, conflicts, beliefs, needs, and attitudes while attempting to structure the ambiguous stimulus. The projective techniques are designed with the intention, whether satisfied or not, of eliciting unconscious material (Stricker & Lally, 2015). The various categories of projective/performance-based measures are as follows:-

- (a) **Associative Techniques-** In this, respondent is required to tell what comes first to his mind upon presentation of stimuli. Timeliness of reply is highly valued in this. E.g., The Rorschach Test, Word Association Test.
  
- (b) **Construction Techniques-** In this, participant is to construct something in response to stimuli. E.g., stories in response to Thematic Apperceptive Techniques (TATs).
  
- (c) **Completion Techniques-** Here, participant is provided with incomplete material and he is allowed to complete it as he wishes, with no right or wrong responses. E.g., Sentence Completion Test.
  
- (d) **Ordering Techniques-** In this, participant is to order the stimuli material according to his choice/belief. E.g., Picture Arrangement Tests.

The information gathered from projective/performance-based measures is then interpreted/ scored according to available systems or at times according to clinician's intuition.

### **1.3 THE THEMATIC APPERCEPTIVE TECHNIQUES (TATs)**

The Thematic Apperception Test (TAT, Morgan & Murray, 1935; Murray, 1943) is a projective test which was developed by Henry A. Murray & Christiana D. Morgan at Harvard University during 1930s. One of Murray's students, Celcilia Roberts, reported that her son, during illness, spent day making up stories about images in magazines & asked if pictures could be employed to explore the personality dynamics. The idea behind TAT emerged from this incident. The rationale behind TAT is that people are inclined to interpret ambiguous situations/ tasks, as TAT requires, according to their own past memories & current motivations, which may be unconscious or conscious. The reason told was that by asking people to tell story about a picture will lower their defenses to psychologist as one is not likely to realize the sensitive personal information he is disclosing by creating a story and how psychologist is going to interpret that information. On the other hand direct techniques (questionnaires etc.) are prone to deliberate deception by the responder.

TAT stimuli consists of pictures depicting people in ambiguous situations and examiner asks the subject to construct a story around the picture. The story should have following components:-

- What is happening in the picture?
- What could have led to the situation told by the subject?
- What the characters in the story thinking and feeling?
- What was the final outcome?

If any of the components is not addressed by the subject, the examiner may ask specifically. After completion of one story, next card is handed over and so on.

Many instruments have been developed on the lines of TAT, and as a result, it has become a general term for this specific strata of psychological instruments (Kroon et al., 1998). Jenkins (2017b) has argued that the copyrighted title TAT should be used for stimuli set introduced by Murray (1943), and various stimuli sets and scoring systems developed thereafter may be collectively called as Thematic Apperceptive Techniques (TATs).

### **1.3.1 Scientific credentials of TATs**

Vane (1981) states that TAT has strong adherents as well as strong critics, however, both would agree that the instrument is a statistician's nightmare and clinician's delight. Some of the issues affecting TATs scientific credentials are briefly described as under.

#### ***Non-correlation with self-report techniques being interpreted as lack of validity***

Many erroneous and recurring assumptions about TATs persist in undergraduate textbooks, critical literature, within reviewers of those journals which are less personality focused or clinically informed, & those who compare the clinical science with objective tests and self-report scales (Jenkins, 2017b). Non/low-correlation of projective tests such as TATs with self-report & more objective measures has been interpreted by some as lack of validity of projective techniques (Stricker, 2015; Teglasi, 2010). Hiller et al., (1999) argue that both the approaches are valid as they measure different aspects of a person, objective tests measure objective variables whereas projective tests assess covert and unconscious variables. Research has established dualities in psychological constructs and it has been shown that self-report techniques measure explicit version of a psychological construct whereas performance-based measures such as TATs may be used to assess implicit version of the same construct, hence, the explicit and implicit measures are not interchangeable and may or may not correlate (for details see Teglasi, 2010; Teglasi et al., 2012).

#### ***Issues related to reliability and validity in literature***

Mihura et al. (2016) surveyed APA-accredited doctoral programs' (in clinical psychology) training in psychological assessment. They specifically covered many assessment topics and tests in courses & practice, and if the training was required or optional. It was found that amidst the performance-based personality tests, the Rorschach & Thematic Apperception Test were taught most commonly, in 63% of the programs. As far as clinical use is concerned, Archer and Newsom (2000) carried out a

survey in United States incorporating national level sample of 346 psychologists practicing psychological assessment of adolescent clients. The purpose of survey was to know about psychological test usage with adolescent clients and to compare the findings with a similar kind of survey carried out in 1991. It was found that, similar to 1991, TAT still remained among the widely used tests in adolescent assessment. TAT is used widely in the clinical settings, however, it is hardly used systematically (Ronan et al., 1995; Westen, 1991). Vane (1981) states that despite extensive use and research, adequate data is not available to provide TAT a foundation as a standardized test. Much of research is incomparable and can't be used for demonstration of reliability and validity due to variations in administration, scoring, and use of different cards. According to Stricker (2015), generally clinicians don't use formal systems of interpreting TATs. They read responses, identify common themes, treat responses as psychologically significant communications, and consider them as tools for comprehending subject's basic needs and conflicts. Use of this kind of intuitive methodology of interpretation, variability between clinicians in cards administered, probably leaves validity and reliability in the clinical settings much lower than published research.

According to Jenkins (2017b), many textbooks label TATs as projective and therefore magical, depending on the subjectivity of interpreter, and do not merit scientific respect. Critics who use this language many times blanketly state TATs having poor validity seemingly unaware that some of the uses of TATs have validity evidence, whereas others do not, and some types of validity is more crucial than others. Teglassi (2010) states that reliability and validity are not demonstrated commonly for all the TATs but are established individually for each method of administration, picture stimuli set, and interpretation/ scoring method. Hence, evidence supporting or not supporting a specific approach to storytelling assessment belongs to that specific method (Teglassi, 2010). If used in certain ways, the TAT may meet several criteria of a sound test. For example, Flanagan and Giuseppe (1999) critically reviewed TEMAS (Tell-Me-a-Story) (Costantino et al., 1988) which is an objectively scored, projective instrument for children & adolescents. In TEMAS, a number of limitations of other such instruments such as culturally appropriate pictures, norms for many ethnic minority groups,

objective scoring, colored pictures, and availability of information on psychometric properties have been addressed. To Flanagan and Guiseppe (1999), its degree of empirical validity seemed to be better to other TATs measures, and use of specific stimuli picture cards is a development over normal clinical practice with respect to TATs and it makes comparison between research studies easier.

According to Jenkins (2017b), good interscorer reliability is important as evidenced with precise scoring in TATs manualized scoring systems, however, critics typically focus on test-retest reliability and internal consistency reliability, improperly comparing evaluation of stories with evaluation of items in self-report scales. TATs story is a sample of storyteller's narrative thought in respect of several situations which are deliberately designed to differ from each other and internal consistency reliability is affected by this. Theoretical properties of construct being measured decide whether a particular kind of reliability (e.g. test-retest reliability) is applicable or not with respect to a particular TATs story score (Jenkins, 2017a). Jenkins (2017b) states that constructs which are theoretically stable (e.g. verbal fluency) tend to show higher internal consistency, whereas, constructs which are not stable (e.g. mood) vary across time (test-retest reliability) and situations (internal consistency reliability). Each stimulus picture generates a unique story which may share some aspects with other stories or may not share depending on which aspects are being examined & how the construct being measured is conceptualized (Jenkins 2017b).

### ***Misinformation and manipulations related to TATs***

There are some issues which are hindrance in the development of TATs research base. Jenkins (2017b) has covered these quite elaboratively. According to Jenkins, there are redundant critiques which failed to notice past responses to same points. Also, in published literature, these critics have failed to respond to well-informed and published rebuttals. Moreover, attacks on TATs are cited more frequently and rebuttals seldom. Due to labor-intensity of TATs research and lack of funding availability, there is a scarceness of validation data. In absence of such data, those who have financial agenda for curbing mental health provision and training, are grabbing on critiques to remove

TATs and other alike assessment tools from the training programs (Jenkins, 2017b; see Bram, 2014). This further limits the probability of production of TATs research. Moreover, textbooks such as one by Ciccarelli and White (2018) taken as an example, contains just a paragraph, that too only about Murray's TAT, wrongly labeling its interpretation as an art, and problems in its validity and reliability. No information regarding subsequently developed scoring/interpretive approaches and stimuli sets is provided. This problem exists with many general psychology textbooks, adversely affecting situation of TATs. It is important to note that scoring systems such as SCORS-G (Stein et al., 2011; Stein & Slavin-Mulford, 2018) and Defense Mechanisms Manual (Cramer, 1991, 2006) exist, and these scoring systems have been extensively used and have evidence of reliability & validity in published literature. The point is that the correct and up-to-date information about TATs should be given in textbooks so that interest of future researchers in this unique technique with a lot of potential could be generated.

### **1.3.2 Why TATs are different and important?**

*TATs reduce initial assessment time, and storyteller finds easier to reveal his deep feelings*

Jacques (1945, as cited in Gough, 1948) discussed that in any therapeutical relationship, some initial time is spent in building rapport, confidence, and feeling of acceptance and ease because supposedly initially there is some ego-defensiveness and some factor of cautiousness or pride which prevents subject from giving information comprehensively. There must be a period of face-saving and graceful retreat before hopes, intimate attitudes, etc. are revealed. TAT is able to shorten the time spent on this initial process. The storyteller finds it easier to express his deep feelings in TAT situation, with convenient possibilities of repudiation and denial. According to Jenkins (2017a), storyteller might have difficulty in explicitly articulating his issues, may be due to lacking conscious awareness, lacking vocabulary for interpersonal processes or inner states, or unwillingness to tell, and in such situations, the best use of TATs is to

use subject's stories articulated in response to imagined situations in knowing his worldview.

***TATs predict behavior in typical day to day/ real life situations***

Scores on measures (e.g., psychological tests) of psychological constructs are useful if they meaningfully generalize or relate to real-world functioning, and a test/measure predicts the real-world functioning if the functional necessities of the said test are similar to the functional necessities of the real life area in which functioning is needed to be predicted (see Teglasi, 2010; Teglasi et al., 2012). For instance, the construct of intelligence, if measured by structured IQ tests forecasts academic and other important outcomes in similar well-defined contexts, however, it doesn't comprehensively captures problem solving when context is more ambiguous or ill-defined. Well-defined contexts give clear cues to what is expected and thereby guide responses, whereas contexts which are ill-defined do not give clear cues (Annotti & Teglasi, 2016). According to Annotti and Teglasi (2016), telling stories about pictures depicting tensions need executive functions similar to those required in real life situations which gives one the freedom to judge and respond accordingly. While telling stories in response to ambiguous pictures, the storyteller is left to assign story characters with goals and strategies (without explicit cues, only if comes to mind implicitly), organizing contents of the story (showing thought qualities relevant to executive functions), producing and monitoring ideas which let the person to organize planned and goal driven responses in real life situations. In case of self-report questionnaires, items give cues to respondent to consider the motive explicitly, hence, presents conditions which are well-defined to elicit particular motive-relevant response. There is enough evidence available through which it can be concluded that TATs predict behavior in real life situations (see Teglasi, 2010).

***TATs contribute to incremental validity of assessment and less prone to faking***

According to Ganellen (2007), relying solely on explicit methods of assessment may be useful but provides incomplete picture of personality functioning, maladaptive

characteristics contributing to emotional distress, strengths of individual, and so on. Also, generally in clinical settings, the information from significant others is rarely gathered (Miller et al., 2005), therefore, Ganellen (2007) finds it reasonable to incorporate performance-based assessment methods which contribute useful and valid information to personality assessment and do not have limitations which are similar to self-report assessment methods. Tests which are performance-based, such as the TATs, align with functioning in situations which are ambiguous, thereby add unique information which is different than the information provided by measures which are unambiguous and which set clear response expectations (objective/limited response choice tests) (Annotti & Teglassi, 2016). Projective measures of dependency are less vulnerable to faking on part of subjects than objective measures (Bornstein et al., 1994). It seems likely that stories written to pictures are better than self-report techniques in assessing implicit motives as they are not filtered by various self/other concepts and analytical thought (McClelland et al., 1989). By providing different information than self-report techniques, TATs contribute to incremental validity of assessment. Moreover, due to their indirect nature, TATs are less prone to faking.

### ***Information provided by TATs is useful in guiding intervention***

According to Flanagan and Giuseppe (1999), psychologists normally look for two kinds of information from assessment. Firstly, they seek diagnostic information indicating type and level of disturbance. This type of information is best obtained from objective instruments whose norms are available for comparison. Secondly, they seek motivational-schematic information (without norms) indicating major conflicts, schema, & motivations which rules subject's life. This type of information is best obtained from projective techniques such as TATs. Although the author agrees that use of un-normed projective techniques may over-pathologize the subjects functioning, therefore, motivational-schematic information may not be very useful in deciding whether an individual is disturbed, however, it may be very handy in organization, implementation, and guidance of the intervention. Still, it is not like that the development of norms is not possible for TATs, and the same has been elaboratively and specifically discussed by Jenkins (2017b).



## **1.4 IMPORTANT TERMS AND CONCEPTS**

The preceding section (i.e., Section 1.3) discusses important aspects of TATs and it may be concluded that usefulness and importance of TATs is undeniable. The present section gives information about important terms and concepts related to the dissertation.

### **1.4.1 Thematic Apperception Test (TAT) Stimuli**

The Thematic Apperception Test (TAT) Stimuli in context of this dissertation refers to the pictures which show characters in various situations and demand the subject/ storyteller to construct a story around the picture. The story or narrative told in response to the picture can be used to glean important information about the storyteller's world view, when it is interpreted/scored using a specific interpretive/scoring approach.

### **1.4.2 Adjustment**

In today's scenario, day by day life is becoming more and more complex, conflicting, and problematic. To reduce stress of day to day and to make life relatively easy, adjustment is must. Adjustment has been defined differently by different psychologists and scholars. Some of the definitions are given below:-

Munn (1956), talks about student adjustment as "accommodating or fitting oneself to circumstances, as when we say that a student is adjusted to or get along well all with the group in which he finds himself."

Good (1959), defines adjustment as "the process of finding and adopting modes of behavior suitable to the environment or the change in the environment".

Shaffer (1961), defines adjustment as “the process by which living organism maintain a balance between his needs and the circumstances that influence the satisfaction of these needs.”

According to Smith (1961), good adjustment is “one which is both realistic and satisfying. Atleast in the long run, it reduces to the minimum the frustrations, the tensions and the anxieties which a person must endure. It provides evenness of satisfaction of the whole person, rather than the satisfaction of the one intense drive at the expense of the other”.

According to Traxler (1966), “the most desirable state of adjustment is one in which the individual is perfectly happy and satisfied with all aspects of life”.

According to Poduska (1980), adjustment is “the ability to select appropriate and effective measures to meet the demands of the environment while maintaining a healthy attitude towards circumstances”.

According to Britannica Encyclopedia (2006), “adjustment is the behavioral process by which humans maintain an equilibrium among their various needs or between their needs and the obstacles of their environment.”

From the above definitions it can be said that adjustment has following characteristics:-

- Adjustment is a lifelong & continuous process of finding and selecting appropriate behaviors.
- Adjustment involves both, changing oneself according to environment or influencing the environment to suit oneself.
- Adjustment involves balance between one’s needs and circumstances that satisfies those needs.

- The purpose of adjustment is to reduce frustrations, tensions, & anxieties.
  
- Good adjustment results in satisfaction and happiness in all areas of life, not in satisfaction of one at the cost of another. It results in satisfactory relation to one's environment.
  
- Adjustment behaviors range from total passiveness to vigorous action, as suitable to the circumstances.

### **1.4.3 Adjustment Models**

Some important models of adjustment giving various orientations to explaining concept of adjustment are briefly described as follows:-

(a) **The Moral Model to adjustment:** The moral model represents oldest point of view about adjustment. According to this model, adjustment/maladjustment is evaluated in terms of morality. People who follow norms are said to be well adjusted and on the other hand who violate norms are maladjusted. Moral standards are prescribed by religious principles which provide expectation norms for human behavior. These standards are used for evaluation of quality of one's adjustment. In this model, control lies in societal forces.

(b) **The Biological model of adjustment:** This model holds physiological, biochemical, and genetic variables responsible for one's adjustment/maladjustment to his/her environment. Maladjustment occurs as a result of disease or malfunctioning in the tissues of the brain or body. Disease or malfunctioning may be due to heredity or damage by injury, hormonal disorders, infection or psychosomatic problems. Treatment involves correction of bodily malfunctioning or correction of tissue defects through administration of drugs, surgery, or therapies.

(c) The psychoanalytic model: According to this model, a well-adjusted person is one who maintains harmony between his rational, social, and biological selves (i.e. id, ego, and superego) maintaining healthy relationships & productive work. One is said to be well adjusted if his ego is able to keep balance between primitive urges of id (working according to pleasure principle) and strict moral standards of super ego (working on moral principle). If ego is not adequately strong and is unable to exercise proper control over id or superego, maladjustment results in:-

- Neurotic tendencies develop due to lack of acceptable outlet for expression of repressed desires and wishes (super ego dominates).
  
- Impulsive or delinquent behavior develops and one seeks unconstrained pleasure with no care for moral and social norms (id domination).

(d) The Behavioristic Model: According to this model, behavior and skills are acquired/learned and people behave in certain ways because they have previously learnt to associate certain behaviors with rewards. On the other hand certain behaviors are avoided because either they are not rewarded, or are punished. All behaviors, whether normal or abnormal are acquired by following laws of learning. A well-adjusted person has acquired behaviors which assist him/her in dealing successfully with life situations and fit in with ideals determined by the society.

(e) The Humanistic- Existential Model: From this point of view, adjustment implies one's conscious efforts to cope with life stress and assumes that all humans are capable of finding self-fulfillment if they strive for goals which they have set for themselves. Humans are viewed as actors & not reactors. While reactors can't do more than adjust to situation, actors can improve themselves and grow even when they are not pushed or pulled by biological

needs or environment. There is an emphasis on positive striving and growth orientation.

(f) Cultural relativistic model: Each culture has its own standards of what it considers healthy adjustment. The notion of adjustment varies culture to culture.

(g) The Indian Concept of adjustment: This model emphasizes yogic practices and meditation to enhance concentration and self-discipline by focusing on thought. Meditation practice fortifies and rejuvenates the mind and enhances its power in many ways. Concentration, memory and capacity to understand difficult concepts enhances. It reduces the stress, calms the body, and mind also comes to a state of peace.

#### **1.4.4 Adjustment and Senior Secondary School Students (or Adolescents)**

Senior Secondary School Students may be defined as adolescent students studying in Class XI and XII of CBSE/ ICSE/ State Education Boards. Senior Secondary School Students are at the adolescence stage of life which is transitional stage between childhood and adulthood. It is a period of life when growth, learning, and development are at pinnacle. It's a stage when one steps into a competitive world and there is a lot of pressure from all sides- teachers and parents for academic performance and from peers for conforming to their group demands. No wonder that it's referred to as the 'age of anxiety'. The present society is becoming more & more complicated with economic upheavals, cut throat competition, ecological imbalance and so on, leaving the adolescent anxious, fearful, and stressed in the quest for survival. Hence, adolescence is described as a period of greater turmoil than preceding and subsequent stages of the life. It's a period of 'passion and rebellion' and of 'storm and strife'.

Bass and Ball (1960) defined adolescence as the "transition stage from childhood to maturity, during which new patterns of behaviour have to be developed to

meet the demands both the larger and more diversified, like his peers and of the adult society which he begins to enter.”

Piaget (1963) defined adolescence as “the age of great ideals and the beginning of theories as well as time of simple adaptation to reality.”

According to Mythilli (2004), adolescence is “a period of great stress, strain and storm. It has been called as “terrible teens”. During this stage the individual has to face many behavioral problems with one’s own self, family and society, besides being exposed to new social interaction skills other than those required in earlier childhood interaction. This stage is very sensitive and due to several problems one gets influenced by even slight variations in adjustment.”

According to Santrock (2006), adolescence is “a period of transition, high emotionality, emotional adjustment, a bridge between childhood and adulthood and a period of revolutionary changes where individual’s personality takes a new shape with different dimensions.”

An overview of the above definitions indicates that the adolescence, in addition to being an important stage of growth and development, is also most exciting period in one’s life. The task at this stage is not to simply interact with one’s environment or others but also to develop own abilities and potentialities. It’s the time when one tries to explore his role in the society. At this stage new responsibilities, new experiences, and new relationships with adults and peers influences one’s personality and ability to emerge out of conflicting situations and issues of one’s life. Therefore, adolescence is a period of changes, challenges, introspection, turmoil, heightened sensitivity which requires adjustment one one’s part.

#### **1.4.5. Rationale behind the use of projective test for assessing adjustment**

Various strengths of projective tests such as TATs, as compared to self-report methods, have been elaboratively covered in Section-1.3.2. To summarize, TATs reduce

initial assessment time, and storyteller finds it easier to reveal his deep feelings through this indirect method (Jenkins, 2017a). TATs also predict individual's behavior in typical day-to-day/ real-life settings (Annotti & Teglasi, 2016; Teglasi, 2010; Teglasi et al., 2012). Including projective tests such as TATs in multi-method assessment contribute to the incremental validity of assessment (Annotti & Teglasi, 2016; Ganellen, 2007) and TATs are less prone to faking (e.g., Bornstein et al., 1994). Finally, the idiosyncratic information provided by TATs has been found to be useful in guiding intervention (Flanagan & Giuseppe, 1999).

## **1.5 STATEMENT OF THE PROBLEM**

DEVELOPMENT OF THEMATIC APPERCEPTION TEST STIMULI FOR ASSESSMENT OF ADJUSTMENT AMONG SENIOR SECONDARY SCHOOL STUDENTS.

## **1.6 NEED AND SIGNIFICANCE OF THE STUDY**

It is well understood that the adolescence is the most disturbing period of one's life. Due to sudden vast changes, both mental and physical, at this stage one's adjustment with his environment becomes difficult than other stages. Many times, it results in psychological imbalances. India's population has large number of adolescents and it is important that if problems of adolescents are understood and managed, many individuals and societal problems would be resolved. Adolescents are future of our great nation and its our responsibility to help them in dealing with adolescence related problems and develop into a healthy and fully functioning adult. Working in this area will help adolescents to be relaxed and more confident, and they can use their potential for their as well as societal growth. If something can be done to help adolescents in this important phase of life, it will be a great contribution to society, humanity, and nation building.

It needs no literature review to tell that hundreds of questionnaires/ inventories are available for use with not only adolescents, but for all populations, for assessment

of single/ multiple personality constructs. However, there are handful of tests/techniques available under the category of projective techniques. Given the importance of projective techniques (specially TATs) discussed in previous sections, it's important that such instruments are available for identification of issues of Indian Adolescents. Talking about TAT stimuli, only such available set for use with Indian population is the Indian Modification of TAT by Chowdhury (1960). The pictures in the ibid set depict ambition, aggression, triangular situations, and family life situations of that time. Moreover, characters in all the pictures are not adolescents and situations shown do not depict contemporary issues/ situations. Research has shown that this might lead to lack of identification on part of storyteller, resulting in low revelation on his part, finally leading to ineffectiveness in eliciting important information.

