CHAPTER 2: REVIEW OF LITERATURE

For the review, an extensive survey of literature from the accessible online researches and other printed journals form Hansa Mehta library, M.S. University of Baroda, Roehampton University Library, London and NIMHANS Library at NIMHANS, Bangalore were visited. Clarification of some relevant concepts and an overview of past and present research are presented here. This chapter is divided into five broad sections as follows:

Section A: Emotions, emotional disturbance and its assessment

Section B: Past research on Projective drawings techniques: The Draw-A Person Test (DAP) and others

Section C: Past research on Projective drawings techniques: House- Tree-Person test (HTP)

Section D: Studies on Children's Drawings in the Indian Context.

In each section an attempt is made to review the main literature accessed by the researcher under different headings in a chronological order while citing research, followed by significant conclusions drawn from that section.

2.1. Section A: Emotions, Emotional Disturbance and Its Assessment

2.1.1The concept of emotions and introducing Emotional and Behavioral disturbances:

Emotions can be understood as "…a complex psychological state that involves three distinct components: a *subjective experience*, a *physiological response*, and a

behavioral or *expressive response*." (Hockenbury and Hockenbury, 2007). This definition highlights that there are three key elements to an emotional experience:

a. ***A subjective experience***: Everyone experiences emotions in a unique subjective way. Different people respond to different triggers for different emotions. Their reactions vary in facial expression, duration and intensity. We may find that, two people listening to the same joke may not both laugh. Or one may laugh harder and longer than the other.
b. ***It is accompanied by a physiological response***: All emotions are accompanied by involuntary, autonomic changes like fear usually leads to dilation of pupils, increased heart rate, dryness of mouth, sweating of palms, rapid breathing etc.
c. ***It results in a behavior or expression*****:** The subjective feelings we have may lead to outward behavior such as change in expression, gestures or actions. For example, happiness will lead to smiles, laughter and outward body movements that connect one person to another.

It has been recorded that emotions have the power to impact other aspects of our functioning both positively and negatively. Developmentally, it is known that emotions are significant in cognitive processing, memory, social behaviors, health, and achievement. (Berk, 2003, Shaffer and Kipp, 2007). When negative emotions persist over time they form a continuum of disturbance. Such disturbances begin to impact thoughts, behaviours and adjustment within the self and with the environment, leading to different patterns of maladjustment. The broad term of 'Emotional and Behavioral Disturbances' is currently used to refer to such problems. Some other terms that may be used interchangeably with this group of disturbance in available literature are: emotional and behavioral disorders, behavioral and emotional disorders,

mental and behavioral disorders or emotional and behavioral disability. For the purpose of this research the term 'Emotional and behavioral disturbance' (abbreviated as ED) is used. This study is concerned with emotional and behavioral disturbances of children.

2.1.2 Definition and diagnosis of Emotional and Behavioral disturbances in children

There are two well established international systems for diagnoses for mental and behavioral disorders. One is proposed by the WHO (1995) which is "The International Classification of Diseases- currently in tenth revision (ICD-10)" and the second is developed by the American Psychiatric Association which is Diagnostic Statistics Manual-currently in 5th revision (DSM-5, 2013). For the purpose of this research, it is important to understand the current usage, diagnostic practices and implications of the term. In the below given sections the classifications of this group of disorders by the ICD-10, DSM-5 and IDEA are briefly discussed below

2.1.3. ED and the ICD-10

This category of problems is represented in Section F90–F98 of the ICD-10(1994), It bears the heading of "Behavioral and emotional disorders with onset usually occurring in childhood and adolescence". The section contains seven categories of disorders with other included sub-conditions. These are cited below:

- Hyperkinetic disorders, including Attention-deficit hyperactivity disorder (ADHD)
- Conduct disorders, including those confined to the family, those not so confined, and Oppositional Defiant Disorder (ODD)

- Mixed disorders of conduct and emotions, including Depressive Conduct Disorder
- Emotional disorders with onset specific to childhood, including separation anxiety disorder, sibling rivalry disorder, and social anxiety disorder
- Disorders of social functioning with onset specific to childhood and adolescence, including elective or selective mutism
- Tic disorders, including Tourette's Disorder
- Other behavioral and emotional disorders with onset usually occurring in childhood and adolescence, including stuttering, pica, cluttering, thumb-sucking, and Attention Deficit Disorder without hyperactivity (ADD). (retrieved from http:/behaviordisorder.org/articles13.html)

A difficulty in working with this group of disorders is that it is heterogeneous and there is no single set of diagnostic guidelines to include children in this group.