Thus, designing and validating a TATs stimuli set for Indian adolescents will be a great and highly significant contribution to adolescent personality assessment. As TATs are flexible in terms of their scoring/interpretation (see Lamba & Lone, 2022), multiple personality constructs can be measured from a story told to TATs stimuli. In this study, stories will be rated using the SCORS-G by Stein and Slavin-Mulford (2018). The SCORS-G composite or Overall Composite Rating (OCR) obtained through application of SCORS-G will be a single score indicative of overall adjustment of the participant. Lower score indicates pathological aspects of object representations, whereas, the scores on higher side are suggestive of more mature & adaptive functioning (see Stein & Slavin-Mulford, 2018).

One more important aspect of the outcome of this study is that the stimuli will be used to elicit TATs narratives related to depicted areas of functioning. It is reiterated that TATs narratives are flexible in terms of their scoring/interpretation. In other words, story is a rich source of information about the storyteller and can be used in multiple ways through application of a variety of scoring/interpretive approaches. Thus, the stimuli developed and validated using SCORS-G, will be multipurpose and can be used to assess other personality constructs also, with respect to Indian adolescents.



**CHAPTER TWO****REVIEW OF LITERATURE**

Customary techniques of psychoanalysis took longer time period of wait and watch, hence, Morgan and Murray (1935) introduced TAT (Thematic Apperception Test) describing it as an expeditious method for the same. The method involved telling stories in response to pictures. Stories should cover aspects such as what led to the situation shown in particular picture? what is happening? what will be the outcome? and what the characters are thinking and feeling? The storyteller is unaware that he is revealing his innermost thoughts in form of story because he is led to believe that TAT is a test of imagination. He believes that he is simply explaining about objective occurrences in form of story and this makes him off his guard or defenses. His attention is not on self, and therefore many times he, in form of story, indirectly tells things which he is unwilling to mention directly. Storyteller reveals latent tendencies of which he is totally unconscious. Since introduction, many stimuli sets and scoring/interpretive approaches have been developed for use of TATs (Thematic Apperceptive Techniques) with various types of populations. These are briefly described in following section.

**2.1 PROGRESS IN THEMATIC APPERCEPTIVE TECHNIQUES (TATs)**

This section discusses various developments which have taken place in TATs in terms of stimuli as well as scoring/ interpretive approaches.

**2.1.1 TATs stimuli developments*****The classic Murray's Thematic Apperception Test (TAT)***

The TAT (Morgan & Murray, 1935; Murray, 1943) is the classic set of 31 stimuli pictures designed for various age groups and genders, some meant for all and some only for people of specific age/gender. The flexibility of TATs in terms of stimuli selection, administration, and scoring/interpretation led to development of many other picture sets

on different premises. But TAT stimuli set (Murray, 1943) remains the most widely used (Stricker & Somary, 2001; recent examples of Murray's TAT stimuli use are Auletta et al., 2018; Cramer, 2018; Jenkins et al., 2019 etc.). Some of the attempts to revise stimuli along with rationale and other details is briefly described in subsequent paras.

### ***Stimuli modifications for application to specific cultural/racial groups***

Thompson (1949) found lack of response material while applying Murray's TAT to minority groups, e.g. Negro group. He felt that it could be due to inability of ibid groups to identify with white figures in stimuli. Subsequently, he investigated the problem by constructing a series of pictures in which he substituted Negro figures for whites. It was concluded that the identification and productivity (judged by length of stories produced) is likely to increase when pictorial material depicts the culture of the individual to whom the test is administered. Lubin and Wilson (1956) found that identification seems to increase when storyteller and picture hero figures are physically similar, and when the storyteller has psychological concern with picture content. On the contrary, measuring several variables with White and Negro subjects, Cook (1953) found no significant differences in responses which could be solely attributed to difference between Murray and Thompson stimuli, concluding modifications of TAT as unimportant. Similarly, Lefkowitz and Fraser (1980) found that scores on need for power and need for achievement did not differ significantly for Black and White subjects as a function of race of TAT stimuli figures.

According to Chowdhury (1960) the TAT had been one of the most important devices for study of personality, however, it was based on the culture of America & Europe. To use this important tool locally (in Indian conditions), it was felt necessary to modify it. She developed 14 cards for the purpose and collected 3300 stories from 260 Indian subjects. She found responses to satisfactorily reveal inner aspects of Indian subjects' personality. The Rorschach responses of same subjects were found consistent with the responses to Chowdhury's stimuli.

Lagmay (1965) developed Philippine Thematic Apperception Test (PTAT) for young adults and adults (age 12 and up) and further Lagmay (1975b) developed Philippine Children's Apperception Test (PCAT) for ages below 12 years, on the premises of questions raised on validity of Murray's picture set for people belonging to other cultures and need of standard set of cards suitable for thematic apperception testing by clinicians and researchers in respect of people belonging to Philippine culture. It is found that PCAT yielded 92.3% apperceptive responses on a sample of elementary school children, whereas, enumerative and descriptive responses were merely 1.3% and 4.1% respectively (Lagmay, 1975a). In use with gifted children of Philippines (culturally relevant sample), PTAT showed remarkable ability to elicit rich responses and imagery (Garces-Bascal, 2010).

Bailey and Green III (1977) felt that T-TAT (Thompson's TAT) and other variants meant for blacks had not changed stimuli characters significantly and did not portray black facial characteristics and hair texture accurately. In this study, Experimental TAT (E-TAT) [also called Black TAT (B-TAT)] wherein characters had been drawn to reflect contemporary hair styles of blacks and other features, selective cards of M-TAT (Murray's TAT), and T-TAT were used. It was found that E-TAT had advantages in terms of subject ratings when compared to T-TAT. The results showed that respondent's perception of the test is affected by stimuli material. The author summarized that the use of culturally similar pictures is more likely to elicit positive subject ratings of the test material as well as enhance verbal productivity. Later on, Lefkowitz and Fraser (1980) found that scores on need for achievement and need for power of Black and White male college students did not differ significantly as function of race of stimuli figures, race of administrator, or their own race. The author found little evidence to support claims of Murray's TAT being barely applicable for blacks. Further, according to Gray-Little (2009), B-TAT seems to enhance responsiveness and may be considered as an alternative to M-TAT, however, further psychometric development is required.

Costantino et al. (1981) found that ethnic minority children responded better to TEMAS (Tell-Me-A-Story), a new stimuli set showing urban backgrounds, ethnic

minority figures, and cultural themes, stimuli than TAT stimuli. Blacks and Hispanics were more verbally fluent on TEMAS than Murray's TAT due to familiar cultural symbols and environment (Costantino & Malgady, 1983). TEMAS set has two parallel sets of cards, one for minority & other for non-minority children. The TEMAS has evidence of validity & reliability, and it's a culturally diverse alternative to TAT & other such instruments (see Flanagan & Giuseppe, 1999).

### ***Stimuli modifications for application to specific age groups***

Bellak and Bellak (1950) felt that despite usefulness of Murray's TAT, situations related to typical childhood problems could be depicted in a new set of pictures which would be applicable to young children. Children's Apperception Test (CAT) was developed which consisted ten pictures meant for administration to children from three to ten years old. Instead of humans, animals in various situations were shown because of rationale that children more readily identify with animals. Pictures were administered to 100 children of applicable age and typical response themes were described. Byrd and Witherspoon (1954), used CAT with preschool children and classified 80% of responses as apperceptive, and adequately revealing dynamics of aggression, orality, and parental relationship. A number of studies with children found animal pictures eliciting better responses than those with humans (e.g. Bills, 1950) and also a number of studies (e.g. Biersdorf & Marcuse, 1953) found no significant difference in productivity between human and animal pictures used with children (for a review on Animal vs Human stimuli pictures see Bellak & Hurvich, 1966). Later, Bellak and Hurvich (1966) made a human modification of the CAT named CAT-H due to findings of some studies that some children (e.g. those having difficulty in responding) do better with animal stimuli and some children (e.g. those with high IQ) do better with human figures. They still considered CAT as first instrument for use with children, however, it was suggested that with children from seven to ten years old and especially with ones whose mental age was much more than chronological age, CAT-H may be more suitable often.

Roberts Apperception Test for Children (RATC) by McArthur and Roberts (1982) consists of 27 pictures depicting common conflicts, situations, & stresses in lives

of children. These pictures represent salient interpersonal themes such as sibling rivalry, peer conflicts, and parental affection. RATC also consists of normative data and a scoring system which is elaborate. RATC differentiated between Egyptian and Canadian children in theoretically predicted ways (Barbopoulos et al., 2002). Friedrich and Share (1998) used RATC for differentiating sexually abused and non-abused children, and found significantly more frequent sexual content in response to Card 15 by children with actual/suspected abuse histories than non-abused children. Roberts Apperception Test for Children :2 (Roberts, 2005) is designed for children and adolescents (age range 6 to 18 years) and is used for assessment of child's social understanding reflecting both clinical and developmental concerns.

Children's Apperceptive Story-Telling Test (CAST) (Schneider, 1989; Schneider & Perney, 1990) was constructed for children ageing 6 to 13 years, and it consists of 17 colored pictures reflecting Alderian life task areas of family, school, and peer relations. These pictures were designed to elicit contemporary and relevant school, family, & peer issues.

Adolescent Apperception Cards (AAC) (Silverton, 1993) consists of black-and-white drawings portraying adolescents in different contemporary settings. According to author, themes typically elicited include parenting styles, domestic violence, physical and sexual abuse, loneliness, sexual maturity, participation in unapproved activities etc.

The Fairy Tale Test (Coulacoglou, 2014) consists of 21 picture cards depicting popular fairy tale characters and it is intended for comprehensive assessment of child's personality. The test has been standardized on a non-clinical sample of 873 children in Greece and psychometric properties have been analyzed and described.

### ***Stimuli modifications for some other reasons***

Bacharch and Thompson (1949, as cited in Greenbaum et al., 1953), modified Murray's TAT for use with children with physical handicap. Greenbaum et al. (1953) expected that identification and thereby productivity should be greater if

representations of persons with handicap are substituted for physically normal. However, it was concluded that introduction of handicap in pictures did not significantly increase the productivity of handicapped subjects than from the Murray TAT cards.

Briggs (1954) developed a set of 10 pictures for assessing personality traits of Naval personnel at deeper levels in the least time. Seven of them were modified to Navy from original Murray's pictures, and three fresh ones were drawn. Some pictures depicted situations peculiar to Navy life and involving Naval personnel. The information obtained from N-TAT protocols was further used for interview. Eron et al. (1955) used a psychometric method of analysis (for perceptual distortions, level of interpretations, themes, outcomes, and emotional tone) on protocols obtained from submarines, however, report contained details of inter-rater agreement but not findings/correlation with external variables.

Ritzler et al. (1980) argued that Murray's TAT pictures portrayed characters in gloomy, low-keyed situations lacking physical activity and vibrance. These pictures, according to author, were more likely to elicit an overly gloomy, truncated sample of one's personality which may prompt clinicians to overemphasize negative qualities of subject's lifestyle. On this premise a new stimuli set was developed which consisted pictures with active scenes and were more positively toned. On comparison with Murray's TAT it was found that the new test provided balance of positive and negative toned stories, and a variety of energy levels and action for the main character. Further, Sharkey and Ritzler (1985) found that this newly developed stimuli set, referred as Picture Projective Test (PPT) [also called Southern Mississippi-TAT (Ritzler, 2008)], was equal to TAT in discriminating between normal and depressed individuals, however, it was superior to TAT in differentiating normal and depressed from psychotics. Further, Ritzler (2015) compared subjects with pathological and nonpathological Rorschach records using PPT by comparing their PPT score on boundary disturbance coded using a new coding system devised for the purpose. It was found that pathological group had significantly more boundary disturbance on PPT.

The Family Apperception Test (FAT) (Sotile et al., 1988) consists of pencil drawings, showing children with other family members in various types of scenes. Its aim is to elicit responses related to family structure and processes, and affects related with family relations. According to manual, themes typically elicited by each card includes marital & family conflicts, boundary problems, limit setting, open vs close family systems, transgenerational conflicts and alliances, self-concept, sexual abuse etc. It can not only be used with children above 6 years but also for other family members of child. Review by Bagarozzi and Bagarozzi (1991) summarizes studies about reliability, validity, and shortcomings of FAT. Further, Roskam et al. (2010) proposed revision of FAT. It was thought that 21 pictures took longer time and children's willingness to collaborate is affected by this, therefore many pictures were considered inappropriate and thereby excluded. Coding categories were reviewed, some constructs were excluded and new ones were included. Study was carried out on typical children & children with clinical problems. Inter & intra-coder reliability was found to be satisfactory and FAT successfully discriminated between typical children & children with clinical problems, except two categories.

### **2.1.2 TATs Scoring/ Interpretive Systems Development**

Similar to development of numerous stimuli sets, many scoring systems and interpretive approaches have been developed for scoring/interpretation of narrative material such as TATs stories. Some of them are used for a few (even a single) constructs e.g. locus of control (Dies, 1968), and some are quite elaborative and used for assessment of number of constructs e.g. SCORS-G (Stein & Slavin-Mulford, 2018). A brief description and other details related to some of the scoring/ interpretation approaches to TATs is covered in this section.

#### ***Interpretive approaches to TATs***

Apart from intuitive approaches used by clinicians, there are some published interpretive approaches to TATs. Based on psychoanalytic theory, Murray (1938) method of assessing TAT stories proposed no overall numerical or quantitative scores.

The method was developed using the stories of 50 Harvard undergraduates. For each story, seven categories were evaluated which are:-

- (a) Characteristics of main character or main hero (hero in story was considered the person with whom the subject would be identified most closely).
- (b) Drives or needs obvious in stories.
- (c) The force or press of the environment.
- (d) The emotions and internal states of the hero.
- (e) Interests of hero.
- (f) The conclusion of story
- (g) Overall appraisal of theme of the story which is derived from combining need, press, & outcome.

According to Vane (1981), clinicians using this system and Murray's TAT cards found that this method of administration and scoring consumed much time, and as a result shorter varieties started appearing. Number of cards used were reduced and at times parts of the assessment system were embedded on other systems which resulted in totally different systems. Although Murray believed that the TAT will become a reliable test, but due to variations in card use, administration, and scoring/interpretation, substantial amount of research cannot be compared and therefore cannot be used as a basis of establishing reliability and validity (see Vane, 1981).

The analysis sheet (record and analysis blank) designed by Bellak and Bellak (1950) for systematic study & interpretation of CAT stories facilitates recording of story characteristics such as main theme, main hero/heroine and attributes, attitude to parental figures, family roles and hero's identification figure, external objects omitted, objects



introduced, nature of anxieties, significant conflicts, penalty for crime, and outcome. Malik et al. (2018) used Bellak's method for identification of thought patterns and emotions of Juvenile Delinquents in Delhi and found that they had relationship issues and perceived their environment as unfriendly and hostile which led to build up of passive aggression in them leading to indulgence in criminal activities.

The schematic approach to story evaluation by Petrosky (2008) can be used to assess storyteller's schemas, which are defined as the types of expectations one holds for himself, relationships, and for world in general. The primary attention of this paper is on teaching students the skills of making interpretive inferences from stories through utilization of construct of verbal abstract reasoning, with the help of many examples.

### ***Systems for scoring of TATs stories***

The volume by Aron (1949) provides guidelines for scoring TAT stories on variables termed as needs, press, benefits, deprivations, and outcome of the story. According to rated intensity, variables are assigned numerical value (1 to 5) and steps in scoring a story are described in detail.

TAT Scoring Blank (Fry, 1953) provides categories against which check marks are to be made separately for each story if certain predefined characteristics or qualities are present in that specific story and finally when summarizing all scores of 20 stories, number of check marks against each characteristic or quality represents how many times the storyteller has projected that specific characteristic or quality. A number of characteristics or qualities (along with sub-categories) have been described, viz. predominant character; subordinate character; effect of environmental forces on predominant character; attitudes, feelings, or moods manifested; life phase; quality of story etc. Just description has been given with no application, reliability, validity etc.

Dana (1955) felt that subjective analysis of projective techniques gives valuable personality information, however, as far as diagnosis is concerned, this approach is not a science and also not communicable. This study attempted to design TAT scoring

categories using personality orientation as a frame of reference. The scoring system was devised with scoring categories as:-

- (a) Perceptual Keeness (PK)- score depending on inclusion of number of objects shown in stimuli picture in the story.
- (b) Perceptual Range (PR)- score depending on appearance of usual or “popular” in the story with reference to norms.
- (c) Perceptual Organisation (PO)- score depending on whether directions followed correctly or components, as told through directions, included in story.
- (d) Perceptual Energy (PE)- Scored for introduction of objects which are not present in picture.
- (e) Perceptual Personalization (PP)- Scored for use of words, phrases, and expressions which have no obvious reference to story and are incongruous.

Diagnostic differentiation between normals, psychotics, and neurotics was attempted through this system. As tapped by this system, mental illness is deviation from normal. Further, in an application of scoring system, PO, PR, & PP successfully differentiated between normal and clinical subjects (Dana, 1956). In another study, the interscorer reliability was found to be 89% and 91% for males and females, and approx. 80% of diagnostic group could be distinguished by means of PO, PR, & PP (Dana, 1957). Further, Dana (1959) provided details of scoring, reliability, validity, and T-scores pertaining to this system.

Dies (1968) developed a TAT scoring system for measuring perceived locus of control with clinician rating options ranging from 5 to 0 (5 representing considerable external control, 4 moderate external control, 3 neutral, 2 moderate degree of internal control, 1 considerable internal control, and 0 irrelevant). 80% of subjects were categorized accurately with this scoring system when results compared with results of

a questionnaire administered to same subjects. Using this scoring system Johnson and Kilmann (1975) predicted subject's locus of control orientation at an accuracy of 70%.

Manual for RATC contains elaborative scoring system and normative data (McArthur & Roberts, 1982; see Bell & Nagle, 1999 also). Scoring system yields T-scores for 8 adaptive scales (Support-Other, Reliance on Others, Support-Child, Problem Identification, Limit Setting, Resolution 1, Resolution 2, & Resolution 3) and five Clinical Scales (Aggression, Anxiety, Rejection, Depression, and Unresolved). In addition to above two types of scales, there are three critical indicators: Maladaptive Outcome, Refusal, and Atypical Response. Bell and Nagle (1999) suggested that standardization of RATC was not adequate as non-clinical sample used in their study differed significantly from original non-clinical standardization sample.

The Need-Threat Analysis (Chandler et al., 1989) is a scoring system introduced for CAT which explores children's perception of stress through identification of underlying needs & threats which are likely to make a situation or event significant, and thereby potentially stressful to a child. Thematic data is analyzed in terms of five need-threat dichotomies (Affiliation-Rejection, Independence-Domination, Security-Insecurity, Aggression-Punishment, and Achievement-Failure) which are scoring categories of this scoring system.

The Children's Apperceptive Story-Telling Test (Schneider, 1989; Schneider & Perney, 1990) uses stories told by children (age 6-13) for evaluation of emotional functioning. CAST scoring system is likert-type, rated by clinician, and it yields scores on 4 main factors (Adaptive, Non-adaptive, Uninvested, and Immature) and 15 problem-solving, adaptive, and non-adaptive scales. It is standardized on a national sample (N=876).

Defense Mechanisms Manual (Cramer, 1991, 2006) consists of scoring categories for coding defenses from narrative material. These categories represent different components of defenses of Denial, Identification, and Projection. The study using cross-sectional sample by Hibbard and Porcerelli (1998) obtained theoretically

consistent findings which validated the Cramer's view about the developmental hierarchy of defenses, i.e., less mature defenses develop earlier in life, followed by more mature. Difference between defense use of men and women was also theoretically consistent. Interrater reliability was found to be adequate. This coding approach has been validated in numerous studies on children & adolescents where scores on DMM differentiated between various age groups as well as various personality variables were correlated in theoretically predicted ways (e.g., Cramer, 1997; Cramer, 2018; Cramer & Block, 1998; Hibbard et al., 1994; Sandstrom & Cramer, 2003).

Winter (1994) manual for scoring affiliation, power, & achievement motive imagery in verbal material such as speeches, interviews, literary works, or any natural verbal material. The manual also includes practice material which includes TAT stories, political speech, interview, diplomatic documents etc. The manual was used for coding stories by Bársony et al. (2013) for assessment of implicit motive profile of treatment-seeking opiate users; Mitchell et al. (2018) for assessment of unconscious attitudes about people living in poverty in Canada; and in many other studies (e.g. Schultheiss et al., 2008).

Volume by Smith et al. (1992) is devoted to systems of content analysis of individuals, historical periods, or groups from their relevant verbal materials. It covers systems meant for assessment of various constructs, viz. achievement motive, affiliation motive, power motive, explanatory style, conceptual complexity, psychological stances towards the environment, need for uncertainty, responsibility, and self-definition and social definition.

TEMAS Manual provides guidelines for scoring and interpretation of TEMAS stories on 9 personality, 7 affective, and 18 cognitive functions. Norms criteria for placing the examinee in a clinical range is also available (see Costantino & Malgady, 1996; Costantino, Malgady, & Rogler, 1988; Flanagan & Giuseppe, 1999). The minority version of TEMAS discriminated between Hispanic & Black public school children and outpatients (Costantino, Malgady, Rogler, & Tsui, 1988), whereas, non-minority version discriminated between white public school students and outpatients

(Costantino et al., 1992), also, TEMAS discriminated successfully between ADHD and normal children (Costantino et al., 1991). Scoring system of TEMAS has good reliability (e.g. Flanagan & Giuseppe, 1999; Malgady et al., 1984).

Volume by Teglasi (2010) elaboratively covers essentials of storytelling administration, interpretation, assessment of cognition, object relations, emotion, motivation and self-regulation, and strengths & weaknesses of techniques of storytelling assessment.

SCORS-G (Stein, Hilsenroth, & Slavin-Mulford, 2011; Stein & Slavin-Mulford, 2018) is a clinician-rated system which can be used for coding of variety of narrative material such as TAT stories, interview data, etc. Classic version referred to as SCORS (see Westen, 1991) had four dimensions, but, latest version SCORS-G is rated by clinician on eight dimensions of object relations, in which scores on lower sides suggest pathological object representations and scores on higher side suggest more mature and adaptive functioning. The dimensions of SCORS-G includes:-

- (a) AFF (Affective Quality of Representations)
- (b) COM (Complexity of Representations of People)
- (c) EIR (Emotional Investment in Relationships)
- (d) SC (Understanding of Social Causality)
- (e) EIM (Emotional Investment in Values and Moral Standards)
- (f) SE (Self-Esteem)
- (h) AGG (Experience and Management of Aggressive Impulses)
- (j) ICS (Identity and Coherence of Self).

The volume by Stein and Slavin-Mulford (2018) highlights the way SCORS-G can be applied to clinical encounters, training, as well as research. It also provides information regarding reliability and validity of SCORS-G system, how this measure has been used & subsequent findings, administration and scoring, implications and clinical utility of this system across disciplines and settings.

## **2.2 ADJUSTMENT ISSUES AMONG INDIAN SENIOR SECONDARY SCHOOL STUDENTS (OR ADOLESCENTS)**

Adolescence is described as a stage between adulthood and childhood, roughly a period between the age of 12 and 19. Thus senior secondary school students may also be alternatively called adolescents. As discussed earlier, adolescence is a period of storm and stress with decreased level of self-control and increased sensitivity. Problems of adolescents include physical changes, emotional changes, educational challenges, relational issues, and many more. Some of the studies related to problems of Indian adolescents are described below.

Aboobaker et al. (2019) validated the role of abnormal psychosocial environments and negative parenting practices as risk factors for behavioral and emotional problems among the adolescents. Singh et al. (2017) conducted a study to explore factors affecting mental health of North Indian adolescents on 1209 adolescents and found that ability to express opinion and thoughts in front of parents, relaxed environment at home, and satisfaction with dressing style affected adolescents mental health. According to Kaur and Triza (2015), as far as adolescent adjustment is concerned, parental involvement/ warmth and behavioral control are associated with greater autonomy, social competence, positive attitudes towards school and work, self-esteem and academic achievement, as well as lesser school misconduct, depression, delinquency and drug use. Evidence suggests that family problems during childhood can adversely influence later life experiences and adjustment. According to Khanna and Singh (2015) in a study on Indian adolescents many expressed satisfaction with current state of home environment, but an equal number of respondents sought better interaction with family.

Singh et al. (2017) concluded that those attending school had better mental health functioning than drop outs. Malhi et al. (2014) concluded that victimization and bullying was common among Indian school going adolescents. Lowest self-concept scores were reported among victimized adolescents. Bully victims had higher risk for hyperactivity & conduct problems and were most likely to have academics related difficulties. Bullies had comparatively high self-esteem and better school grades but had higher risk for conduct problems and hyperactivity as compared to controls. Khanna and Singh (2015) conducted a study in which qualitative data related to adolescent issues was collected from 900 students and 17 teachers from urban Indian private and government schools. Adolescents reported enjoyment done with friends as favorite aspect of their school life. Influence of peers came out as a main factor in enhancing or disturbing participants well-being. Adolescents sought more time for leisure, better discipline and infrastructural facilities, and less academic pressure in school. Rentala et al. (2019) conducted a study on academic stress among Indian adolescent girls and concluded that most graduate and undergraduate adolescent girls included in the study were experiencing educational stress. Ramadugu et al. (2011) conducted a study on adolescents of an Indian city for investigation on matters related to sexuality and found that adolescent students are involved in sexual activity but they lack sufficient knowledge in this regard. Teachers and parents are required to understand aspects of sexuality to be equipped to help adolescents in healthy sexual development.

According to Singh et al. (2016), out of 550 adolescent subjects of his study, 29.82% of participants perceived themselves as thin and 32.54% perceived themselves as fat. Among 31.09% of subjects there was tendency to develop an eating disorder and this was being influenced by known and famous personalities. Body image concerns were found prevalent. Singh (2012) in a study concluded that health behavior of Indian adolescents is undergoing an unhealthy transition, and diet habits, daily routine, and sleep are some of the serious aspects of their life style that are required to be addressed. According to Malhotra (2014), trends suggest that prevalence of obesity among prosperous Indian adolescents is catching up fast. Life style changes in terms of more consumption of unhealthy food, low physical activity, and more sedentariness are

driven by strong environmental factors. Babu and Aroor (2017) conducted a study on prevalence and risk for eating disorder among Indian adolescents. Total 1855 adolescents of age group 14 to 19 years from schools and colleges of Mangalore city were included. It was concluded that subthreshold eating conditions and eating disorders were prevalent and were strongly associated with behavioral, psychological, and socio-environmental domains. According to Rathi et al. (2017) in a study conducted on food consumption patterns of adolescents aged 14-16 years in Kolkata, Indian adolescents reported poor food consumption patterns with 30% subjects reported no consumption of vegetables and 70% reported eating of three or more servings of energy-dense snacks on previous day. 45% did not consume any serving of fruits and 47% drank three or more servings of energy-dense beverages. Rathi et al. (2018) also found that Indian adolescent also missed breakfast most frequently and fast food was most frequently consumed as snacks. Boys exhibited more unhealthy dietary behaviors than girls.

Bhat et al. (2016) conducted a study on 1763 undergraduate students of Mangalore city and found that problematic internet usage was prevalent among this population and they may be at risk of addiction. 63.8% of subjects were using internet on mobile phone. Arthanari et al. (2017) conducted a study on prevalence and determinants of internet addiction among Indian adolescents and found that 35.6% of students had internet addiction out of which males were significantly more addicted than females. According to author, internet addiction is common among school going adolescents and requires attention.

On the basis of review of literature, following areas of day-to-day functioning which influence adolescent's adjustment have been identified: -

- (a) Social Relations- with parents, peers/sibling, opposite sex, and teachers
- (b) Education
- (c) Health, eating habits, and body image



It is imperative to note that problematic mobile/internet usage also has influence on all areas of adjustment due to wastage of time by it leading to potential lack of time for other things.

### **2.3 ASSESSMENT OF ADJUSTMENT AMONG INDIAN ADOLESCENTS (OR SENIOR SECONDARY SCHOOL STUDENTS)**

Duality of psychological constructs and their measures has been proved in literature (for detailed discussion on this see Teglas, 2010). It needs no review of literature to say that multiple overt/ explicit measures of adjustment (i.e., questionnaires and inventories) are available for use with not only adolescents, but all categories of people. However, there is no TATs stimuli set available, which can be used to elicit narratives in the form of story from Indian adolescents. The only Indian modification of TAT (Chowdhury, 1960) has stimuli which depicts ambition, aggression, triangular situations, and family life situations of that time. So, it can be concluded that there is no TATs stimuli set which shows contemporary issues of Indian adolescents and which can be used with Indian adolescents. If such a stimuli set was available, it could have led to better identification and could have been used for eliciting narratives from Indian adolescents and appropriate scoring system could have been applied to assessing their adjustment using this important projective technique.

### **2.4 RESEARCH GAP**

Topics such as importance of TATs in terms of crossing defences of client due to their indirect nature, predicting how one behaves in real life situations, contributing to incremental validity of assessment, less proneness to faking, and providing information which is salient in guiding intervention, have been discussed in Chapter-1. Scientific misconceptions related to TATs have also been discussed. It has also been shown that there have been many successful modifications in stimuli as well as scoring/interpretive approaches to meet local needs.

Given the availability of only objective tests (or direct techniques) and non-availability of TATs stimuli set for Indian Adolescents, and significance of storytelling technique, there was a need to develop a stimuli set which can be used elicit narratives related to day-to-day functioning and adjustment of adolescents.

Given the nature of adolescence period and its impact on whole life, development of TATs stimuli set for assessment of adjustment of Indian adolescents will not only help in identification of problems of target population, it will also contribute to betterment of society and nation. Due to the flexibility of TATs in terms of applicability of a wide variety of scoring/interpretive approaches on TATs narratives (see section 2.2.2), this stimuli set can be used to assess not merely adjustment, but, a wide variety of psychological constructs (see Lamba & Lone, 2022) related to adolescents personality.

## **2.5 OBJECTIVES**

The following objectives have been framed for the study:-

- (a) To construct reliable and valid Thematic Apperceptive Techniques (TATs) stimuli for assessment of adjustment among senior secondary school students.
- (b) To compare the adjustment between adjusted and maladjusted students, as measured through newly constructed TATs stimuli.

## **2.6 HYPOTHESIS**

The hypothesis for the study is as follows:-

There exists no difference between composite score on SCORS-G of adjusted and maladjusted students.

## **2.7 INDEPENDENT VARIABLE AND ITS OPERATIONAL DEFINITION**

The independent variable for study was Adjustment status with two levels, viz., Adjusted and Maladjusted. In the present study, total score obtained on Adjustment Inventory by M.S.L. Saxena (1959) will be used to measure adjustment (through objective measure) and assign participants to adjusted and maladjusted groups for further comparison on dependent variable.

## **2.8 DEPENDENT VARIABLE AND ITS OPERATIONAL DEFINITION**

The dependent variable for the study was adjustment score obtained by scoring stories written in response to TATs stimuli. The SCORS-G composite or Overall Composite Rating (OCR) will be derived by applying The Social Cognition and Object Relations Scale-Global rating method (SCORS-G) by Stein and Slavin-Mulford (2018).

**CHAPTER THREE****METHODOLOGY****3.1 OVERVIEW**

This chapter highlights the research design, methods, procedures, and materials used.

**3.2 RESEARCH DESIGN**

The purpose of research was to design the Thematic Apperceptive Techniques (TATs) pictures and validate ibid pictures with senior secondary school students. To see whether Overall Composite Rating (OCR) or SCORS-G Composite and Picture-wise Composite Rating (PCR) on stories written in response to pictures are significantly different for adjusted and mal-adjusted students, participants were requested to write stories in a booklet, in response to newly developed pictures and to respond to an already established adjustment inventory. Scores on adjustment inventory were used to divide the sample in two groups, i.e., adjusted and mal-adjusted, and then Composite Ratings (OCR and PCR) of these groups were compared for significance of difference, to decide whether the whole set of pictures as well as individual pictures differentiate between adjusted and mal-adjusted students.

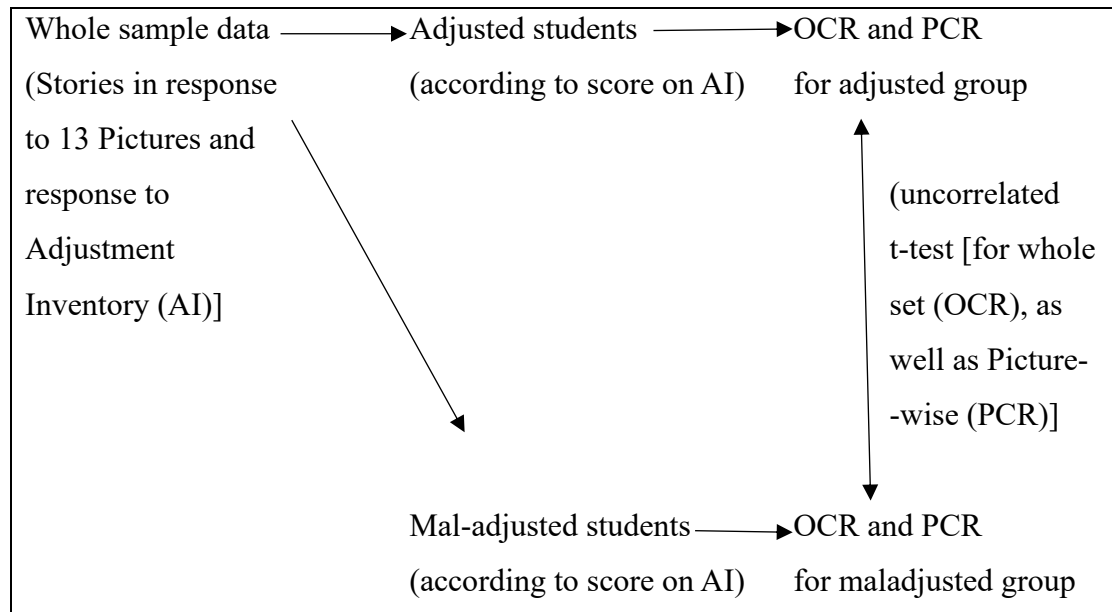
**3.3 DEVELOPMENT OF PICTURES**

This section briefly covers the procedure followed for development of stimuli pictures set.

**3.3.1 Criteria for development of pictures**

Based on review of literature related to TATs stimuli construction and input from experts, following general points were kept in mind while developing the stimuli set:-

Figure 3.1 Research design



- (a) The pictures should suggest the situations suitable for senior secondary school students and/or adolescents, so that their problem/ adjustment related themes are elicited during storytelling.
- (b) The pictures should contain scenes familiar to the students and/or adolescents, irrespective of their background.
- (c) The pictures should have atleast one person typical of gender, and cultural group of the senior secondary school students and/or adolescents.
- (d) The picture should tend to evoke responses bearing upon a specific theme, situation shown may be incomplete to such a degree that the participant while telling a story may be obliged to use his imagination, thus to reveal something of inner-self.
- (e) The set must include pictures which are designed to evoke associations to all basic relationships of main areas of functioning of individual, e.g., family, peer, teacher, sibling etc.

Based on the above criteria, different TATs pictures depicting different scenes related to following areas of functioning were constructed:-

- (a) Social relations- with parents, peers/sibling, opposite sex, and teachers
- (b) Education
- (c) Health and body image

### **3.3.2 Initial picture set development**

On the basis of above-mentioned criteria and areas of functioning identified in literature review, several possible situations for pictures to be constructed were imagined and discussed with experts (clinical psychologists). Upon reaching a final decision on picture construction, task of drawing pictures was explained to an artist. After many sessions involving drawings and discussions, final set of 22 pictures was ready. Out of 22 pictures, 09 each meant for boys and girls separately, and 04 pictures meant for both the genders. Therefore, set contained total 22 pictures, 13 pictures for each gender. Description of each picture, area of functioning (intended target), and whether to be used with boy/girl is given in Table 3.1.

### **3.3.3 Face validity and amendments in pictures**

Face validity is concerned with whether a measure looks appropriate and relevant only on the surface, for what it is assessing. In other words, it's about whether a test appears (on face) to measure what it intends to measure. With relevance to this picture set, face validity refers to knowing whether, on surface, individual pictures are likely to elicit narratives relevant to day-to-day adjustment of Indian senior secondary school students and/or adolescents.

**Table 3.1** Describes each picture with its targeted area of functioning, and its use (whether boy/girl/both)

Sl. No.	Description of picture	Targeted area of functioning	For use with
1	Boy with book and mobile, woman looking from open door	Education, home & parental relation	Boy
2	Girl with book and mobile, woman looking from open door		Girl
3	Classroom scene with a boy standing	Education, peer relation, teacher relation	Boy
4	Classroom scene with a girl standing		Girl
5	Two girls and a boy in group, one girl walking away	Peer relation, opposite sex relation, education	Girl
6	Two girls and a boy in group, one boy walking away		Boy
7	Group of boys drinking and playing cards	Peer relations	Boy
8	A girl looking upwards with drinks in front, some figures dancing in background		Girl
9	A boy approaching a girl	Peer relations, opposite sex relation	Both
10	A group of boys and girls interacting in outdoor setting with trees and tents in background	Peer relations, opposite sex relation	Both
11	A boy in negative mood and father figure in background as if talking to him	Parental relation	Boy
12	A boy and woman (saying something) on dining table	Parental relation	Boy
13	Family scene with boy in center	Parental & peer/sibling relation	Boy
14	A girl and a man (saying something)	Parental relation	Girl
15	A girl in negative mood and mother figure in background	Parental relation	Girl
16	A family scene with girl in center	Parental & peer/sibling relation	Girl
17	A human figure (shadowy) looking away at an uncertain place	Self-image/ issues	Both
18	A human figure (shadowy) looking up with folded hands	God/ supernatural	Both
19	A girl looking in mirror, in negative mood	Body image, health	Girl
20	A boy looking in mirror, in negative mood	Body image, health	Boy
21	Playground scene with girl looking towards ground and various figures running/walking	Health, body image, social relations	Girl
22	Playground scene with boy looking towards ground and various figures running/walking		Boy

Face validity was established by showing pictures to three clinical psychologists having experience with TATs and asking for their suggestions. Scanned copy of Suggestions given by three experts (including one ICMR scientist and all three RCI registered clinical psychologists) are placed at **Appendix-I**.

The stimuli set was verbally appreciated by all the three experts and minor amendments were suggested. Modifications were carried out with the help of the artist and final set was ready for administration.

### 3.3.4 The finalised stimuli set and sequence of administration

After carrying out modifications suggested by experts, the stimuli set was ready. Although, there is no fixed criteria for deciding sequence of administration, still, following sequence of administration (see Table 3.2 for girls and 3.3 for boys) was decided after discussion with experts and in such a way that potentially threatening/ -ve cards are not given initially, and similar type of cards are not consecutive. Pictures were given number (according to sequence of administration) and an alphabetical name, i.e., either B or G indicating gender for which card is intended to be used (B stands for Boy and G for Girl). For example, picture named 5-G means it is administered at fifth number in sequence and it is used for girls only. Tables 3.2 and 3.3 provide picture names, descriptions and sequence of administration. Moreover, scanned copy of 06 out of the 22 pictures is placed at **Appendix-II**. All pictures are not appended due to IPR (Intellectual Property Right) concerns.

**Table 3.2** *Description of pictures for girls (in sequence of administration)*

Name of the picture	Description
1-G	Playground scene with girl looking towards ground and various figures running/walking
2-G	Classroom scene with a girl standing
3-G	A girl in negative mood and mother figure in background
4-G	Two girls and a boy in group, one girl walking away



5-G	A girl looking upwards with drinks in front, some figures dancing in background
6-BG	A group of boys and girls interacting in outdoor setting with trees and tents in background
7-G	A girl looking in mirror, in negative mood
8-G	A family scene with girl in center
9-BG	A human figure (shadowy) looking away at an uncertain place
10-G	Girl with book and mobile, woman looking from open door
11-BG	A boy approaching a girl
12-G	A girl and a man (saying something)
13-BG	A human figure (shadowy) looking up with folded hands

**Table 3.3** Description of pictures for boys (in sequence of administration)

Name of the picture	Description
1-B	Playground scene with boy looking towards ground and various figures running/walking
2-B	Classroom scene with a boy standing
3-B	A boy and woman (saying something) on dining table
4-B	Two girls and a boy in group, one boy walking away
5-B	Group of boys drinking and playing cards
6-BG	A group of boys and girls interacting in outdoor setting with trees and tents in background
7-B	A boy looking in mirror, in negative mood
8-B	Family scene with boy in center
9-BG	A human figure (shadowy) looking away at an uncertain place
10-B	Boy with book and mobile, woman looking from open door
11-BG	A boy approaching a girl
12-B	A boy in negative mood and father figure in background as if talking to him
13-BG	A human figure (shadowy) looking up with folded hands

### 3.4. SAMPLE AND DATA COLLECTION

Research design required four groups, viz., adjusted/maladjusted boys and girls. As far as sample size is required, it was pre-decided that each of the four groups should contain minimum 45 subjects. It is pertinent to mention here that, considering time and labour intensity (in terms of story writing, scoring, data feeding, and analysis) of storytelling technique, larger sample sizes are not feasible. The convenience (non-probability) sampling method was employed for data collection. Details are as follows.

#### 3.4.1 Inclusion criteria

Inclusion criteria for adjusted and maladjusted boys/girls is presented in table 3.4 below.

**Table 3.4** *Inclusion criteria for adjusted and maladjusted boys/ girls*

Adjusted boys/girls	Maladjusted boys/girls
Studying in regular Class XI or XII of a school affiliated to CBSE, ICSE or State Education Board	
Having no physical illness or disability	
Able to understand, speak, and write Hindi and/ or English	
Placed under “Satisfactory Adjustment” or above category as per Adjustment Inventory by MSL Saxena	Placed under “Unsatisfactory Adjustment” or below category as per Adjustment Inventory by MSL Saxena

#### 3.4.2 Approaching schools for data collection, problems faced, and solution

Various schools/ Junior Colleges/ Coaching Institutes in and around Nashik city were approached for data collection. They were explained about the research purpose, efforts, and time required. Response was mostly negative and “will see later” type. The effort on part of students, in terms of writing 13 stories and answering 90 questions (MSL Saxena’s Adjustment Inventory) requiring more than two hours was considered burdensome by school authorities. The researcher found their concerns genuine. It was

decided that something useful must be given back to students in return of their efforts so that they may be convinced for data collection and get some benefit from the study. After a lot of brainstorming, it was decided to conduct a session on memory, its components, functioning, and effective study techniques for better learning. The session was to be offered to only those students who volunteer for participation in the study. The contents of session were prepared. The benefits of session for students were briefly explained to school authorities to convince them for allowing interaction with students and allowing data collection from their institution. The results were positive and permission (only for 5 minutes interaction with students, for convincing them) was allowed by three institutions. The decision to respond was left to students and their parents.

### **3.4.3 Research ethics**

Since the sample is comprised of minor adolescents, parental permission was obtained before testing. After obtaining consent from schools, students were briefed about the study, their efforts required, and benefits for those (in terms of post data collection session) who participate. They were asked to brief their parents about the study and post data collection session on memory, and ask for parental permission. Finally, those who got parental permission and decided to participate voluntarily were to sign consent form (**Appendix-III**) on the day of testing. They were briefed about each aspect of points explained in consent form, beforehand, on the day of initial interaction.

## **3.5 STUDY OBJECTIVES, HYPOTHESIS, AND VARIABLES**

### **3.5.1 Objectives**

The study was conducted with following broad objectives in mind:-

- (a) To construct reliable and valid Thematic Apperceptive Techniques (TATs) stimuli for assessment of adjustment among senior secondary school students.
  
- (b) To compare the adjustment between adjusted and maladjusted students, as measured through newly constructed TATs stimuli.

### **3.5.2 Hypothesis**

The hypothesis for the study is as follows:-

There exists no difference between composite score on SCORS-G (OCR) of adjusted and maladjusted students.

### **3.5.3 Independent Variable**

The independent variable for study was Adjustment status with two levels, viz., Adjusted and Maladjusted.

### **3.5.4 Dependent Variable**

The dependent variable for the study was adjustment score (i.e., OCR or SCORS-G Composite) obtained by scoring stories written in response to TATs stimuli.

## **3.6 TOOLS/ TESTS USED**

### **3.6.1 Adjustment Inventory (AI) by MSL Saxena**

The AI by Saxena (1959) provides five measures of adjustment, viz., Home, Health, Social, Emotional, and School or College Adjustment. It is intended for use with school/college/ university students with age range from age of eleven to adulthood and discriminates between well and poorly-adjusted students. It contains 90 items

question paper (**Appendix-IV**) seeking one of the three responses, i.e., yes, no, or doubtful, which are recorded on a single page response sheet (**Appendix-III**).

Alongwith detailed manual, five stencil keys are provided for scoring each of the five measures of adjustment. Total raw score is obtained by adding these scores. Raw scores are then converted to T-scores using tables given in manual. Total T-score on inventory is obtained by adding the T-scores on different elements. Age-wise norms have been provided for interpretation of total T-score. Table 3.5 below provide details of total T-scores with corresponding interpretation.

**Table 3.5** *Total t-score obtained on Adjustment Inventory (AI) and their corresponding interpretation*

<b>Grade</b>	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>	<b>E</b>
<b>Adjustment category</b>	<b>Excellent</b>	<b>Good</b>	<b>Satisfactory</b>	<b>Unsatisfactory</b>	<b>Very Unsatisfactory</b>
<b>Age 14+ to 16+ boys</b>	313 or more	283-312	231-282	178-230	Upto 177
<b>Age 17+ to 19+ boys</b>	313 or more	278-312	225-277	179-224	Upto 178
<b>Age 14+ to 16+ girls</b>	313 or more	277-312	230-276	182-229	Upto 181
<b>Age 17+ to 19+ girls</b>	311 or more	272-310	224-271	180-223	Upto 179

The inventory has been standardized on 2529 students of class IX to post-graduate level of both the genders. It has reliability coefficient of .87 (test retest, N=122), .89 (split half, N=256), and .90 (rational equivalence, N=2529). It has been correlated with Adjustment Inventory (Asthana, 1968) with validity coefficient of .80 (N=150). It has also been validated against the criterion of teacher's estimates of adjustment of their students with  $r=.63$  (boys N=55) and  $r=.71$  (girls N=.71).