2.1.3. ED and DSM 5

As in the ICD-10, Emotional and behavioral disorders do not fall under a single category of the DSM 5. There are a number of disorders that belong under several different headings but have a root connection to emotional and/or behavioral disturbance. These are listed below:

- Tics disorder
- Stereotypic movement disorder
- Disruptive mood dysregulation disorder
- Anxiety disorders under which we may have Selective mutism, Social anxiety disorder, Panic disorder, Generalized Anxiety disorder
- Obsessive compulsive disorder

- Body dysmorphic disorder
- Trichotillomania
- Excoriation disorder
- Reactive attachment disorder
- Disinhibited social engagement disorder
- Post- traumatic stress disorder
- Acute stress disorder
- Adjustment disorder
- Dissociative disorder
- Somatic symptom disorder
- Conversion Disorder
- Eating disorders
- Elimination disorders
- Sleep -wake disorder
- Gender dysphoria
- Impulse control disorders
- Conduct disorders
- Other conditions that may be a focus of clinical attention (DSM-5,2013)

Each disorder has a different set of diagnostic requirements to confirm its presence in a clinical setting.

2.1.4. ED and IDEA

The Individuals with Disabilities Education Act (2004) gives a different perspective beyond clinical nosology to the understanding of emotional and behavioral disturbances and mainly refers to the educational setting. To ensure equal

opportunities for education and to provide a least restrictive environment for all children (educationally challenged and otherwise) in mainstream education, the IDEA, 2004 has included the group of children with emotional and behavioral disorders. For their purposes the following definition is used: "Emotional and behavioral disorders mean a condition exhibiting one or more of the following characteristics over a long period of time and to a marked degree that adversely affects a child's educational performance:

a) An inability to learn that cannot be explained by intellectual, sensory, or health factors.
b) An inability to build or maintain satisfactory interpersonal relationships with peers and teachers.
c) Inappropriate types of behavior or feelings under normal circumstances.
d) A general pervasive mood of unhappiness or depression.
e) A tendency to develop physical symptoms or fears associated with personal or school problems (IDEA,2004)"

In this research, Emotional and behavioral disorders will be considered as a broad term as defined by the IDEA. It would include many different diagnosable childhood disorders by the ICD-10 (1994). In the upcoming sub-sections, the investigator discusses the characteristics of ED, its prevalence, age of onset, and how ED continues into adulthood. Further sub-sections also address the significant ways in which ED can be assessed as well as trends and developments in their use.

2.1.5. Characteristics of ED

Students with ED are a diverse population, and have a wide range of intellectual and academic abilities. Brandt, Magyary, Hammond, and Barnard (1992) examined

learning and behavioral-emotional problems in a longitudinal follow-up study of pre-term infants up to second grade found and found that family stresses and interaction patterns contributed significantly to behavioural and emotional problems. They also exhibited significant learning problems. Cullinan and Epstein (2001) have found 71.2% co morbidity in their sample of 1352 students in the USA who were diagnosed as ED by the IDEA criteria and were receiving services for the same. Co-morbid characteristics showed learning problems, behavioral problems, physical complaints related to fear and anxiety and relationship problems in this group. One study has found the importance of gender, ethnic background and economic disadvantage in the ED group receiving special services, where males, African-Americans, and economically disadvantaged students were found to be overrepresented in the ED population (Bradley, Henderson and Monfore, 2004). Studies of family variables in this group show that students with ED are more likely to have negative parent-child interactions, family history of aggression, low maternal education, single-parent homes, foster homes, or other non-traditional living situations. (Vance, Bowen, Fernandez and Thompson,2002; Bagner, Rodriguez, Blake, Linares, and Carter, 2012).They also tend to have low rates of positive social interactions with students and peers in instructional contexts, and many have one or more co morbid psychiatric diagnosis(Heward, 2006). With respect to outcomes of emotional and behavioural disturbances, past studies show that students with ED are also at an increased risk for learning disabilities, school dropout, substance abuse, and juvenile delinquency. (Meltzer, Gatward, Goodman and Ford, 1999)