### **3.6.2 Use of the SCORS-G for rating stories written by participants in response to newly developed TAT stimuli for Indian Adolescents**

The SCORS-G (Stein & Slavin-Mulford, 2018) was used for rating stories written by participants in response to newly developed TATs stimuli for Indian Adolescents. It is a reputed clinician/researcher rated system usable to code different types of narrative material including TATs stories, interview narratives, psychotherapy narratives, and early memory narratives. Narratives are coded on eight dimensions using a seven-point Likert scale. Lower scores indicate pathological aspects object representations, whereas, the scores in higher range suggest more mature and adaptive functioning. The book written by (Stein & Slavin-Mulford, 2018) is a comprehensive reference on the following:-

- (a) Administration and intricacies of scoring using SCORS-G system.
- (b) Reliability and validity of the system.
- (c) Comprehensive review of the empirical literature.
- (d) Implications and clinical utility of the scoring system across settings and disciplines for researchers and clinicians.

Stein and Slavin-Mulford (2018) have emphasized that irrespective of a clinician's familiarity with the SCORS-G rating system, many of the dimensions of this measure are common things that clinicians (of various theoretical orientations) focus on (either implicitly or explicitly) to varying degrees while trying to understand how patients view themselves in relation to others and the world, and how this relates to current vulnerabilities. The eight dimensions (all rated on a 7 point Likert scale, i.e., 1 to 7) of SCORS-G rating method are briefly described as follows:-

- (a) **COM (Complexity of Representations of People)**- This variable examines a storyteller's ability to distinguish between own and other's thoughts,

feelings, and experiences. It also examines one's ability to view situation from other person's point of view and to see people's personalities and behaviour in nuanced and complex ways. Lower ratings on this dimension reflect a person having hard time distinguishing between self and others, indicating pathological personality functioning. Higher ratings reflect more complex and mature understanding of self and others.

(b) **AFF (Affective Quality of Representations)**- This variable captures emotional lens with which the storyteller views his world. Lower scores on this dimension means that one views his environment in a harmful, malevolent, and/or abusive ways. Higher scores are indicative of a person who views the world in general in a kind, and cooperative ways.

(c) **EIR (Emotional Investment in Relationships)**- This dimension captures one's ability for emotional sharing and intimacy. It examines the quality of relationships as well as extent of interaction between people. Lower scores suggest developmentally, pathologically immature emotional investment, whereas higher scores suggest adaptive & mature emotional investment.

(d) **EIM (Emotional Investment in Values and Moral Standards)**- This variable assesses how a person thinks about and behaves in respect of morality & compassion for others. At lower levels there is little to no empathy or remorse over conduct-disordered behaviour. Higher scores are indicative of a person who thinks & acts in a way which is consistent with his internal moral compass. At higher levels, one tends to view morals more abstractly and globally with a more flexibility and there tends to be more complexity around one's values and ideals.

(e) **SC (Understanding of Social Causality)**- This dimension examines the storyteller's ability to understand other's intentions and behaviour. There are high correlations between COM and SC. But there are important similarities and

differences. Both capture complexity to which characters are described and impacted by each other. But, SC captures more of the organization, logic, and reasoning of the narrative, whereas, COM focuses only on internal states (thoughts and feelings) and level of character differentiation/fusion.

(f) **AGG (Experience and Management of Aggressive Impulses)-** It assesses one's ability to experience & express anger. In other words, this construct examines storyteller's capacity to manage aggression. Lower scores indicate more struggles with managing aggression, whereas, higher scores reflect more mature ways of recognizing and expressing anger.

(g) **SE (Self-Esteem)-** This dimension examines one's self-concept. Lower end of scores suggests poor self-worth, whereas, at higher end, scores are indicative of a confident & competent individual.

(h) **ICS (Identity and Coherence of Self)-** This construct examines the level to which a person's sense of self is integrated adaptively. Lower scores are indicative of identity diffusion, i.e., storyteller's sense of self is tenuous, fragmented, and/or fragile. It may also be that the individual has no investment in his own life (i.e., given up on self). Higher scores are suggestive of an individual who has an adaptively integrated sense of self. He is aware of himself, his wants, and where he is headed in life. He is invested in accomplishing his life goals.

After rating all eight dimensions, an overall mean (overall score indicating object-relational functioning and/or personality functioning/pathology) known as the **Overall Composite Rating (OCR)** or SCORS-G composite or can be obtained. OCR or SCORS-G composite for the total protocol (i.e., all the stories combined) reflect global object relations. Lower scores indicate pathological aspects object representations, whereas scores on the higher side suggest more mature and adaptive functioning. SCORS-G dimensional mean ratings (mean of each of eight above dimensions) as well as **Overall Composite Ratings (OCR)** or SCORS-G composite



have been used in research & clinical settings, and as mentioned above, relevant research has been cited comprehensively in Stein and Slavin-Mulford (2018). In addition to this, **Picture-wise Composite Rating (PCR)**, calculated by averaging all eight dimensions on story told in response to a particular picture, is also used in this study to compare ratings obtained by adjusted and maladjusted participants on individual pictures.

A limitation of SCORS-G system, like many other projective techniques, is that it doesn't have formal normative data.

### **3.7 OPERATIONAL DEFINITIONS**

Operational definition refers to description of variable or something in terms of the operations (procedures/ processes) by which it could be observed or measured. Operational definitions of various variables used in this study are given in subsequent paras.

#### **3.7.1 Adjustment as an independent variable (for assigning students to one of the two groups)**

Adjustment has been measured using two tools. Firstly, adjustment as an independent variable for assigning students to two groups, viz., adjusted and maladjusted. For this purpose, measure of adjustment is total score obtained on Adjustment Inventory (AI) by MSL Saxena. Students were divided into two groups with the help of AI. Responses of students were carefully scored according to manual provided with AI by MSL Saxena.

#### **3.7.2 Adjustment as a dependent variable (Overall Composite Rating or SCORS-G composite score indicating adjustment as measured through stories written in response to newly constructed TAT stimuli)**

The second measure of adjustment is Overall Composite Rating (OCR) or SCORS-G composite score (dependent variable) obtained by each student on all thirteen stories combinedly. Although, not used in testing hypothesis (Para 3.5.2), Picture-wise Composite Rating (PCR) was calculated for each student on each picture and used for picture-wise comparison of adjusted and maladjusted groups.

Scoring of stories/ narratives is always a challenging and daunting task. It was learned by researcher by spending considerable time (many months) through most comprehensive book on SCORS-G written by Stein and Slavin-Mulford (2018). After being confident by learning and repeating scoring rules, and scoring practice narratives given in Chapters-3 to 10 of the book, practice material (34 narratives) given in Chapter-12 of the book was blind scored by researcher. Then scores obtained were compared with answers given in book using Pearson's  $r$ . The researcher established excellent inter-scorer reliability [ $r(33)=.84, p\leq .001$ , two-tailed] on OCR (i.e., mean reliability) with answers given in the book. Reliability coefficients obtained on eight individual dimensions of SCORS-G range from .75 to .93. The reliability coefficients obtained by the researcher on individual SCORS-G dimensions and OCR are given in Table 3.6.

### **3.8 PILOT STUDY**

The purpose of pilot study was to obtain stories on all 13 pictures, and to analyse responses to explore problems and resolve them. It was just to know whether various aspects of administration instructions and story-writing are working, on the basis of qualitative analysis of stories and aspects of interaction during the session. A school allowed to conduct the study with 15 boys and 08 girls available. Students were convinced to cooperate with a session for them on memory immediately after the data collection and they were briefed about points contained in consent form. They were asked to obtain permission from parents.

**Table 3.6. Inter-rater reliability coefficients obtained by the researcher on SCORS-G individual dimensions and mean (or OCR) reliability**

Sl. No.	Variable	Inter-rater reliability coefficient (r)
1.	SC- Understanding of Social Causality	0.80
2.	COM- Complexity of representation of people	0.76
3.	SE- Self-Esteem	0.75
4.	ICS- Identity and Coherence of Self	0.84
5.	EIM- Emotional Investment in Values and Moral Standards	0.88
6.	EIR- Emotional Investment in Relationships	0.87
7.	AGG- Experience and management of Aggressive impulses	0.91
8.	AFF- Affective Quality of Representations	0.93
	<b>Mean (OCR)</b>	<b>0.84</b>

On day of data collection, they were seated in well lit and ventilated room and asked if they were comfortable and ready. They were handed over blank form for writing personal information and stories. Copy of form is placed at **Appendix III**. Form consisted of some basic personal information required to be filled up by respondent, informed consent form, and 13 lined pages (blank) for writing stories. Students were given a few minutes time to fill up personal information, and doubts were invited and cleared.

After filling up basic personal information and signing informed consent form (contents explained again), students were given standard TAT instructions given by Murray (1943): “Now I’m going to show you some cards with pictures on them. The

pictures are of people in various situations and what I want you to do is make up a story around the picture. Like all stories, yours should have a beginning, middle, and ending. Tell me what led up to the picture, how it turns out, and what the people feel and think. Here's the first one. Make up a story around this picture." The instructions were repeated in Hindi also. Pictures were projected on screen through laptop and connected projector. Students were explained that each picture will be shown for 30 seconds and they will get only 05 minutes to think and write a story, after that next picture will be flashed.

After ending the session, students were thanked and memory session was conducted for them which was well understood and enjoyed by them (assessed on the basis of post-session behaviour of students).

### **3.8.1 Lessons learnt from pilot study**

More than 250 stories were read by researcher and qualitatively analysed. Following were main observations about the responses:-

- (a) Many responses were not apperceptive, i.e., instead of writing story, students had described the picture or had written essays, preaching etc. The requirement was to write story around a specific event.
- (b) Many stories were incomplete, indicating possible lack of time given, and some students had not written a single word at all for some pictures.
- (c) Thoughts and feelings of characters were not described in many stories.
- (d) Students had many doubts during story writing session, like, what to write? How to start? Some were not getting any idea and were blank, and had to be prompted to start writing. Some were looking at others face/copy.

After analysis of responses, it was felt that may be Murray's instructions are too brief and may be more applicable to oral storytelling in clinical settings. It was felt that task needs to be explained in a little bit more detail to participants. In clinical settings, data is collected orally and face-to-face where client can seek clarifications and clinician can also prompt client for missing element of a story, e.g., thoughts, feelings, ending etc. Here, data is being collected in group and students are required to write stories instead of telling orally, which is more demanding than orally telling stories. Moreover, in real time with so many subjects, neither researcher can identify missing parts of stories nor subjects are likely to ask for doubts.

The only probable solution to the problem was imagined to elaborate the instructions. Hence, instructions were elaborated (described in subsequent sections) with an assumption that it will surely improve qualitative aspects of stories, atleast for some students, and there will be lesser doubts. Time for story writing was also increased from by one minute.

### 3.9 MAIN STUDY

Many Schools and Institutions were approached for data collection for main study. Following three of them seemed responsive and interested, mainly due to post data collection session on memory, offered for benefit of students. Few days before data collection at each institution, students were briefed about the task and benefits of post data collection session for them, and those interested were requested to inform parents and ask for their verbal consent. School and gender wise distribution of sample is shown in Table 3.7 below.

**Table 3.7** *School and gender-wise distribution of sample for main study*

<b>Name of the school/ institute</b>	<b>No. of boys</b>	<b>No. of girls</b>
K.V. Air Force Station Ojhar	58	42
Day Care School, Nashik	77	83
Samej Tutorials, Nashik	16	23
<b>Total</b>	<b>151</b>	<b>148</b>

### **3.9.1 Data collection for main study**

Data was collected in eight different sessions (on eight different days) one each for boys and girls of KV AF Stn Ojhar and Simej Tutorials, and boys and girls of Day Care School were divided in two sessions each (total four sessions) due to their numbers. Like pilot study, in each case, students were briefed about the study, their rights, benefits of post data collection session organized for them, contents of consent form, parental permission etc. atleast one day before.

On day of data collection, they were seated in their classrooms/hall provided by school and handed over blank form for writing personal information and stories. Form consisted of some basic personal information required to be filled up by respondent, informed consent form (contents explained again on day of data collection), 13 lined pages (blank) for writing stories, and one page for recording responses to 90 items of Adjustment Inventory by MSL Saxena. Students were given a few minutes time to fill up personal information and were asked not to fill up personal mobile number, religion, and social class on objection by their school/ institute authorities. Also, they were told not to fill up any column in personal information which they do not wish to fill up.

### **3.9.2 Changed administration instructions for writing stories**

On the basis of experience gained at the time of pilot study, administration instructions were elaborated. Following administration instructions for writing stories were given mainly in Hindi and only a few English words of common use were used. It was asked and ensured that everybody understands Hindi. This was done to facilitate better understanding and establish rapport with students.

**Instructions-** Yeh apki imagination ki ek simple exercise hai. Main apko screen par ek ek karke 13 pictures dikhaunga aur main chahta hu ki aap har picture se related ek creative story likhen. Har story ki tarah apki story me bhi ek beginning, ek middle, aur ek ending honi chahiye. Likhiye ki aapke hisab se picture me dikhai gayi situation se pehle kya hua hoga, uske baad kya kya hua hoga, story me apke dwara bataye gaye

log kya soch aur mehsoos kar rahe honge, aur story ki ending kya hoti hai. Aapko inn sab baton ka dhyan rakhna hoga:-

- Apko picture describe nahi karna hai, for example, picture me ek ladka hai, ek ladki hai, ground hai, etc. Ye to sabko dikh hi raha hai. Apko apni imagination use karke ek creative story banani hai.

- Aap chahen to story ke characters aur places ko imaginary names de sakte hain.

- Aapko har picture 30 seconds ke liye dikhayi jaegi aur har story likhne ke liye 6 minutes ka time milega, jiske baad next picture dikhayi jaegi. So, you have to finish the task in 6 minutes. 5 minutes honge to main announce kar dunga, so that ki aap apni story khatam kar saken.

- Aapko ek page par ek story likhni hai aur form me 13 alag alag pages reserved and numbered hain story likhne ke liye. So follow the sequence.

- You can write stories in Hindi or English or Mixed language, according to your comfort.

- Please don't leave any story blank. Apko har picture pe respond karna hai. Don't worry, nothing is right or wrong, just write what comes to your mind. Apko jyada fikar nahi karni hai, don't worry, it's a simple task, aap sab easily story likh hi sakte hain and I am sure ki aap sab stories complete karenge.

- Finally aapko jo har page ke upar 2 questions hai uske answers nahi likhne hai, aapko story likhne se pehle just unke bare me sochna hai.

- Ab main aapko first picture dikhane ja raha hu, remember 30 seconds picture dekhne ke liye aur 06 minutes story likhne ke liye, then next picture, no break in-between. Wish you all the best.

Data collection session was started with first picture projected on screen through laptop and projector. Strict timing was followed using stopwatch.

### **3.9.3 Administration of Adjustment Inventory**

Immediately after finishing 13<sup>th</sup> story, students were given 10 minutes break for having water and going to washroom. After that, question papers for MSL Saxena's AI were distributed and instructions/ guidelines, as elaborated in inventory's manual, were given. Additionally following was ensured:-

- (a) They were briefed about how to mark their answers in answer sheet and it was ensured beforehand that everybody had a pencil.
- (b) They were told of value of result on this inventory.
- (c) They were assured about confidentiality of responses.
- (d) Doubts were invited and cleared.
- (e) They were told to be free to ask meaning of any word/ sentence in case of any doubt during answering.
- (f) They were given adequate time to finish their responses and those who finished earlier could submit their answer booklet and wait for post data collection session on memory.

At the end, data booklet and AI question paper were collected. Students were thanked and appreciated for their effort. Then another short break of 10 minutes was given to them, which was followed by post data collection session on memory which was promised to them by the researcher. The session, as per verbal feedback of many students, was enjoyable, beneficial, and informative.



### 3.10 DATA ANALYSIS (VALIDATION OF PICTURES)

#### 3.10.1 Final sample size for data analysis

As mentioned in Table 3.7 above, data was collected for total 151 boys and 148 girls. Out of this, data for 24 boys and 15 girls was rejected due to various story writing related issues given in Table 3.8. So, stories were scored for remaining 127 boys and 133 girls only.

**Table 3.8** *Number of students for whom the data was rejected and reason*

<b>Reason for data rejection</b>	<b>No. of boys</b>	<b>No. of girls</b>
Incompleteness (some stories not written)	11	5
Non-apperceptive response	11	4
Language/ handwriting could not be comprehended	2	6
<b>Total</b>	<b>24</b>	<b>15</b>

#### 3.10.2 Calculating SCORS-G Overall Composite Rating (OCR) and Picture-wise Composite Rating (PCR) for stories

Stories were rated first, and Adjustment inventory was scored after completion of story rating for all 260 students. As discussed earlier OCR is a single number which represents adjustment score for a student. For total 260 boys and girls, with 13 stories each, each of the 3380 stories obtained was rated on eight SCORS-G dimensions, resulting in 27040 single scores to deal with. The task of reading and scoring each story on eight variables was daunting and very slow initially, but with practice, perseverance, and time, considerable speed was gained. It spanned over approximately three months. For each student, 104 story ratings (13 stories X 8 SCORS-G dimensions each) were obtained and fed carefully in excel sheet for further calculations using excel formulas. For each student, **Overall Composite Rating (OCR)** for all 13 pictures was obtained by adding all 104 scores (13 stories X 08 ratings each) and dividing the outcome by

104. Similarly, **Picture-wise Composite Rating (PCR)** for each of 13 pictures was obtained by adding eight SCORS-G ratings obtained on relevant picture and dividing it by 08. These two types of composite ratings have been used in data analysis.

### **3.10.3 Assigning students to adjusted and maladjusted group using Adjustment Inventory (AI) by MSL Saxena**

AI was scored after completion of story scoring for all 260 students. As discussed earlier, AI measures adjustment in five different areas, as well as provides a total score (after raw score converted to t-scores and added for all five areas) representative of overall adjustment. This total score was calculated and used to assign each of the 260 students to either adjusted or maladjusted group. The breakdown of sample according to adjustment status, as assigned using AI, is presented in Table 3.9. It can be seen that four groups have been created, viz., Adjusted boys (n=58), Maladjusted boys (n=69), Adjusted girls (n=74), and Maladjusted girls (n=59).

Full response booklet (including informed consent, Scored stories, and AI answer sheet for a student (de-identified) has been placed as an illustration at **Appendix-III**.

### **3.10.4 Independent samples t-test for known-groups validation**

As mentioned in 3.8.2, **OCR** (single digit adjustment score obtained on all thirteen pictures combined) was obtained for each student. Independent t-test was carried out using SPSS for adjusted boys vs maladjusted boys, and adjusted girls vs maladjusted girls group. This was carried out to know overall effectiveness of whole stimuli set to differentiate between adjusted and maladjusted students i.e., known-groups validation.

Similarly, **PCR** (single digit adjustment score obtained on each picture) was obtained for each student, i.e., each student obtained 13 **PCRs**, one for each picture. Independent samples t-tests were carried out for each picture (adjusted boys vs

maladjusted boys, and adjusted girls vs maladjusted girls group) using SPSS. These 26 t-tests were carried out to know effectiveness of each picture to differentiate between adjusted and maladjusted students, i.e., known-groups validation.

**Effect size** (Cohen's D) has been calculated and interpretation has been given for each of the 28 t-tests (see Howitt & Cramer, 2017).

**Table 3.9** Breakdown of total sample according to adjustment status

<b>Boys</b>				
<b>Adjusted Students</b>			<b>Maladjusted students</b>	
<b>Overall adjustment status obtained by number of students on AI</b>				
<b>Excellent</b>	<b>Good</b>	<b>Satisfactory</b>	<b>Unsatisfactory</b>	<b>Very unsatisfactory</b>
0	03	55	58	11
<b>Adjusted boys N=58</b>			<b>Maladjusted boys N=69</b>	
<b>Girls</b>				
<b>Adjusted Students</b>			<b>Maladjusted students</b>	
<b>Overall adjustment status obtained by number of students on AI</b>				
<b>Excellent</b>	<b>Good</b>	<b>Satisfactory</b>	<b>Unsatisfactory</b>	<b>Very unsatisfactory</b>
0	09	65	43	16
<b>Adjusted girls N=74</b>			<b>Maladjusted girls N=59</b>	

### 3.11 RELIABILITY

The reliability of a test is the degree to which it produces stable results. In the current study, test-retest reliability was obtained by obtaining responses of the same students on the same 13 pictures after a gap of six weeks. The Day Care School, Nashik was approached for the retest with a request of interacting with students for retest for two hours (separately for boys and girls). Retest was readily allowed, due to rapport built up with school authorities and students earlier, mainly during post-test memory

session. Informed consent was obtained for each student. The sample size for retest was 33 boys (out of total 38 appeared in retest, 04 rejected due to incompleteness and 01 rejected due to incomprehensible language/ handwriting) and 38 girls (out of total 40 appeared in retest, 02 rejected due to incomprehensible language/ handwriting). **OCR** was calculated for 13 stories of each student with the method mentioned in 3.8.2 above. Overall composite score obtained at the time of pre-test was correlated with overall composite score obtained for retest stories through Pearson's  $r$  using SPSS.

Similarly, **PCR** (single digit adjustment score obtained on each picture) obtained during first testing was compared with its retest counter-part through Pearson's  $r$  to check the reliability of each picture.

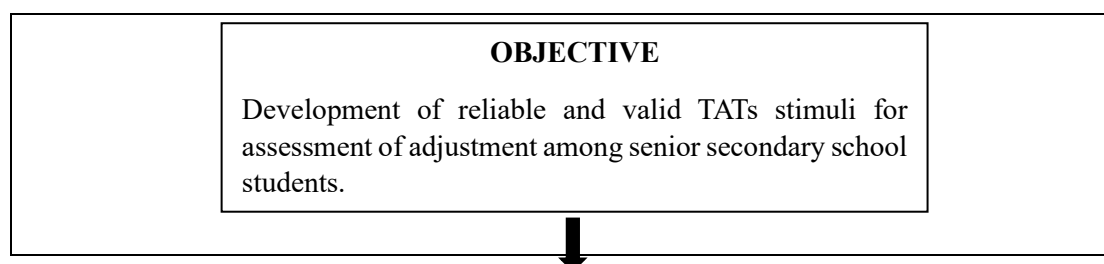
### 3.12 EFFICACY OF NEWLY DEVELOPED TAT STIMULI FOR INDIAN SENIOR SECONDARY SCHOOL STUDENTS/ ADOLESCENTS

The efficacy of the newly developed TATs Stimuli for Indian Senior Secondary School Students/ Adolescents was decided on the basis of its capability to differentiate between adjusted and maladjusted students (independent samples t-test, for whole set and picture-wise) and its reliability (Pearson's  $r$  between pre and post-test scores, for whole set and picture-wise).

### 3.13 FLOWCHART SHOWING FLOW OF THE STUDY

Flowchart showing flow of the main activities of the study is given in figure 3.2 below.

**Figure 3.2** *Flowchart of the research work*



### DEVELOPMENT

On the basis of literature review & discussion with clinical psychologists, 22 pictures depicting Social (parents, peer/sibling, opposite sex, and teacher relations), educational, and Health and body image issues of senior secondary school students/ adolescents were constructed, with the help of an artist.



### VALIDITY

#### Face validity and amendments in pictures

Pictures shown to three experts and their written opinion obtained. Suggestions given by them were incorporated and pictures were amended accordingly

#### Known group validity of pictures

-127 boys and 133 girls assigned to adjusted & maladjusted groups on the basis of their responses to MSL Saxena's Adjustment inventory. 58 boys and 74 girls were found adjusted and 69 boys and 59 girls as maladjusted.

-Stories were rated using SCORS-G rating system and **OCR** for each student was obtained. Independent t-test was carried out for boys and girls group to judge ability of whole set of pictures to differentiate between adjusted and maladjusted students.

-Likewise, **PCR** (for each picture) for each student obtained. 26 independent samples t-tests carried out to know the capacity of each picture to differentiate adjusted & maladjusted students.



### RELIABILITY

#### Test-retest reliability

-33 boys and 38 girls retested after six weeks. **OCR** on all 13 pictures obtained for each student and Pearson's r calculated to compare **OCR** for pre-test with retest.

-Similarly, for above sample, retest **PCR** for each picture was compared with pre-test **PCR** using Pearson's r, for checking reliability of each picture.

**OUTCOME**

- Thematic Apperceptive Techniques (TATs) stimuli for assessment of Adjustment among Indian Senior Secondary School Students.
- The stimuli can be used for eliciting stories which can be used for measuring not only adjustments but other psychological constructs related to Indian adolescents.

**3.14 CONCLUSION**

This chapter discussed research design and methods used. Various aspects and procedures of study such as picture development, sample, objectives, hypothesis, variables, pilot study, main study, data analysis, reliability and validation are discussed. The next chapter focuses on results and discussion.

**CHAPTER FOUR****RESULTS AND DISCUSSION**

The purpose of this research was to design the Thematic Apperceptive Technique (TATs) stimuli set and validate it with senior secondary school students. The procedure followed for development of pictures and establishment of their face validity has been discussed in previous chapter. Also, the procedure of division of sample into four groups viz., Adjusted/maladjusted Boys and girls has been discussed. Further, for each of these boys and girls, **Overall Composite Rating (OCR)** (for all 13 pictures) and **Picture-wise Composite Rating (PCR)** was obtained as per procedure described in previous chapter. Independent samples t-test was carried out using IBM SPSS for judging the capacity (for differentiating between adjusted and maladjusted students) of whole set (through overall composite score), as well as each picture (through picture-wise composite score). Test-retest reliability has been calculated for OCR as well as PCR. Finally, results have been reported and discussed in light with previous studies.

**4.1 KNOWN-GROUPS VALIDATION****4.1.1 t-test results Adjusted vs Maladjusted Girls: Whole set**

**OCR** obtained by adjusted girls group (N=74) and maladjusted girls group (N=59) was compared using independent samples t-test. Before that normality of distribution and equal variance were checked and found satisfactory. Figure 4.1 and 4.2 show the histogram for adjusted & maladjusted girls respectively on **OCR**.

The mean OCR was 3.97 (SD=.26) for adjusted girls group and 3.66 (SD=.23) for maladjusted girls. For t-test, equality of variance was assumed (using Levene's Test) and it was found that the mean OCR differed significantly, with adjusted girls scoring significantly higher than maladjusted girls,  $t(131) = 7.21, p < .001$ . The effect size, as measured by Cohen's *d*, was  $d = 1.26$ , indicating a large effect.

Figure 4.1 Distribution of OCR for adjusted girls

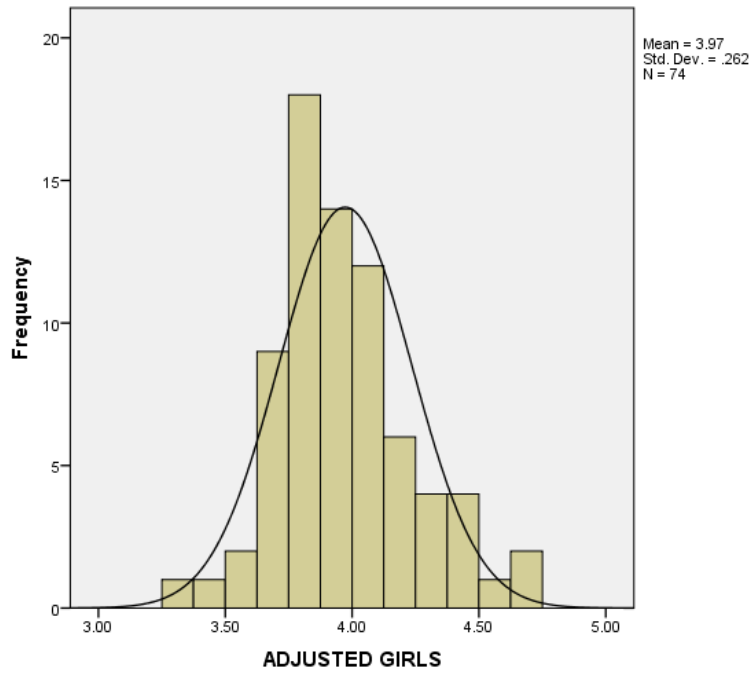
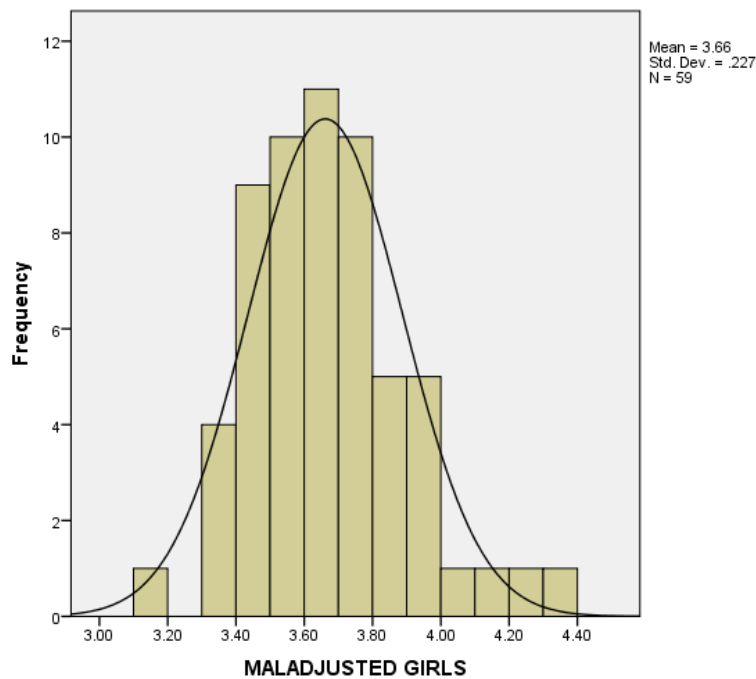


Figure 4.2 Distribution of OCR for maladjusted girls



Therefore, the hypothesis stating, “There is no difference between composite score on SCORS-G (OCR) of adjusted and maladjusted students”, is rejected here for girls.



**4.1.2 t-test results Adjusted vs Maladjusted Girls: Picture-wise**

For picture 1-G, the mean PCR was 4.15 (SD=.49) for adjusted girls group and 3.79 (SD=.40) for maladjusted girls. For t-test, equality of variance was assumed (using Levene's Test) and it was found that the mean PCR (1-G) differed significantly, with adjusted girls scoring significantly higher than maladjusted girls,  $t(131) = 4.56, p < .001$ . The effect size, as measured by Cohen's  $d$ , was  $d = .80$ , indicating a large effect.

For picture 2-G, the mean PCR was 4.16 (SD=.42) for adjusted girls group and 3.78 (SD=.49) for maladjusted girls. For t-test, equality of variance was assumed (using Levene's Test) and it was found that the mean PCR (2-G) differed significantly, with adjusted girls scoring significantly higher than maladjusted girls,  $t(131) = 4.81, p < .001$ . The effect size, as measured by Cohen's  $d$ , was  $d = .83$ , indicating a large effect.

For picture 3-G, the mean PCR was 4.02 (SD=.48) for adjusted girls group and 3.58 (SD=.45) for maladjusted girls. For t-test, equality of variance was assumed (using Levene's Test) and it was found that the mean PCR (3-G) differed significantly, with adjusted girls scoring significantly higher than maladjusted girls,  $t(131) = 5.43, p < .001$ . The effect size, as measured by Cohen's  $d$ , was  $d = .94$ , indicating a large effect.

For picture 4-G, the mean PCR was 3.83 (SD=.49) for adjusted girls group and 3.52 (SD=.47) for maladjusted girls. For t-test, equality of variance was assumed (using Levene's Test) and it was found that the mean PCR (4-G) differed significantly, with adjusted girls scoring significantly higher than maladjusted girls,  $t(131) = 3.73, p < .001$ . The effect size, as measured by Cohen's  $d$ , was  $d = .64$ , indicating a medium effect.

For picture 5-G, the mean PCR was 3.93 (SD=.51) for adjusted girls group and 3.62 (SD=.50) for maladjusted girls. For t-test, equality of variance was assumed (using Levene's Test) and it was found that the mean PCR (5-G) differed significantly, with adjusted girls scoring significantly higher than maladjusted girls,  $t(131) = 3.50, p = .001$ . The effect size, as measured by Cohen's  $d$ , was  $d = .61$ , indicating a medium effect.

For picture 6-BG, the mean PCR was 4.26 (SD=.36) for adjusted girls group and 3.86 (SD=.51) for maladjusted girls. For t-test, equality of variance was not assumed (using Levene's Test) and it was found that the mean PCR (6-BG) differed significantly, with adjusted girls scoring significantly higher than maladjusted girls,  $t(100.81) = 5.14$ ,  $p < .001$ . The effect size, as measured by Cohen's  $d$ , was  $d = .90$ , indicating a large effect.

For picture 7-G, the mean PCR was 3.75 (SD=.52) for adjusted girls group and 3.53 (SD=.50) for maladjusted girls. For t-test, equality of variance was assumed (using Levene's Test) and it was found that the mean PCR (7-G) differed significantly, with adjusted girls scoring significantly higher than maladjusted girls,  $t(131) = 2.52$ ,  $p = .01$ . The effect size, as measured by Cohen's  $d$ , was  $d = .43$ , indicating a small effect.

For picture 8-G, the mean PCR was 3.86 (SD=.50) for adjusted girls group and 3.47 (SD=.47) for maladjusted girls. For t-test, equality of variance was assumed (using Levene's Test) and it was found that the mean PCR (8-G) differed significantly, with adjusted girls scoring significantly higher than maladjusted girls,  $t(131) = 4.64$ ,  $p < .001$ . The effect size, as measured by Cohen's  $d$ , was  $d = .80$ , indicating a large effect.

For picture 9-BG, the mean PCR was 3.85 (SD=.43) for adjusted girls group and 3.54 (SD=.49) for maladjusted girls. For t-test, equality of variance was assumed (using Levene's Test) and it was found that the mean PCR (9-BG) differed significantly, with adjusted girls scoring significantly higher than maladjusted girls,  $t(131) = 3.77$ ,  $p < .001$ . The effect size, as measured by Cohen's  $d$ , was  $d = .67$ , indicating a medium effect.

For picture 10-G, the mean PCR was 3.82 (SD=.42) for adjusted girls group and 3.58 (SD=.48) for maladjusted girls. For t-test, equality of variance was assumed (using Levene's Test) and it was found that the mean PCR (10-G) differed significantly, with adjusted girls scoring significantly higher than maladjusted girls,  $t(131) = 2.97$ ,  $p = .003$ . The effect size, as measured by Cohen's  $d$ , was  $d = .53$ , indicating a medium effect.

For picture 11-BG, the mean PCR was 4.10 (SD=.44) for adjusted girls group and 3.83 (SD=.54) for maladjusted girls. For t-test, equality of variance was assumed (using Levene's Test) and it was found the mean PCR (11-BG) differed significantly, with adjusted girls scoring significantly higher than maladjusted girls,  $t(131) = 3.17$ ,  $p=.002$ . The effect size, as measured by Cohen's  $d$ , was  $d=.55$ , indicating a medium effect.

For picture 12-G, the mean PCR was 3.98 (SD=.46) for adjusted girls group and 3.74 (SD=.47) for maladjusted girls. For t-test, equality of variance was assumed (using Levene's Test) and it was found that the mean PCR (12-G) differed significantly, with adjusted girls scoring significantly higher than maladjusted girls,  $t(131) = 2.86$ ,  $p=.005$ . The effect size, as measured by Cohen's  $d$ , was  $d=.52$ , indicating a medium effect.

For picture 13-BG, the mean PCR was 3.96 (SD=.39) for adjusted girls group and 3.77 (SD=.30) for maladjusted girls. For t-test, equality of variance was not assumed (using Levene's Test) and it was found that the mean PCR (13-BG) differed significantly, with adjusted girls scoring significantly higher than maladjusted girls,  $t(131) = 2.84$ ,  $p=.005$ . The effect size, as measured by Cohen's  $d$ , was  $d=.52$ , indicating a medium effect.

A summary of t-test statistics and effect size for girls is given in table 4.1.

**Table 4.1** Summary of results of t-test (two-tailed) and effect size for girls

Pic No.	Adj Status	M	SD	Eq. of variance assumed?	t	df	p	Cohen's d
All	Adj.	3.97	.26	Yes	7.21	131	<.001	1.26
	M Adj.	3.66	.23					
1-G	Adj.	4.15	.49	Yes	4.56	131	<.001	.80
	M Adj.	3.79	.40					
2-G	Adj.	4.16	.42	Yes	4.81	131	<.001	.83
	M Adj.	3.78	.49					

3-G	Adj.	4.02	.48	Yes	5.43	131	<.001	.94
	M Adj.	3.58	.45					
4-G	Adj.	3.83	.49	Yes	3.73	131	<.001	.64
	M Adj.	3.52	.47					
5-G	Adj.	3.93	.51	Yes	3.50	131	<.001	.61
	M Adj.	3.62	.50					
6-BG	Adj.	4.26	.36	No	5.14	100.81	<.001	.90
	M Adj.	3.86	.51					
7-G	Adj.	3.75	.52	Yes	2.52	131	.01	.43
	M Adj.	3.53	.50					
8-G	Adj.	3.86	.50	Yes	4.64	131	<.001	.80
	M Adj.	3.47	.47					
9-BG	Adj.	3.85	.43	Yes	3.77	131	<.001	.67
	M Adj.	3.54	.49					
10-G	Adj.	3.82	.42	Yes	2.97	131	.003	.53
	M Adj.	3.58	.48					
11-BG	Adj.	4.10	.44	Yes	3.17	131	.002	.55
	M Adj.	3.83	.54					
12G	Adj.	3.98	.46	Yes	2.86	131	.005	.52
	M Adj.	3.74	.47					
13-BG	Adj.	3.96	.39	No	2.84	130.83	.005	.52
	M Adj.	3.78	.30					

#### 4.1.3 t-test results Adjusted vs Maladjusted Boys: Whole set

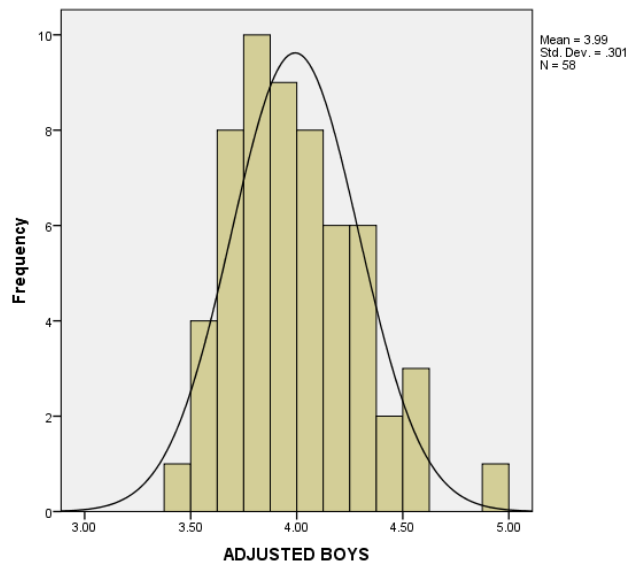
OCR obtained by adjusted boys group (N=58) and maladjusted boys group (N=69) was compared using independent samples t-test. Before that normality of distribution and equal variance were checked and found satisfactory. Figure 4.3 and 4.4 show the histogram for adjusted and maladjusted boys respectively on **OCR**.

The mean OCR was 3.99 (SD=.30) for adjusted boys group and 3.65 (SD=.27) for maladjusted boys. For t-test, equality of variance was assumed (using Levene's

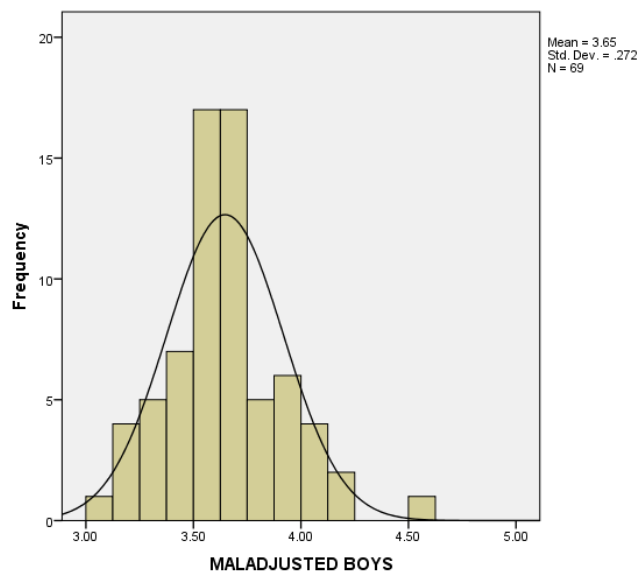
Test) and it was found that the mean OCR differed significantly, with adjusted boys scoring significantly higher than maladjusted boys,  $t(125) = 6.79$ ,  $p < .001$ . The effect size, as measured by Cohen's  $d$ , was  $d = 1.19$ , indicating a large effect.

Therefore, the hypothesis stating, “There is no difference between composite score on SCORS-G (OCR) of adjusted and maladjusted students”, is rejected here for boys.

**Figure 4.3** Distribution of OCR for adjusted boys



**Figure 4.4** Distribution of OCR for maladjusted boys



**4.1.4 t-test results Adjusted vs Maladjusted boys: Picture-wise**

For picture 1-B, the mean PCR was 4.05 (SD=.41) for adjusted boys group and 3.74 (SD=.50) for maladjusted boys. For t-test, equality of variance was assumed (using Levene's Test) and it was found that the mean PCR (1-B) differed significantly, with adjusted boys scoring significantly higher than maladjusted boys,  $t(125) = 3.77, p < .001$ . The effect size, as measured by Cohen's  $d$ , was  $d = .68$ , indicating a medium effect.

For picture 2-B, the mean PCR was 4.01 (SD=.51) for adjusted boys group and 3.60 (SD=.49) for maladjusted boys. For t-test, equality of variance was assumed (using Levene's Test) and it was found that the mean PCR (2-B) differed significantly, with adjusted boys scoring significantly higher than maladjusted boys,  $t(125) = 4.58, p < .001$ . The effect size, as measured by Cohen's  $d$ , was  $d = .82$ , indicating a large effect.

For picture 3-B, the mean PCR was 4.14 (SD=.51) for adjusted boys group and 3.81 (SD=.57) for maladjusted boys. For t-test, equality of variance was assumed (using Levene's Test) and it was found that the mean PCR (3-B) differed significantly, with adjusted boys scoring significantly higher than maladjusted boys,  $t(125) = 3.40, p < .001$ . The effect size, as measured by Cohen's  $d$ , was  $d = .61$ , indicating a medium effect.

For picture 4-B, the mean PCR was 3.86 (SD=.57) for adjusted boys group and 3.51 (SD=.47) for maladjusted boys. For t-test, equality of variance was not assumed (using Levene's Test) and it was found that the mean PCR (4-B) differed significantly, with adjusted boys scoring significantly higher than maladjusted boys,  $t(110.43) = 3.78, p < .001$ . The effect size, as measured by Cohen's  $d$ , was  $d = .67$ , indicating a medium effect.

For picture 5-B, the mean PCR was 3.95 (SD=.43) for adjusted boys group and 3.60 (SD=.54) for maladjusted boys. For t-test, equality of variance was assumed (using Levene's Test) and it was found that the mean PCR (5-B) differed significantly, with adjusted boys scoring significantly higher than maladjusted boys,  $t(125) = 4.01, p < .001$ . The effect size, as measured by Cohen's  $d$ , was  $d = .72$ , indicating a medium effect.

For picture 6-BG, the mean PCR was 4.13 (SD=.44) for adjusted boys group and 3.80 (SD=.53) for maladjusted boys. For t-test, equality of variance was assumed (using Levene's Test) and it was found that the mean PCR (6-BG) differed significantly, with adjusted boys scoring significantly higher than maladjusted boys,  $t(125) = 3.72$ ,  $p < .001$ . The effect size, as measured by Cohen's  $d$ , was  $d = .68$ , indicating a medium effect.

For picture 7-B, the mean PCR was 3.89 (SD=.52) for adjusted boys group and 3.52 (SD=.52) for maladjusted boys. For t-test, equality of variance was assumed (using Levene's Test) and it was found that the mean PCR (7-B) differed significantly, with adjusted boys scoring significantly higher than maladjusted boys,  $t(125) = 4.04$ ,  $p < .001$ . The effect size, as measured by Cohen's  $d$ , was  $d = .71$ , indicating a medium effect.

For picture 8-B, the mean PCR was 3.87 (SD=.49) for adjusted boys group and 3.52 (SD=.52) for maladjusted boys. For t-test, equality of variance was assumed (using Levene's Test) and it was found that the mean PCR (8-B) differed significantly, with adjusted boys scoring significantly higher than maladjusted boys,  $t(125) = 3.83$ ,  $p < .001$ . The effect size, as measured by Cohen's  $d$ , was  $d = .69$ , indicating a medium effect.

For picture 9-BG, the mean PCR was 3.91 (SD=.62) for adjusted boys group and 3.55 (SD=.50) for maladjusted boys. For t-test, equality of variance was assumed (using Levene's Test) and it was found that the mean PCR (9-BG) differed significantly, with adjusted boys scoring significantly higher than maladjusted boys,  $t(125) = 3.61$ ,  $p < .001$ . The effect size, as measured by Cohen's  $d$ , was  $d = .64$ , indicating a medium effect.

For picture 10-B, the mean PCR was 4.00 (SD=.45) for adjusted boys group and 3.64 (SD=.50) for maladjusted boys. For t-test, equality of variance was assumed (using Levene's Test) and it was found that the mean PCR (10-B) differed significantly, with adjusted boys scoring significantly higher than maladjusted boys,  $t(125) = 4.18$ ,  $p < .001$ . The effect size, as measured by Cohen's  $d$ , was  $d = .76$ , indicating a medium effect.

For picture 11-BG, the mean PCR was 4.06 (SD=.50) for adjusted boys group and 3.82 (SD=.51) for maladjusted boys. For t-test, equality of variance was assumed (using Levene's Test) and it was found that mean PCR (11-BG) differed significantly, with adjusted boys scoring significantly higher than maladjusted boys,  $t(125) = 2.67$ ,  $p = .009$ . The effect size, as measured by Cohen's  $d$ , was  $d = .47$ , indicating a small effect.

For picture 12-B, the mean PCR was 4.17 (SD=.49) for adjusted boys group and 3.74 (SD=.54) for maladjusted boys. For t-test, equality of variance was assumed (using Levene's Test) and it was found that mean PCR (12-B) differed significantly, with adjusted boys scoring significantly higher than maladjusted boys,  $t(125) = 4.59$ ,  $p < .001$ . The effect size, as measured by Cohen's  $d$ , was  $d = .83$ , indicating a large effect.

For picture 13-BG, the mean PCR was 3.88 (SD=.39) for adjusted boys group and 3.58 (SD=.45) for maladjusted boys. For t-test, equality of variance was assumed (using Levene's Test), and it was found that there was a statistically significant difference between the mean PCR (13-BG), with adjusted boys scoring significantly higher than maladjusted boys,  $t(125) = 3.98$ ,  $p < .001$ . The effect size, as measured by Cohen's  $d$ , was  $d = .71$ , indicating a medium effect.

A summary of results of t-test and effect size for boys is given in table 4.2.

**Table 4.2** Summary of results of t-test (two-tailed) and effect size for boys

Pic No.	Adj Status	M	SD	Eq. of variance assumed?	t	df	p	Cohen's d
All	Adj.	3.99	.30	Yes	6.79	125	<.001	1.19
	M Adj.	3.65	.27					
1-B	Adj.	4.05	.41	Yes	3.77	125	<.001	.68
	M Adj.	3.74	.50					
2-B	Adj.	4.01	.51	Yes	4.58	125	<.001	.82
	M Adj.	3.60	.49					



3-B	Adj.	4.14	.51	Yes	3.40	125	.001	.61
	M Adj.	3.81	.57					
4-B	Adj.	3.86	.57	No	3.78	110.43	<.001	.67
	M Adj.	3.51	.47					
5-B	Adj.	3.95	.43	Yes	4.01	125	<.001	.72
	M Adj.	3.60	.54					
6-BG	Adj.	4.13	.44	Yes	3.72	125	<.001	.68
	M Adj.	3.80	.53					
7-B	Adj.	3.89	.52	Yes	4.04	125	<.001	.71
	M Adj.	3.52	.52					
8-B	Adj.	3.87	.49	Yes	3.83	125	<.001	.69
	M Adj.	3.52	.52					
9-BG	Adj.	3.91	.62	Yes	3.61	125	<.001	.64
	M Adj.	3.55	.50					
10-B	Adj.	4.00	.45	Yes	4.18	125	<.001	.76
	M Adj.	3.64	.50					
11-BG	Adj.	4.06	.50	Yes	2.67	125	.009	.47
	M Adj.	3.82	.51					
12B	Adj.	4.17	.49	Yes	4.59	125	<.001	.83
	M Adj.	3.74	.54					
13-BG	Adj.	3.88	.39	Yes	3.98	125	<.001	.71
	M Adj.	3.58	.45					

## 4.2 TEST-RETEST RELIABILITY

### 4.2.1 Pre-test vs Post-test: Girl's whole set

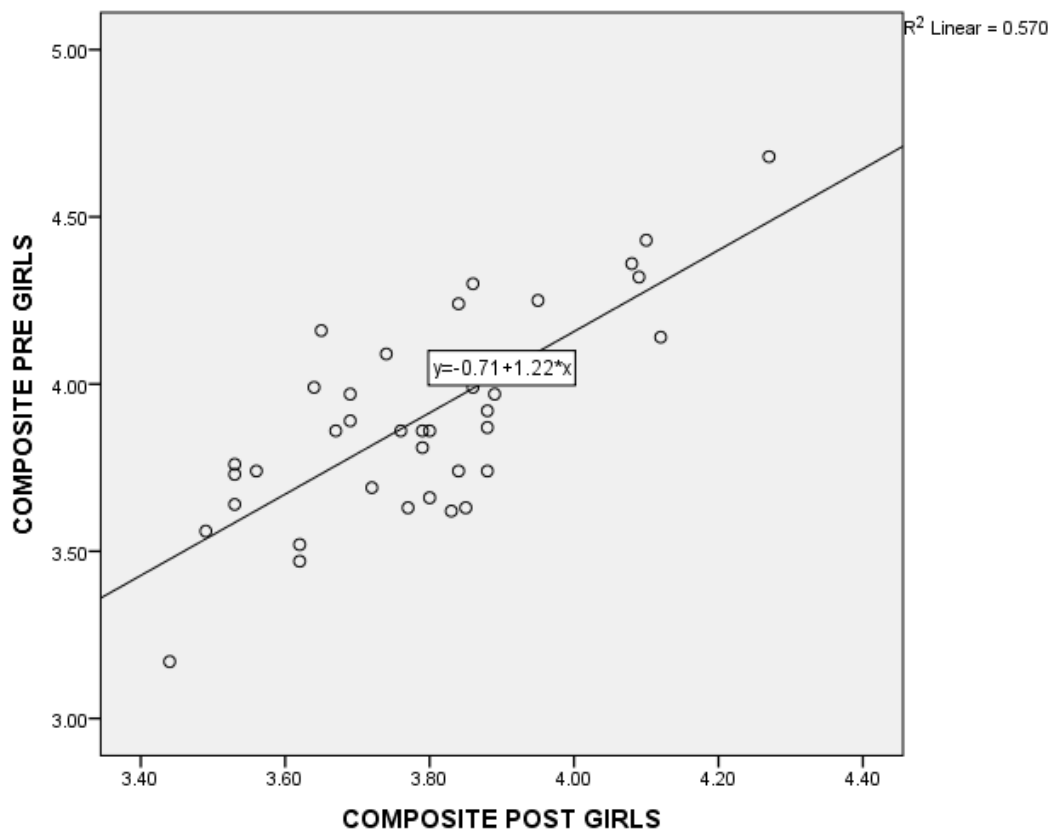
OCR obtained by girls (N=38) during pre-test and post-test were correlated using Pearson's r. Figure 4.5 shows the scatterplot for pre and post-test of girls on OCR, with pre-test scores on y-axis and post-test scores on x-axis.

There was a statistically significant (at 0.01 level) correlation between pre and post-test OCR of girls,  $r(36)=.75$ ,  $p<.001$ . The effect size is interpreted as large.

#### 4.2.2 Pre vs Post-test: Girl's picture-wise

PCR obtained by girls ( $N=38$ ) during pre and post-test, for each of the thirteen pictures, were correlated using Pearson's  $r$ . Results for each picture have been described in subsequent paras.

*Figure 4.5 Scatterplot for pre and post-test OCR: Girls*



For picture 1-G, there was a statistically significant (at 0.01 level) correlation between pre-test PCR and post-test PCR,  $r(36)=.42$ ,  $p=.009$ . The effect size is interpreted as medium.

For picture 2-G, there was a statistically significant (at 0.05 level) correlation between pre-test PCR and post-test PCR,  $r(36)=.36$ ,  $p=.026$ . The effect size is interpreted as medium.

For picture 3-G, there was a statistically significant (at 0.05 level) correlation between pre-test PCR and post-test PCR,  $r(36)=.39$ ,  $p=.016$ . The effect size is interpreted as medium.

For picture 4-G, there was a statistically significant (at 0.01 level) correlation between pre-test PCR and post-test PCR,  $r(36)=.61$ ,  $p<.001$ . The effect size is interpreted as large.

For picture 5-G, there was a statistically significant (at 0.05 level) correlation between pre-test PCR and post-test PCR,  $r(36)=.37$ ,  $p=.024$ . The effect size is interpreted as medium.

For picture 6-BG, there was a statistically significant (at 0.01 level) correlation between pre-test PCR and post-test PCR,  $r(36)=.44$ ,  $p=.006$ . The effect size is interpreted as medium.

For picture 7-G, there was a statistically significant (at 0.01 level) correlation between pre-test PCR and post-test PCR,  $r(36)=.41$ ,  $p=.010$ . The effect size is interpreted as medium.

For picture 8-G, there was a statistically significant (at 0.05 level) correlation between pre-test PCR and post-test PCR,  $r(36)=.38$ ,  $p=.019$ . The effect size is interpreted as medium.

For picture 9-BG, there was a statistically significant (at 0.05 level) correlation between pre-test PCR and post-test PCR,  $r(36)=.34$ ,  $p=.036$ . The effect size is interpreted as medium.

For picture 10-G, there was a statistically significant (at 0.01 level) correlation between pre-test PCR and post-test PCR,  $r(36)=.43$ ,  $p=.006$ . The effect size is interpreted as medium.

For picture 11-BG, there was a statistically significant (at 0.05 level) correlation between pre-test PCR and post-test PCR,  $r(36)=.41$ ,  $p=.011$ . The effect size is interpreted as medium.

For picture 12-G, there was a statistically significant (at 0.05 level) correlation between pre-test PCR and post-test PCR,  $r(36)=.32$ ,  $p=.048$ . The effect size is interpreted as medium.

For picture 13-BG, there was a statistically significant (at 0.01 level) correlation between pre-test PCR and post-test PCR,  $r(36)=.43$ ,  $p=.008$ . The effect size is interpreted as medium.

A summary of results of Pearson's  $r$  (between pre-test and post-test) and effect size for girls is given in table 4.3.

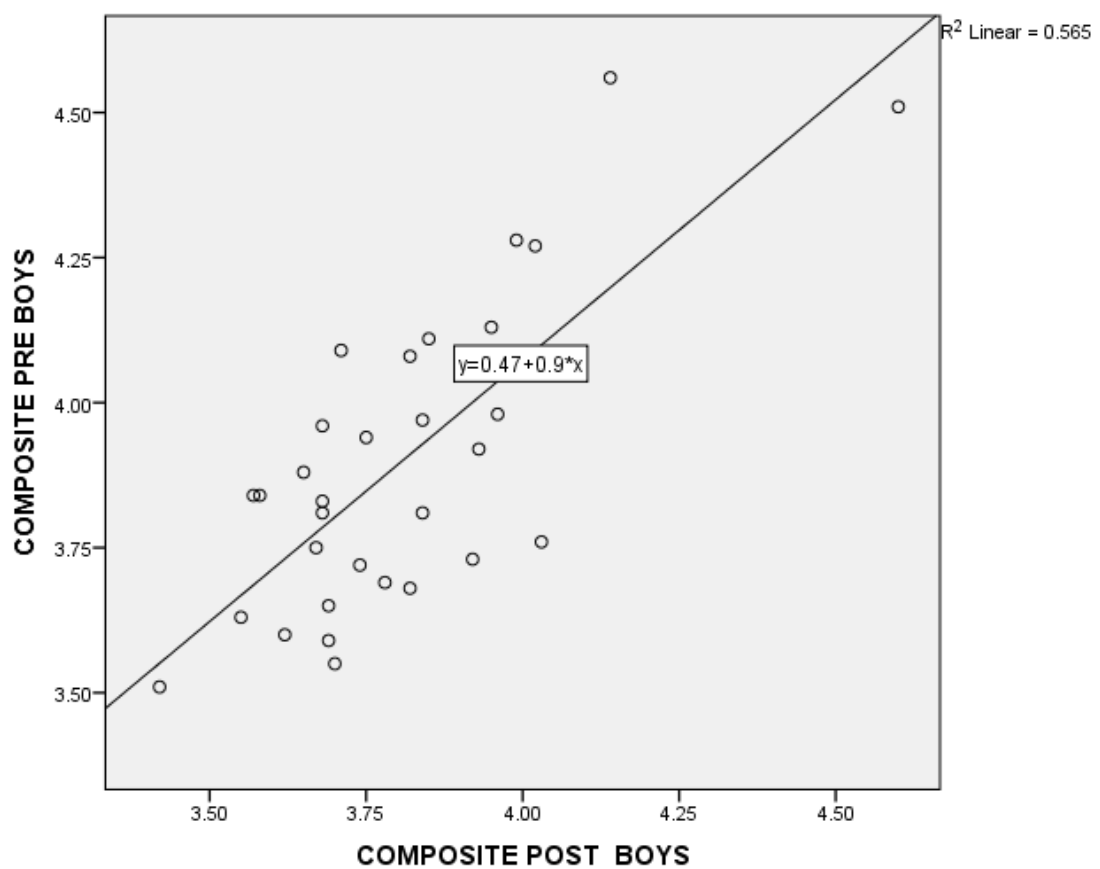
**Table 4.3** Summary of results of Pearson's  $r$  (two-tailed, between pre-test and post-test) and effect size for girls

Pic No.	r	df	p	Significant at (level)	Effect size
All	.75	36	<.001	0.01	Large
1-G	.42	36	.009	0.01	Medium
2-G	.36	36	.026	0.05	Medium
3-G	.39	36	.016	0.05	Medium
4-G	.61	36	<.001	0.01	Large
5-G	.37	36	.024	0.05	Medium
6-BG	.44	36	.006	0.01	Medium
7-G	.41	36	.010	0.01	Medium
8-G	.38	36	.019	0.05	Medium
9-BG	.34	36	.036	0.05	Medium
10-G	.43	36	.006	0.01	Medium
11-BG	.41	36	.011	0.05	Medium
12-G	.32	36	.048	0.05	Medium
13-BG	.43	36	.008	0.01	Medium

### 4.2.3 Pre-test vs Post-test: Boys whole set

OCR obtained by boys (N=33) during pre-test and post-test were correlated using Pearson's r. Figure 4.5 shows the scatterplot for pre and post-test of boys on OCR, with pre-test scores on y-axis and post-test scores on x-axis.

*Figure 4.6 Scatterplot for pre and post-test OCR: Boys*



There was a statistically significant (at 0.01 level) correlation between pre and post-test OCR of boys,  $r(31) = .75$ ,  $p < .001$ . The effect size is interpreted as large.

### 4.2.4 Pre-test vs Post-test Boy's: Picture-wise

PCR obtained by boys (N=33) during pre and post-test, for each of the thirteen pictures, were correlated using Pearson's r. Results for each picture have been described in subsequent paras.

For picture 1-B, there was a statistically significant (at 0.05 level) correlation between pre-test PCR and post-test PCR,  $r(31)=.43$ ,  $p=.011$ . The effect size is interpreted as medium.

For picture 2-B, there was a statistically significant (at 0.05 level) correlation between pre-test PCR and post-test PCR,  $r(31)=.40$ ,  $p=.021$ . The effect size is interpreted as medium.

For picture 3-B, there was a statistically significant (at 0.01 level) correlation between pre-test PCR and post-test PCR,  $r(31)=.49$ ,  $p=.004$ . The effect size is interpreted as medium.

For picture 4-B, there was a statistically significant (at 0.05 level) correlation between pre-test PCR and post-test PCR,  $r(31)=.44$ ,  $p=.010$ . The effect size is interpreted as medium.

For picture 5-B, there was a statistically significant (at 0.01 level) correlation between pre-test PCR and post-test PCR,  $r(31)=.54$ ,  $p=.001$ . The effect size is interpreted as large.

For picture 6-BG, there was a statistically significant (at 0.05 level) correlation between pre-test PCR and post-test PCR,  $r(31)=.40$ ,  $p=.023$ . The effect size is interpreted as medium.

For picture 7-B, there was a statistically significant (at 0.05 level) correlation between pre-test PCR and post-test PCR,  $r(31)=.36$ ,  $p=.039$ . The effect size is interpreted as medium.

For picture 8-B, there was a statistically significant (at 0.05 level) correlation between pre-test PCR and post-test PCR,  $r(31)=.37$ ,  $p=.031$ . The effect size is interpreted as medium.

For picture 9-BG, there was a statistically significant (at 0.05 level) correlation between pre-test PCR and post-test PCR,  $r(31)=.40$ ,  $p=.021$ . The effect size is interpreted as medium.

For picture 10-B, there was a statistically significant (at 0.05 level) correlation between pre-test PCR and post-test PCR,  $r(31)=.42$ ,  $p=.015$ . The effect size is interpreted as medium.

For picture 11-BG, there was a statistically significant (at 0.01 level) correlation between pre-test PCR and post-test PCR,  $r(31)=.63$ ,  $p<.001$ . The effect size is interpreted as large.

For picture 12-B, there was a statistically significant (at 0.01 level) correlation between pre-test PCR and post-test PCR,  $r(31)=.53$ ,  $p=.001$ . The effect size is interpreted as large.

For picture 13-BG, there was a statistically significant (at 0.05 level) correlation between pre-test PCR and post-test PCR,  $r(31)=.35$ ,  $p=.047$ . The effect size is interpreted as medium.

A summary of results of Pearson's  $r$  (between pre-test and post-test) and effect size for boys is given in table 4.4.

### **4.3 Discussion**

After going through a number of studies (elaborated in Chapter-2), the researcher found that the TATs are very important and unparalleled techniques of personality assessment. The reason for this assertion is the literature pointing towards strengths of TATs when compared to self-report techniques, viz., reduction of initial assessment time and revelation of deep feelings in form of stories (Jenkins, 2017a), prediction of typical real-life behaviour (Annotti & Teglasi, 2016; Teglasi, 2010; Teglasi et al., 2012), contribution to incremental validity of multi-method assessment

(Annotti & Teglasi, 2016; Ganellen, 2007), less susceptibility to faking of responses (e.g., Bornstein et al., 1994), and revelation of idiosyncratic information about client which has been found useful in guiding intervention (Flanagan & Giuseppe, 1999). These strengths make TATs vital tool for personality assessment, and as far as the Indian scenario is concerned there is no TATs stimuli set which specifically addresses issues of adolescents. Hence, the purpose of the present study was to construct reliable and valid Thematic Apperceptive Techniques (TATs) stimuli for assessment of adjustment among senior secondary school students.

**Table 4.4** Summary of results of Pearson's *r* (two-tailed, between pre-test and post-test) and effect size for boys

Pic No.	r	df	p	Significant at (level)	Effect size
All	.75	31	<.001	0.01	Large
1-B	.43	31	.011	0.05	Medium
2-B	.40	31	.021	0.05	Medium
3-B	.49	31	.004	0.01	Medium
4-B	.44	31	.010	0.05	Medium
5-B	.54	31	.001	0.01	Large
6-BG	.40	31	.023	0.05	Medium
7-B	.36	31	.039	0.05	Medium
8-B	.37	31	.031	0.05	Medium
9-BG	.40	31	.021	0.05	Medium
10-B	.42	31	.015	0.05	Medium
11-BG	.63	31	<.001	0.01	Large
12-B	.53	31	.001	0.01	Large
13-BG	.35	31	.047	0.05	Medium

Initially, adjustment areas of adolescents were identified and sufficient number of pictures (set of 22, 9 exclusively for boys, 9 for girls, and 4 for both, therefore, 13 for each gender), showing adolescents in various (social, educational, and health & body image related) situations, were constructed with the advise of experts and help of



an artist. Then face validity was established and corrections were done on advise of three experts. Further, pilot study, to superficially check and clear minor issues, was carried out and necessary corrections in administration instructions were done. Then, main study was carried out with sequential administration of newly developed TATs stimuli and M.S.L. Saxena's AI. The purpose of AI was just to assign students to adjusted or maladjusted group for comparison of their group mean of SCORS-G OCR obtained on stories. Analysis was done using independent samples t-test. Finally, after a gap of six weeks or more, some of the boys and girls were retested and their pre-test OCR was correlated with post-test OCR using Pearson's *r*. In addition to OCR (SCORS-G composite rating for all 13 pictures), t-test and Pearson's *r* was computed for PCR (SCORS-G composite rating for each picture separately) also.

As mentioned earlier, SCORS-G is rated on eight dimensions (viz., COM, SC, ICS, SE, AFF, EIR, EIM, and AGG). The mean of each of these eight dimensions on whole narrative protocol (in this case, all thirteen stories) is known as dimensional mean rating, which is out of scope of this study. Secondly, Overall Composite Rating (OCR) or SCORS-G Composite is overall mean which is a single number (mean of all these eight dimensions) which is computed for each participant and compared using independent samples t-tests for adjusted and maladjusted groups. Thirdly, Picture-wise Composite Rating (PCR) represents mean of all eight dimensions on story told to any single picture and it was also compared for each picture for adjusted and maladjusted groups. For, test-retest reliability, OCR and PCR obtained during pre-test and post-test were compared using Pearson's *r*.

**It was found that, the whole set, when considered together, significantly differentiated between adjusted and maladjusted girls with large effect size. The adjusted girls scored significantly higher than maladjusted girls on OCR. When, pictures are considered individually, statistically significant difference was found in the expected direction between PCR of adjusted and maladjusted girls, with adjusted girls scoring significantly higher than maladjusted girls in all cases. Effect sizes were ranging from small to large.** There was large effect size for picture 1-G, 2-G, 3-G, 6-BG, and 8-G. Effect size for picture 4-G, 5-G, 9-BG, 10-G, 11-BG,

12-G, and 13-BG was found medium, and for only one picture, i.e., 7-G, the effect size was small. For summarized scores, see Table 4.1.

**Similar results were obtained for boys also. The whole set, when considered together, significantly differentiated between adjusted and maladjusted boys with large effect size.** The adjusted boys scored significantly higher than maladjusted boys on OCR. **When pictures are considered individually, statistically significant difference was found in the expected direction between PCR of adjusted and maladjusted boys, with adjusted boys scoring significantly higher than maladjusted boys in case of all pictures. Effect sizes were ranging from small to large.** There was large effect size for picture 2-B and 12-B. Effect size for picture 11-BG was small and for all other ten pictures, effect size was medium. For summarized scores, see Table 4.2.

**Now, coming to test-retest reliability, for both girls and boys, OCR showed very good stability over a period of not less than six weeks with identical correlation coefficient of  $r=.75$  (effect size large) for both genders. All the picture wise correlations for both the genders were in positive direction with statistical significance ranging from .01 to .05 and effect sizes ranging from medium to large.** For girls, picture 4-G had large effect size and rest 12 pictures had medium effect size. For boys, picture 5-B, 11-BG, and 12-B had large effect size and rest 09 pictures had medium effect size. For summarized scores, see Table 4.3 and 4.4.

**It is concluded that all 22 pictures are successful in eliciting narratives which significantly differentiated between adjusted and maladjusted participants in meaningful ways and scores were found fairly stable over a period of not less than six weeks. The results are encouraging. The face and known groups validity, and reliability of the newly developed TATs stimuli set for Indian adolescents is proved and the set is ready for further use and testing in clinical and non-clinical settings.**

It is important to mention here that TATs are flexible in terms of stimuli and scoring/ interpretation, and many stimuli sets as well as scoring/interpretive approaches have been developed. Despite TATs popularity among clinicians, there lies no agreement on a particular interpretive/scoring approach and there are no comprehensive set of norms (see Teglasi, 2010). SCORS-G also do not have formal normative data and there are only a few studies which have used non-clinical samples (see Stein & Slavin-Mulford, 2018). Hence, there is dearth of literature for comparison of current findings (see Jenkins, 2017, 2017a). Still, SCORS-G composite ratings (or OCR) obtained in this study can be compared with SCORS-G composite ratings obtained by different type of samples (mainly clinical) in other published studies. The OCRs obtained in this study by adjusted boys ( $M=3.99$ ,  $SD=.30$ ) maladjusted boys ( $M=3.65$ ,  $SD=.27$ ), adjusted girls ( $M=3.97$ ,  $SD=.26$ ), and maladjusted girls ( $M=3.66$ ,  $SD=.23$ ) group can be compared with some available studies which have reported SCORS-G composite (i.e., OCR) or mean dimensional ratings (i.e., scores on eight component dimensions of SCORS-G) of clinical/ non-clinical samples. Mean dimensional ratings, wherever given for all eight SCORS-G dimensions, have been averaged by the researcher to calculate OCR for comparison purpose.

Peters et al. (2006) reported SCORS-G composite ratings (OCR) of interview and psychotherapy narratives of 90 outpatients (60 women, 30 men, mean age 29.91 years,  $SD=10.12$  years) seeking treatment from a community-based clinic. The level of reported distress among patients was primarily in mild to moderate range. The mean OCR of the sample was reported as 3.69 ( $SD=0.73$ ) and it falls close to mean OCR of maladjusted boys and girls group of this study.

Porcerelli, Cogan, and Bambery (2011) reported a case study of an African American adolescent boy brought to treatment and described as causing serious trouble at school and at home. The boy was earlier diagnosed with ADHD and was on medication for the same. In *ibid* study, after multimethod assessment (including SCORS-G ratings of narratives) the boy; due to his level of oppositionality, pathological narcissism, and antisocial behaviours; was described on risk of being expelled/dropping out of the school and developing anti-social personality disorder and finally ending up

in jail. The OCR of the boy, calculated on basis of averaging individual dimensional ratings, was 3.08 which is approximately 2 SD's below the ratings of maladjusted boys group (M=3.65 and SD=.27). It should be kept in mind that the African American boy is a clinical subject and participants of current study are students attending the school and therefore, having higher OCR than a clinical subject is meaningful.

Mullin and Hilsenroth (2012) reported pre-treatment SCORS-G composite ratings (OCR) of 71 patients undergoing therapy. Interview and psychotherapy narratives were used for coding. The mean OCR of the sample was reported as 3.46 which is below the mean OCR of maladjusted groups of the present study.

Stein et al. (2014) reported SCORS-G mean dimensional ratings (on narratives to 07 TAT cards) of 80 outpatients (32 female and 48 male; mean age 38 years and SD=15 years) referred to outpatient psychiatry department for psychological assessment. The researcher calculated mean OCR of this group which was found to be 3.48. When compared with current study, mean OCR by these outpatients is close to, but lower than maladjusted boys (3.65) and maladjusted girls (3.66) groups.

Conway, Lyon, and McCarthy (2014) reported SCORS-G mean dimensional ratings of 87 adolescents & children under treatment at a psychiatric hospital. Mean dimensional ratings were given on five TAT (Murray, 1943) cards and these ratings were averaged by researcher to find out mean OCR (or SCORS-G composite rating). Participants age range was 7-18 (M=12.87, SD=2.85). They were diagnosed with a range of disorders including conduct disorder, ADHD, ODD, bipolar disorder, major depression, schizophrenia and schizoaffective disorder etc. Most of them had experienced negative life events including, neglect or maltreatment, physical or sexual abuse, abandonment by a parent or caretaker etc. The mean OCR of the sample was reported as 3.23 which falls well below mean OCR of maladjusted boys and girls group of this study.

Haggerty et al. (2014) reported SCORS-G composite ratings (OCR) of therapy and interaction narratives of 72 patients, many inpatients of adolescent psychiatric

inpatient unit. Sample consisted of almost equal number of males and females, and the mean age of the participants was 15.7 years (SD=1.18). The primary diagnosis for most patients were mood disorders and conduct disorder or oppositional defiant disorder. The mean OCR of the sample was reported as 3.28 which is well below mean OCR of maladjusted boys and girls group of this study.

Maher, Sumathi, and Winston (2015) carried out a study in which five TAT (Murray, 1943) cards were used, narratives were coded using SCORS-G, and mean dimensional ratings were provided. Sample was composed of 221 young adults (108 men and 113 women) with mean age 20.53 years and SD=2.36 years. The participants were students pursuing degree in various institutions in Chennai and Puducherry, India. They were classified as securely and insecurely attached to their parents on the basis of a questionnaire. OCR for securely and insecurely attached participants was calculated by researcher on the basis of mean dimensional ratings provided by Maher, Sumathi, and Winston (2015). The mean OCR for securely attached participants was 3.80 and insecurely attached 3.69, and both fall close to adjusted and maladjusted groups of the present study, respectively.

Stein et al. (2016) reported SCORS-G composite ratings (OCR) of seven TAT (Murray, 1943) narratives of 208 outpatients referred for psychological assessment. The sample was composed of 112 men and 96 women with average age of 40.5 (SD=15). The mean OCR of the sample was reported as 3.51 which is closer to, but a little lower than mean OCR of maladjusted boys and girls group of this study.

Galtieri et al. (2022) carried out a study on 140 nonclinical adults using five TAT (Murray, 1943) narratives and reported mean OCR as 4.09 which is very close (slightly higher) to mean OCR of adjusted boys and girls group of this study.

**The above studies can be classified in three groups for the purpose of comparison with current findings, viz., studies which have used sample of people diagnosed with serious mental health issues, studies which have used sample of people who are referred for assessment or outpatients, and studies which have**

used sample of people who are neither diagnosed nor referred for clinical assessment due to any mental health issues, i.e., normal adults/adolescents, e.g., students and community adults/ adolescents.

**Three studies were found which used patients diagnosed with serious mental health issues and having experienced negative life events** (see Conway, Lyon, & McCarthy, 2014; Haggerty et al., 2014; Porcerelli, Cogan, & Bambery, 2011). The mean OCR reported in these studies was found well below the mean OCR of maladjusted boys and maladjusted girls group in the current study. The reason for higher difference in mean OCR reported in these studies and current study may be that the sample in current study is students studying in regular school who are although classified as maladjusted by an adjustment inventory, but still, their maladjustment is not of clinical range.

**Further, four studies were found which used sample of outpatients with mild to moderate level of distress** (see Mullin & Helsenroth, 2012; Peters et al., 2006; Stein et al., 2014; Stein et al., 2016). The mean OCR reported in these studies was found closer to mean OCR of maladjusted boys and maladjusted girls group in the current study, but, higher than mean OCR reported in studies with samples of patients diagnosed with serious mental health issues and negative life events (Conway, Lyon, & McCarthy, 2014; Haggerty et al., 2014; Porcerelli, Cogan, & Bambery, 2011). Also, mean OCR of insecurely attached Indian young adults was found closer to maladjusted boys and maladjusted girls groups of the current study (Maher, Sumathi, & Winston, 2015). The findings of the current study are in line with the above reported studies, as maladjustment on adjustment inventory and SCORS-G OCR indicates mild to moderate level of distress.

**Finally, only two studies were found which used normal (e.g., students or community adults/adolescents) sample.** Maher, Sumathi, and Winston (2015) reported mean OCR of securely attached Indian young adults which was found closer to adjusted boys and adjusted girls groups of the current study. In a recent study, Galtieri et al. (2022) reported mean OCR of non-clinical adult community sample very close

(slightly higher) than adjusted boys and adjusted girls groups of the current study. The findings of the current study in relation to adjusted boys and adjusted girls corroborate with mean OCR of normal adult/adolescents reported in above studies.

**It can be summarised that the mean OCR reported in existing literature meaningfully relates to OCR obtained in the current study.**

It is also important to note that the participants of this study are boys and girls who study in same school and prima facie have no large difference in their environment, functioning, socio-economic status etc. In other words, they are not markedly different in terms of adjustment and environment, and divided only on the basis of Adjustment Inventory by M.S.L. Saxena. However, if they had been compared with Indian adolescents undergoing psychological treatment or adolescents in correction homes etc, then t value and effect size would have been larger. **It can be said, on the basis of sensitivity of the newly developed stimuli set, that it has differentiated between a closer sample without very huge difference in their day-to-day functioning.**

Discussing about reliability, it can be seen that OCR (for the whole set) has good test-retest reliability with large effect size. It is comparable with reliability coefficient generally obtained for a questionnaire. However, picture-wise reliability (computed by comparing PCR) is lower than OCR (effect sizes ranged from medium to large). OCR is mean of all thirteen picture for a participant, and hence, more stable. As far as individual picture ratings are concerned, they are generally not used in clinical or other settings, i.e., either OCR or dimensional mean ratings [mean of eight individual dimensions of SCORS-G on all narratives, e.g., mean SE (Self Esteem)] are used. Also, writing a story is different from answering a questionnaire which is less labour intensive. Story writing is sensitive to multiple individual and environmental factors such as mood, similarity of conditions in both testing's, fatigue, lack of interest in writing stories to same pictures again that too writing continuously for roughly 90 minutes and so on. Also, there are chances that participants understood task better at second occasion and improved significantly by adding elements which were missed on first administration, e.g., thoughts, feelings etc. These all factors (combinedly or

individually), might have adversely affected test-retest reliability in ways which are difficult to control. Finally, it is opined that test-retest reliability (both for whole set and picture-wise) is likely to improve in face-to-face administration, where clinician/researcher can prompt for missing parts of story e.g., thoughts, feelings, ending etc. in each and every case, and participant has to put in lesser efforts and can speak freely.

**In summary, it is put forth that the current TATs stimuli is valid for use with Indian adolescents with the evidence of adequate validity and reliability.**



**CHAPTER FIVE****SUMMARY, CONCLUSION, CONTRIBUTION,  
LIMITATIONS, AND SUGGESTIONS****5.1 SUMMARY AND CONCLUSION**

Certain findings and conclusions are drawn on the basis of objectives and hypotheses. Those findings and conclusions are discussed on the basis of each hypotheses and objectives.

**Objective 1: To construct reliable and valid Thematic Apperceptive Techniques (TATs) stimuli for assessment of adjustment among senior secondary school students.**

**Objective 2: To compare the adjustment between adjusted and maladjusted students, as measured through newly constructed TATs stimuli.**

Twenty-two pictures (nine each separately for boys and girls, and four common for both genders) have been drawn with the guidance of experts and help of an artist. Face validity has been established on basis of opinion of three experts. As per advise of experts, necessary change in stimuli were made.

For further validation of the stimuli set, boys and girls were divided in two groups each labelled as adjusted and maladjusted on the basis of Adjustment Inventory by M.S.L. Saxena. In the same session, participants were also administered newly developed TATs stimuli and each one wrote thirteen stories. Stories were coded on eight variables of SCORS-G (Stein & Slavin-Mulford, 2018) and scores obtained were further processed to compute Overall Composite Rating (OCR) and Picture-wise Composite Rating (PCR). Lower scores on these variables show pathological aspects of object representations, whereas higher scores suggest more adaptive & mature functioning. OCR and PCR were compared for adjusted and maladjusted groups (both

genders separately) using t-test for whole set (OCR) and picture-wise (PCR). It was found that for both boys and girls, whole set of pictures differentiated significantly between adjusted and maladjusted groups with large effect size (Cohen's d). When each picture is considered separately, difference was statistically significant for all pictures, but effect size ranged from small to large.

As far as test-retest reliability is concerned, some of the boys and girls participated in retest after a period of six weeks or more. Again, for the whole set (OCR), scores were highly stable and statistically significant (Pearson's r) with large effect size. Coming to the scores on individual pictures (PCR), results were statistically significant with effect size ranging from medium to large.

Hence, it is concluded that both the objectives have been fulfilled.

**Hypothesis: There is no difference between composite score (or OCR) on SCORS-G of adjusted and maladjusted students.**

In case of boys, composite score (or OCR) on SCORS-G differed significantly with adjusted boys group mean OCR was significantly higher than maladjusted boys group mean OCR. The effect size was large. Hence, the hypothesis is rejected in case of boys.

In case of girls, composite score (or OCR) on SCORS-G differed significantly with adjusted girls group mean OCR was significantly higher than maladjusted girls group mean OCR. The effect size was large. Hence, the hypothesis is rejected in case of girls.

It is concluded that, the hypothesis has been rejected in case of both the genders.

## **5.2 CONTRIBUTION OF THE STUDY**

The outcome of the study is a remarkable contribution to the society. The researcher wishes to name the stimuli set as, '**The Thematic Apperceptive Techniques (TATs) stimuli for Indian Adolescents**'. The phrase "assessment of adjustment" used in the title of the thesis, has been removed from title of the stimuli because of beauty and flexibility of TATs. This stimuli set helps to elicit narratives in the form of story and scoring/interpreting these narrative responses only in terms of SCORS-G is unfair in the presence of wide variety of scoring/interpretive approaches (discussed in literature review chapter, and see Lamba & Lone, 2022 also) devised for assessing numerous different psychological constructs. Although, SCORS-G is quite reputed and comprehensive coding system with good research base (see Stein & Slavin-Mulford, 2018), and this was the reason for choosing it for current study for assessment of adjustment of participants.

It has also been discussed in the literature review chapter that how TATs are important, unparalleled, and contribute to incremental validity of assessment in multimethod approach. **Among a number of objective tests for assessment of variety of psychological constructs, this stimuli set is unique and important as it fulfils the need of availability of an important projective technique for Indian adolescents.**

The set may be used for personality assessment of adolescents in a variety of settings, viz., clinical, school, selection for various purposes etc.

### **5.3 LIMITATIONS**

Research is a process which never ends and never perfect due to some unavoidable issues experienced by the researcher. Limitations keep the scope of further explorations alive.

The sample used in this study were students studying in regular school. They were divided into adjusted & mal-adjusted groups just according to scores obtained on an Adjustment Inventory. It is believed that effect sizes could have been even larger if

clinical/ correction home/ de-addiction centre samples were taken and compared with normal school going adolescents.

Due to labour intensity of TATs, the sample size was small and hard to get. Moreover, convenience sampling method was followed. Findings have limited generalizability.

The stories were written by participants in a group setting with pictures projected on screen. It ensures similarity of conditions and instructions for participants, however, it doesn't allow researcher/administrator to prompt for missing elements of story, viz., thoughts, feelings, ending etc. Face-to-face administration and verbal storytelling could have been more comfortable for participants also and may be narratives could have been richer, but, it could not be applied due to time constraints expressed by institutions requested for data collection.

#### **5.4 SUGGESTIONS FOR THE FUTURE RESEARCH**

The following suggestions are put forth for future research on this set as well as Thematic Apperceptive Techniques (TATs) in general:-

- (a) Norms are not applicable to TATs in similar ways as applicable for objective techniques. Norms usually refer to quantitative scores and neither stimuli nor narratives are quantitative in the absence of a scoring system which quantifies the narratives, thus, the concept of norms applicable to objective tests doesn't make any sense for TATs. According to Jenkins (2017b), norms must be obtained from a particular sample assessed in a specific context for a particular purpose using specific pictures and stories are coded using a specific scoring system. Purpose of norms is to facilitate a context for interpretation and comparison of scores. Spontaneously told stories are influenced by storyteller's cultural identity shaped by age, gender, ethnic heritage, cultural roles, regional culture, religious affiliation, and many other cultural group-specific life experiences which might be stigmatized or valued by the subject's heritage and

host cultures. The impact of these things on subject's stories might be hidden by interpretations which are based on norms from larger heterogenous samples of larger host culture. According to Jenkins (2017b), this may lead the expressions that would be normal in storytellers subgroup culture be misattributed to psychopathology. Hence, because of the strong influence of culture on storytelling, **the local norms of demographically similar subjects may provide better standards of comparison than heterogenous and large national samples** (see Jenkins, 2017b). In this sense, the scores of current study may serve as local norms of senior secondary school going adolescents, tested using TATs stimuli for Indian Adolescents, in group setting (stories written by participants), and narratives interpreted using SCORS-G rating system. Hence, the researcher suggests for development of local norms with small sample sizes with demographics, stimuli set, response format, and scoring/interpretive approach described in detail.

(b) Stimuli set may be used with other adolescent populations such as clinical inpatients/outpatients (scores of different diagnosis patients may be compared), correction home inmates, adolescents undergoing de-addiction treatment, college students, secondary school students and so on. Scores of the current sample may be compared with above mentioned samples and findings may be reported.

(c) This set is specifically designed to show concerns of Indian adolescents. Given the importance of TATs in terms of their uniqueness and contribution to incremental validity of assessment, it is important that TATs stimuli set's depicting contemporary issues and concerns are available for various Indian sub-populations viz., children, young adults, middle aged adults, and seniors are developed and validated.

(d) Given the labour burden of TATs in terms of data collection and scoring (requirement of expertise, time, and resources), Jenkins (2017a), has rightly suggested that clinicians with common interests could form practice research

networks and build data records and archive their data after obtaining informed consent for research from their clients. It may be eased by collaboration with psychologists in teaching field. This will reduce some of the labour burden of TATs research and help in developing TATs research base. This will be valuable archival data from clinical files, potentially rich source of externally valid information, especially for subjects suffering with unique disorders.

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## APPENDIX-I

CERTIFICATE

It is certified that pictures presented before me for assessment and suggestions (if any) by Mr. Umesh Lamba, PhD Scholar, Lovely Professional University, Regn. No. -41800560, seem to be face valid and likely to elicit stories related to day-to-day adjustment when used with Indian adolescents. Further, I give no/ following suggestions: -

Sl. No.	Description of picture	Suggestions (if any)
1	Boy with book and mobile, woman looking from open door	
2	Girl with book and mobile, woman looking from open door	
3	Classroom scene with a boy standing	
4	Classroom scene with a girl standing	
5	Two girls and a boy in group, one girl walking away	
6	Two girls and a boy in group, one boy walking away	
7	Group of boys drinking and playing cards	
8	A girl looking upwards with drinks in front, some figures dancing in background	
9	A boy approaching a girl	
10	A group of boys and girls interacting in outdoor setting with trees and tents in background	
11	A boy in negative mood and father figure in background as if talking to him	
12	A boy and woman (saying something) on dining table	
13	Family scene with boy in center	
14	A girl and a man (saying something)	
15	A girl in negative mood and mother figure in background	
16	A family scene with girl in center	
17	A human figure (shadowy) looking away at an uncertain place	
18	A human figure (shadowy) looking up with folded hands	
19	A girl looking in mirror, in negative mood	
20	A boy looking in mirror, in negative mood	
21	Playground scene with girl looking towards ground and various figures running/walking	
22	Playground scene with boy looking towards ground and various figures running/walking	

Date: 15-03-2022

Stamp & signature

Dr. Sumit Kumar  
Clinical Psy  
RCI-A 45257  
M.Sc. M.Phil Ph.D

**CERTIFICATE**

It is certified that pictures presented before me for assessment and suggestions (if any) by Mr. Umesh Lamba, PhD Scholar, Lovely Professional University, Regn. No. -41800560, seem to be face valid and likely to elicit stories related to day-to-day adjustment when used with Indian adolescents. Further, I give no/ following suggestions: -

Sl. No.	Description of picture	Suggestions (if any)
1	Boy with book and mobile, woman looking from open door	Emphasis on mobile. Redrawing of Plate
2	Girl with book and mobile, woman looking from open door	Well framed.
3	Classroom scene with a boy standing	Well framed.
4	Classroom scene with a girl standing	Similar to Plate no. 3.
5	Two girls and a boy in group, one girl walking away	Well framed
6	Two girls and a boy in group, one boy walking away	Emotion is much reflected.
7	Group of boys drinking and playing cards	Well-framed
8	A girl looking upwards with drinks in front, some figures dancing in background	-do-
9	A boy approaching a girl	-do-
10	A group of boys and girls interacting in outdoor setting with trees and tents in background	-do-
11	A boy in negative mood and father figure in background as if talking to him	Make uniformity. Mustache over father fig.
12	A boy and woman (saying something) on dining table	Well framed
13	Family scene with boy in center	Figure must familiar with
14	A girl and a man (saying something)	well framed -
15	A girl in negative mood and mother figure in background	-do-
16	A family scene with girl in center	-do-
17	A human figure (shadowy) looking away at an uncertain place	-do-
18	A human figure (shadowy) looking up with folded hands	-do-
19	A girl looking in mirror, in negative mood	-do-
20	A boy looking in mirror, in negative mood	-do-
21	Playground scene with girl looking towards ground and various figures running/walking	-do-
22	Playground scene with boy looking towards ground and various figures running/walking	-do-

\* Please follow uniformity of drawings/character ~~drawing~~. if putting 'Bindi' on one to female character, then follow the same. Otherwise, well framed pict.

Date: 30.12.2021

Stamp & signature

*Jeep. Malic*  
30.12.21

(Dr. Jeepak Malic)  
Scientist, ICMR- New Delhi  
Clinical Psychologist (CR- A36401)



CERTIFICATE

It is certified that pictures presented before me for assessment and suggestions (if any) by Mr. Umesh Lamba, PhD Scholar, Lovely Professional University, Regn No.-41800560, seem to be face valid and likely to elicit stories related to day to day adjustment when used with Indian adolescents. Further, I give no/ following suggestions:-

Sl. No.	Description of picture	Suggestions (if any)
1	Boy with book and mobile, woman looking from open door	object in boys hands may not be perceived as mobile, have like picture 2
2	Girl with book and mobile, woman looking from open door	✓
3	Classroom scene with a boy standing	✓
4	Classroom scene with a girl standing	✓
5	Two girls and a boy in group, one girl walking away	✓
6	Two girls and a boy in group, one boy walking away	✓
7	Group of boys drinking and playing cards	✓
8	A girl looking upwards with drinks in front, some figures dancing in background	✓
9	A boy approaching a girl	✓
10	A group of boys and girls interacting in outdoor setting with trees and tents in background	✓
11	A boy in negative mood and father figure in background as if talking to him	✓
12	A boy and woman (saying something) on dining table	✓
13	Family scene with boy in center	✓
14	A girl and a man (saying something)	✓
15	A girl in negative mood and mother figure in background	✓
16	A family scene with girl in center	✓
17	A human figure (shadowy) looking away at an uncertain place	ok ✓
18	A human figure (shadowy) looking up with folded hands	✓
19	A girl looking in mirror, in negative mood	✓
20	A boy looking in mirror, in negative mood	✓
21	Playground scene with girl looking towards ground and various figures running/walking	✓
22	Playground scene with boy looking towards ground and various figures running/walking	✓

Date: 2/3/22

Dr. N. Pynhp Pakma, Ph.D.  
 Consultant Clinical Psychologist  
 Reg. No - A5481 (RCH)  
 Bethany Hospital, Shillong

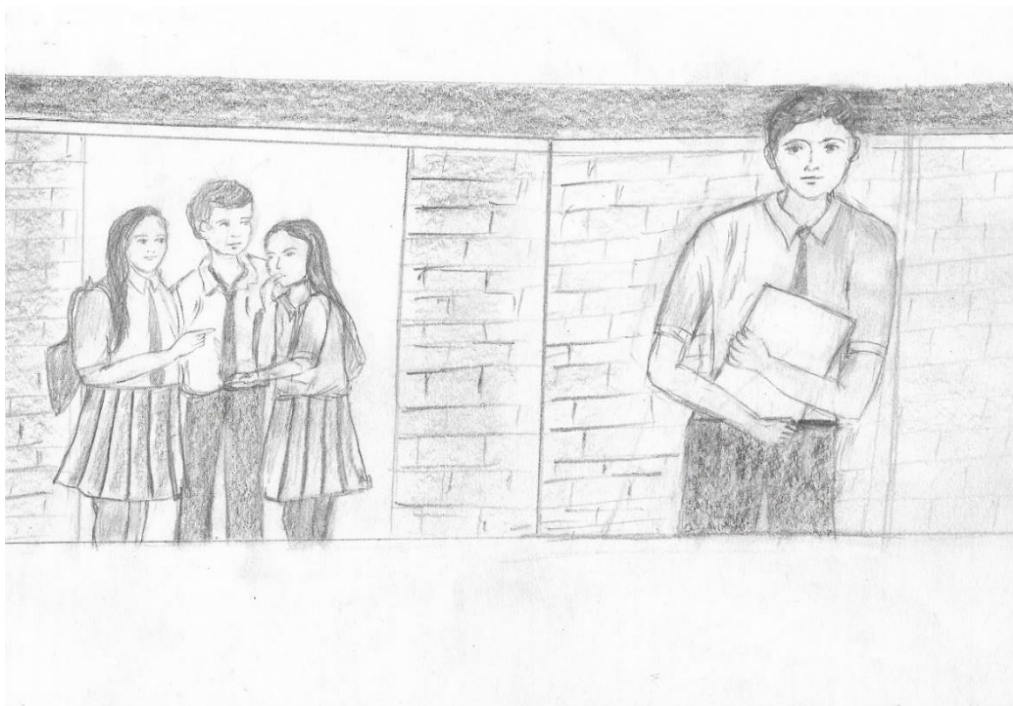
Stamp & Signature

APPENDIX-II

Picture 1-G



Picture 4-B



**Picture 8-B**



**Picture 9-BG**



**Picture 10-G**



**Picture 12-B**



## APPENDIX-III

KVB-24

RESPONDENT'S INFORMATION FORM-1

1	Name	[REDACTED]
2	Age	[REDACTED]
3	Gender	Male
4	Mobile No. ✓	[REDACTED]
5	Board from which 10 <sup>th</sup> done	CBSE
6	School from which 10 <sup>th</sup> done	[REDACTED]
7	10 <sup>th</sup> class percentile/ percentage/ CGPA	[REDACTED]
8	Education (ongoing, if any)	12 <sup>th</sup>
9	Stream	[REDACTED]
10	School/college name	[REDACTED]
11	Board	CBSE
12	Can you understand, speak, and write Hindi?	Yes
13	Can you understand, speak, and write English?	Yes
14	Any other languages known?	No
15	Father's profession	[REDACTED]
16	Mother's profession	[REDACTED]
17	Parent's Income (monthly)	₹60,000
18	Number of elder brother's	0
19	Number of elder Sisters	0
20	Number of younger brothers	1
21	Number of younger sisters	0
22	Place and state of maximum residence	[REDACTED]
23	Place and state of present residence	[REDACTED]
24	Place and state of permanent residence	[REDACTED]
25	Chronic (long-lasting) physical illness (if any) (Yes/No)	No
26	If yes, then nature of illness and disability faced due to it	
27	Religion	
28	Social class (General/ OBC/ SC/ ST)	
<b>For official purpose only :-</b>		
1	Place where data collected	KV AFS OJHA
2	Date of data collection	

14 DEC 2022

## INFORMED CONSENT FORM

Details of researcher : Umesh Lamba, PhD Regn. No-41800560, Lovely Professional University

Description of information required : Demographic information ~~and~~ stories in response to 13 pictures, and response to Adjustment Inventory.


In order to participate in this research study, it is necessary that you give your informed consent. By signing this informed consent statement you are indicating that you understand the nature of the research study and your role in that research and that you agree to participate in the research. Please consider the following points before signing:

- I understand that I am participating in psychological research;
- I understand that my identity will not be linked with my data, and that all personal information I provide will remain confidential;
- I understand that I will be provided with an explanation of the research in which I participated and be given the name and telephone number of an individual to contact if I have questions about the research. In addition, I understand that I may contact Mr. Umesh Lamba at +91-9485169450, if I have questions concerning my rights as a participant in psychological research or to report a research-related injury.
- I understand that a few facts about the study might be withheld from me. However, the complete facts and true purpose of the study will be revealed to me at the completion of the study session.
- I understand that participation in research is not compulsory, is voluntary, and that, I may refuse to participate without penalty.

By signing this form I am stating that I understand the above information and consent to participate in this study.

Signature of participant  
Name

[Redacted signature and name]

  
Signature of researcher  
Name: Umesh Lamba

KV8-24

Story No. 1			
What is the relationship between people shown in picture?			
What is happening in the scene shown in picture?			
Full story			
<p><del>An 13 year old boy</del>  Rehan, an 13 year old boy, who was born without a leg.  <del>was a</del> <del>think</del></p>			
<p>Rehan <sup>was</sup> a 13 yr old boy with absolutely no ambition and will, but a quick learner. <del>He</del> Like <del>not</del> any other parents his too forced him to <del>study</del> excel in academics as it was the best choice <del>for</del> to end their poverty. Rehan <del>was</del> listened to them and spent all his childhood and teenagehood in his house, studying. It <del>was</del> after he graduated from college, he used to roam around aimlessly. One day he saw children and teens all in a playground having fun <del>at</del> and it was the moment he realized what he'd missed. He sat in the ground all day, watching people have fun as <del>the</del> regret fill his heart since he missed all the joys in life.</p>			
<p>- Boy studied (followed parents advice)  - Regrets that didn't enjoyed life.</p>			
COM	SC	ICS	SE
6	6	3	3
AFF	EIR	EIM	AGG
2	2	5	5

Story No. 2																
What is the relationship between people shown in picture?																
What is happening in the scene shown in picture?																
<b>Full story</b>																
<p>Arman, like any other normal boy in his teens, was going through a rebellious and confused phase of his life, distracted by the wonderfulness of the world. Being average from the starting, he wasn't that good at academics, <del>or</del> neither did he care. Knowing he had a test tomorrow at school, he kept playing games the whole day. The next day, when he stepped inside his classroom, he felt the usual nervousness and anxiety. Unfortunately, the teacher chose him to answer the first question. Arman, being blank, couldn't answer and was made fun of. Will he learn his lesson this time?</p>																
<p style="text-align: center;">- Carefree boy didn't do homework, kept playing - Made fun of.</p>																
<table border="1" style="border-collapse: collapse; margin: auto;"> <thead> <tr> <th style="padding: 2px;">COM</th> <th style="padding: 2px;">SC</th> <th style="padding: 2px;">ICS</th> <th style="padding: 2px;">SE</th> </tr> </thead> <tbody> <tr> <td style="text-align: center; padding: 2px;"><b>5</b></td> <td style="text-align: center; padding: 2px;"><b>5</b></td> <td style="text-align: center; padding: 2px;"><b>5</b></td> <td style="text-align: center; padding: 2px;"><b>3</b></td> </tr> <tr> <th style="padding: 2px;">AFF</th> <th style="padding: 2px;">EIR</th> <th style="padding: 2px;">EIM</th> <th style="padding: 2px;">AGG</th> </tr> <tr> <td style="text-align: center; padding: 2px;"><b>3</b></td> <td style="text-align: center; padding: 2px;"><b>2</b></td> <td style="text-align: center; padding: 2px;"><b>2</b></td> <td style="text-align: center; padding: 2px;"><b>3</b></td> </tr> </tbody> </table>	COM	SC	ICS	SE	<b>5</b>	<b>5</b>	<b>5</b>	<b>3</b>	AFF	EIR	EIM	AGG	<b>3</b>	<b>2</b>	<b>2</b>	<b>3</b>
COM	SC	ICS	SE													
<b>5</b>	<b>5</b>	<b>5</b>	<b>3</b>													
AFF	EIR	EIM	AGG													
<b>3</b>	<b>2</b>	<b>2</b>	<b>3</b>													



Story No. 3

What is the relationship between people shown in picture?

What is happening in the scene shown in picture?

Full story

Aaron, from a long day of work, was tired and stressed. Tomorrow was an important meeting and he was the main advisor at it against his will. He just wanted to stay at his table and work in peace without any interaction, or as he said it, distraction. As he reached home, his wife instantly read his mood and realized Aaron's stress about something. At the dining, she politely comforted him that everything will be okay. Aaron was moved from this and realized he's not alone, and after all people aren't that bad. As per would expect, the meeting went really good and Aaron got a promotion.

- Detailed Advisor of imp meety, against will  
 - later on changed attitude & became

COM	SC	ICS	SE
6	6	5	4
AFF	FIR	EIM	AGG
5	5	5	6

Story No. 4

What is the relationship between people shown in picture?

What is happening in the scene shown in picture?

Full story

Ram was an antisocial introverted child from the beginning while his only ~~good~~ friend, Aman, was an extremely socially active extroverted dude. As time moved on, Ram became more and more introverted while Aman became really popular. Ram started thinking everyone was snatching away his only best friend from him. ~~and~~ This went on to the point that Ram started hating Aman thinking he's deliberately moving away from him. Aman tried his best but Ram's ill thinking never let things mend their relationship.

-Intro/Extro friends  
 -Intro thinky people getting his friend away  
 -even started bully him.

COM	SC	ICS	SE
5	5	5	4
AFF	FIR	EIM	AGG
3	2	4	3

Story No. 5																	
What is the relationship between people shown in picture?																	
What is happening in the scene shown in picture?																	
Full story																	
<p>5 <del>years</del> best friends were once having their usual Saturday night, <del>but when one of them had an idea</del>.          out, celebrating their college graduation. They were clueless about what to do from now on as I weren't specially good at anything. They realized <del>life will</del> life will only get harder from on as they are about to step in the real world. They thought about the simpler times when they were kids. When their only worry in life was not getting the weekly comic from the bookstore. When they didn't care about the cruelty of the world and were oblivious to it. Will it get just like the simpler times ever? They thought.</p>																	
<p>- Boys celebrate graduation          - Not good at anything          - Worry what to do, as life will be harder</p>																	
<table border="1"> <tr> <td>COM</td> <td>SC</td> <td>IGS</td> <td>SE</td> </tr> <tr> <td>5</td> <td>5</td> <td>3</td> <td>3</td> </tr> <tr> <td>AFF</td> <td>EIR</td> <td>EIM</td> <td>AGG</td> </tr> <tr> <td>3</td> <td>4</td> <td>4</td> <td>4</td> </tr> </table>		COM	SC	IGS	SE	5	5	3	3	AFF	EIR	EIM	AGG	3	4	4	4
COM	SC	IGS	SE														
5	5	3	3														
AFF	EIR	EIM	AGG														
3	4	4	4														

Story No. 6																
What is the relationship between people shown in picture?																
What is happening in the scene shown in picture?																
Full story																
<p><del>The</del> Five friends decided to go for camping as a dose to some unnamed forest. On the third day while they were <del>about</del> eating near the peaceful campfire, they got jumped by the local tribes who'd inhabited that forest for <del>centuries</del> centuries. They were caught and little did they know that the tribes people were cannibals. They watched each other get brutally killed and eaten as their whole life crossed through their eyes in a flash.</p>																
<p style="text-align: center;">- Boys camping - eaten up by tribals</p>																
<table border="1" style="border-collapse: collapse; margin: auto;"> <tr> <td style="padding: 2px;">COM</td> <td style="padding: 2px;">SC</td> <td style="padding: 2px;">ICS</td> <td style="padding: 2px;">SE</td> </tr> <tr> <td style="text-align: center; padding: 2px;">3</td> <td style="text-align: center; padding: 2px;">4</td> <td style="text-align: center; padding: 2px;">3</td> <td style="text-align: center; padding: 2px;">4</td> </tr> <tr> <td style="padding: 2px;">AFF</td> <td style="padding: 2px;">EIR</td> <td style="padding: 2px;">EIM</td> <td style="padding: 2px;">AGG</td> </tr> <tr> <td style="text-align: center; padding: 2px;">1</td> <td style="text-align: center; padding: 2px;">1</td> <td style="text-align: center; padding: 2px;">1</td> <td style="text-align: center; padding: 2px;">1</td> </tr> </table>	COM	SC	ICS	SE	3	4	3	4	AFF	EIR	EIM	AGG	1	1	1	1
COM	SC	ICS	SE													
3	4	3	4													
AFF	EIR	EIM	AGG													
1	1	1	1													

Story No. 7			
What is the relationship between people shown in picture?			
What is happening in the scene shown in picture?			
Full story			
<p>Ranu had just entered college and was oblivious to the fantasies and excitement of the world as he dedicated most of his childhood studying to get into a prestige college ... but still ending up failing.</p> <p>He saw people making friends, going out, doing gups, travelling and what not, and it was this moment that he realized, that he had lost the most precious time of his life, knowing he'll never get it back.</p> <p>He <del>was</del> got up and saw his reflection in the mirror, realizing it wasn't worth it after all. Regret filled up his heart as he <del>thought</del> thought what all he could've done if he got a chance to live his life again.</p>			
<p>- Boy contemplates he lost precious time in study</p> <p>- Regret</p>			
COM	SC	ICS	SE
6	6	3	3
AFF	EIR	EIM	AGG
2	2	4	5

**Story No. 8**

What is the relationship between people shown in picture?

What is happening in the scene shown in picture?

**Full story**

Denang was a kid with many ambitions from the start. But one ~~start~~ dream stuck with him, an olympic athlete. But his stereotypical parents, who weren't very well-off in terms of income, wanted him to become a doctor. They somehow enrolled him for a prestige private school but unfortunately Denang failed the entrance exam. Then his father somehow settled the matter with the principal and got him in. Denang, leaving all his dreams behind, grew up to be an average doctor.

- Boy wanted to be athlete
- Parents wanted doctor
- Eventually made to become doctor

COM	SC	ICS	SE
5	5	3	3
AFF	EIR	EIM	AGG
2	2	4	5

Story No. 9			
What is the relationship between people shown in picture?			
What is happening in the scene shown in picture?			
Full story			
<p>Ravi was a well-off boy from a rich family. Like his father, Ravi was excellent at almost everything he did. But for some reason, he still felt like a piece missing from his life. He felt as if everything was too easy for him. He sat in his balcony alone, thinking of that missing piece when he saw some kids playing football. He realized his new goal. He enrolled himself for the national football academy and for the first time he felt the thrill and adrenaline surging through his veins as he played with national level players. <del>He</del> he felt he had to be one of the greatest players in all of country.</p>			
<p>- Boy good in everythg but found something - Realizes he wanted to be a footballer &amp; becomes good at.</p>			
COM	SC	ICS	SE
5	5	6	6
AFF	EIR	EIM	AGG
5	3	4	4

**Story No. 10**

What is the relationship between people shown in picture?

What is happening in the scene shown in picture?

**Full story**

Botam was studying in the afternoon as usual when his mom knocked on the door and entered his room. She said there was a mail for him from an anonymous address. Botam was confused ~~but~~ just like his mother but opened the mail. It was a letter from his dad who left the family the moment Botam was born. He ~~tried~~ ~~now~~ the letter claimed that he ~~is~~ regretted his past actions very much and wanted his son and hence join the family back. But his mom refused to do so from the grudge she held against him.

- Boy received ltr from father who left when he was child
- F wants (regrets) to join family back
- Mother does not allow

COM	SG	ICS	SE
3	4	5	4
AFF	EIR	EIM	AGG
3	2	4	3



**Story No. 11**

What is the relationship between people shown in picture?

What is happening in the scene shown in picture?

**Full story**

Yash is always the popular guy at school who constantly had people all over him. His chill and attentive nature attracted every girl he met. But he had interest in only one girl, the class dork, who nobody cared about. He mustered up courage and decided to meet her one day. They mutually agreed and decided to meet up at the local park. It was all going normal but the girl decided she wasn't ready for a relationship just yet because she had other dreams. The boy was heartbroken but realized maybe she wasn't the one.

- Boy liked girl, approaches  
 - girl not ready due to other dreams  
 - boy heart broken

COM	SC	ICS	SE
5	5	5	3
AFF	EIR	EIM	AGG
3	3	4	4

Story No. 12			
What is the relationship between people shown in picture?			
What is happening in the scene shown in picture?			
Full story			
<p>Ravi was stressed due to the upcoming national exams for his dream college. He was locked up in his room 24 hrs trying to study. His dad realized that something's not right and one day snuck up in his room while he was studying. Ravi was surprised by this because he had a mindset that no body cared about him and that he was alone. His dad politely sat beside him and said how he doesn't have to stress up about something so small as life <del>was</del> is much bigger and simpler than an exam. His father said him to loosen up and not worry as everything's going to be okay. Ravi felt relieved and good. He passed the exam with flying colours and his dad was proud.</p>			
<p>- Boy stressed over exams - Father relaxes him</p>			
COM	SG	ICS	SE
6	6	5	5
AFF	EIR	EIM	AGG
5	5	5	4

Story No. 13

What is the relationship between people shown in picture?

What is happening in the scene shown in picture?

Full story

~~Man~~ Herval was a convict who accidentally killed three children by leaving the stove open. He had gotten death sentence for his actions. Herval was extremely shameful of his actions and there wasn't a single day when he didn't regret it. Other convicts could see his shadow at night crying and praying to god to forgive him. He wouldn't talk a word to anyone, neither did he try to defend himself in court, because he knew he did it wrong. After 3 weeks he was killed via hanging.

- Man regrets accident (killed 3 children)
- Praying god to forgive, don't want to live
- Hanged

COM	SC	IGS	SE
5	5	2	2
AFF	EIR	EIM	AGG
2	2	3	2

CONFIDENTIAL

Example		Page no. 1			Page no. 2			Page no. 3			Page no. 4			Page no. 5			Page no. 6		
YES	? NO	YES	?	NO	YES	?	NO	YES	?	NO	YES	?	NO	YES	?	NO	YES	?	NO
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
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0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

DO NOT WRITE ANYTHING UNDER IT				
Elements	Age Group	Raw Score	T- score	Grade
A		6	38	
B		6	34	
C		5	29	
D		7	33	
E		3	30	
Total of T score			164	E

Scored by... *Quinn*.....



**APPENDIX-IV**

**ADJUSTMENT INVENTORY BY M.S.L. SAXENA**

1. Do you often sleep well?
2. Do you usually have carefree attitude towards your health?
3. Do you often feel fatigued?
4. Do you think you are ugly?
5. Do you usually have severe headaches?
6. Do you feel lonely?
7. Does your mind wander often that you forget what you were thinking or what you were doing?
8. Have you felt a strong desire to commit suicide?
9. Do you get a mixture of good & bad feelings for your family?
10. Do you catch cough and cold easily from other infected people?
11. Do you take care of your sick friends or relatives? (Do you visit them in the hospital for their well-being, or take care of their medicines, etc.?)
12. Do you sometimes get nervous in front of people belonging to a higher class?
13. Do you put off work till tomorrow?
14. Do you think marriage is favorable for the happy prospects in future?
15. (A) (Only for boys) - Does your hesitant, shy nature become an obstacle in interacting with an unknown, attractive girl?  
(B) (Only for girls) - Does your hesitant, shy nature become an obstacle in interacting with an unknown, attractive boy?

16. No matter how well you perform your task, do you feel frustrated by putting pressures on others?
17. Do you fear being lonely during your old age?
18. Do you usually lose temper?
19. Do you feel tired even after waking up from your night sleep?
20. (A) (Only for boys) - If happened to be in the company of girls, do you find it difficult to mix with them?  
(B) (Only for girls) - If happened to be in the company of boys, do you find it difficult to mix with them?
21. Do you find it difficult to escape from the trap of sweet-talking salesmen?
22. Do you find yourself useless?
23. Do you heartily wish your friends on their success?
24. Instead of doing household works, do you prefer rather to hang out with friends or go to cinema halls?
25. Do you feel inferior at times?
26. What gives you more pleasure, being at work place (viz. school or college) or being at home?
27. Do you often open and read letters addressed to others?
28. Do you often get burning or crawling sensation on any part of the body?

29. Do you take great interest in showing your school or college to others?
30. Do you generally delay in returning things borrowed from others?
31. Do you generally fill ill or sick?
32. Do you feel the behavior of your family members is always just towards you?
33. Do people often visit you for advice?
34. Has anyone in your family degraded you concerning your looks?
35. Are you afraid to stay alone?
36. Do you often get bad thoughts which you cannot share with others?
37. Does your family try to understand your feelings & try to be sympathetic towards you?
38. Is there any person in your household who pressurizes you out of their dominating attitude irrespective of their good or bad decisions?
39. Do you feel that your weight is less?
40. Do you feel depressed while having arguments with others?
41. Do you often get urges to run away ?
42. Do you take the opportunity of public speaking?

43. Do you take great care to keep your books and other study related material neat and clean?
44. Do you ever feel that you are not the way a boy or a girl should be?
45. Were you under constant check when you used to reside with your parents?
46. Do you sometimes think that your life could have been better?
47. Have you ever shouldered any grave responsibility, (at least twice) in your school or college? (E.g. - Being the class monitor, captaining a team, leading any union etc.?)
48. Do you fear suffering from an incurable disease?
49. Have you ever said things for which you have had to regret later?
50. Are you quick to mix with people younger than you?
51. Do you need medical assistance regularly?
52. Do you experience any anxiety while you are being introduced to an esteemed person?
53. Do you feel yourself to be lonely even when you are accompanied by people?
54. If you disagree with your teacher, instead of telling him, do you suppress your views?
55. Do you ever feel envy towards your friends?
56. Do you fear death?
57. Do you lack self-confidence?
58. Are you satisfied with your performance & success in your school or college?
59. Do you feel your parents were ever disheartened because of you?



60. Do you get sad because of small issues?
61. Do you avoid people known to you, if you do not feel talking to them?
62. Do you often feel dizzy?
63. Do you believe in moving on and adapting new ways of living, leaving behind old values and traditions?
64. Do you upset yourself by recollecting unpleasant thoughts?
65. Do you feel happy or sad for no reason?
66. Instead of solving your personal problems, do you solve it by discussing it with your parents?
67. Instead of being straight forward, do you suppress your feelings in certain social situations?
68. Do you take the task of introducing people to each other in social functions?
69. Are you enthusiastic to play games with participants more clever than you?
70. Are you unable to sleep even when there is no disturbance?
71. At home, has anyone tried to pressurize or influence you to follow his/her dictate?
72. Were you often in loss because of your shy nature?
73. Do you find your life depressing?
74. Do you doubt your memory?
75. Do you usually reach late to your classes or work-place?

76. Are you able to digest your food properly?
77. Are you comfortable to start a conversation easily with a stranger you meet?
78. Can you easily abandon all your wishes in order to obey your parents?
79. Do you try to approach or meet the chief guest of the functions you attend?
80. Do you get enough opportunity at your home to enhance your skills and to develop your personality?
81. Do you wish to play and roam around alone, after doing the same with your friends?
82. After spending some time with your friends, do you wish to stay alone?
83. Do you take much pleasure in enacting an active role in any festival or get-together?
84. Do you often feel depressed recollecting the incidents of insult done in the past?
85. Does your interest change often?
86. Do people misunderstand you?
87. Do you always contemplate too much and indulge in self-pity?
88. Are you happy with the atmosphere at your home?
89. Do you cry easily?
90. Do you feel irritated if you have excessive work load?

**Note: - Please make sure that you have answered all the questions and no question is left unmarked, if unanswered, please mark now.**