2.1.6. Internalizing and externalizing problems

A well-known distinction in the field of child psychology and psychiatry is the distinction between “externalizing” and “internalizing” disorders (Achenbach, 1978). Students with ED are often categorized as "internalizers" (e.g., have poor self-esteem, or are diagnosed with an anxiety disorder or mood disorder) or "externalizes" (e.g., disrupt classroom instruction, or are diagnosed with disruptive behaviour disorders such as oppositional defiant disorder and conduct disorder).The construct of externalizing behaviour problems refers to a grouping of behaviour problems that are manifested in children’s outward behaviour and reflect the child negatively acting on the *external* environment (Campbell, Shaw, & Gilliom, 2000). In the research literature, these externalizing disorders consist of disruptive, hyperactive, and aggressive behaviours (Hinshaw, 1987). Male students may be overrepresented in the ED population because they tend to exhibit disruptive externalizing behaviour that interferes with classroom instruction, whereas females more commonly exhibit internalizing behaviour that does not interfere with classroom instruction.

A child with ED showing "internalizing" behaviour may have poor self-esteem, suffer from depression, experience loss of interest in social, academic, and other life activities, and may exhibit non-suicidal self-injury or substance abuse. Students with internalizing behaviour may also have a diagnosis of separation anxiety or another anxiety disorder, post-traumatic stress disorder (PTSD), specific or social phobia, obsessive–compulsive disorder (OCD), panic disorder, and/or an eating disorder. Some research suggests students with ED with internalizing behaviour are under diagnosed; teachers are more likely to write referrals for students that are overtly disruptive, and screening tools to detect students with high levels of internalizing behaviour are not sensitive and are rarely used in practice. (Heward,2006)**.**

Prevalence of ED

Emotional and behavioural disturbances are a formidable challenge and thought to be widely present. Different studies have targeted a variety of settings and age groups for an estimation of prevalence of emotional and behavioural disorders, in the recent years. Some of these are Brown, Copeland, Sucharew and Kahn (2012) studied the prevalence of social -emotional problems in preschool age i.e. 2-4 years-old children on a sample of 254 children of low income families form urban Primary care centers and found that 24% of sample screened positively for social-emotional problems. Pastor, Reuben and Duran (2012) reported on a nationwide household survey in the USA for prevalence of emotional and behavioral disorders of 63,034 children in the age range of 4-17 years between the years of 2001-2007. Using high scores on the emotional and behavioral scale of the Strength and Difficulties Questionnaire (brief version) (SDQ) and high score on "serious overall difficulties" as a diagnostic criterion, they found an average annual prevalence of around 7% for both scores combined. Forness, Kim and Walker (2012) reviewed a number of articles studying prevalence of ED in school age children and reported a point prevalence of 12% and cumulative prevalence of 25% for children who meet the criteria for emotional disturbance and require special education facilities. The authors also highlighted that this is a conservative estimate and only moderate to severe cases come into attention in general education settings, while actual figures for children with mild levels of disturbance may actually be more.

Buzgar and Opre (2013) have noted in their study that the incidence of ED is increasing. They examined the prevalence of the socially and emotionally related problems in a Romanian sample of 1292 children from the age group of 7-11 years,

from low-budget families, studying in schools from disadvantaged communities. Statistical analysis revealed a high incidence of social problems (21%), internalizing (17.1%) and externalizing (13.7%) problems, with a significant difference between boys and girls. Fink, Patalay, Sharpe, Holley, Deighton and Wolpert (2015) conducted a comparison of two studies on the prevalence of mental health difficulties using the SDQ with early adolescents in the age group of 11-13 years between the years 2009 to 2014. They found comparable figures except an increase in emotional problems in girls and a decrease in problem in boys in 2014. The authors concluded on the need for further research to understand the trends that emerged. In the Indian context, prevalence for mental health problems in children and adolescents is estimated to be around 12.5% or 16% (Math and Srinivasaraju, 2010). Gender differences in childhood prevalence were not available.

2.1.7. Age of onset and the continuity of Emotional and Behavioral disorders

One of the concerns for mental health problems is that they may begin early, in childhood and persist into later years. In this section the available research on the age of onset and continuity of emotional and behavioural disorders. Trout, Epstein, Nelson, Reid and Ohlund (2006) examined the issue of young children considered by teachers to be as at risk for emotional disturbance and found that it was possible to reliably identify different clusters of problems such as academic problems, behavioural problems, children-at-risk by using screening measures at the kindergarten and first grade levels. They also found that internalizing and externalizing behaviours could be identified at this stage.

Surveys by the World Mental Health Survey(2007)across different countries revealed that impulse-control disorders have the earliest age of onset distributions, with median

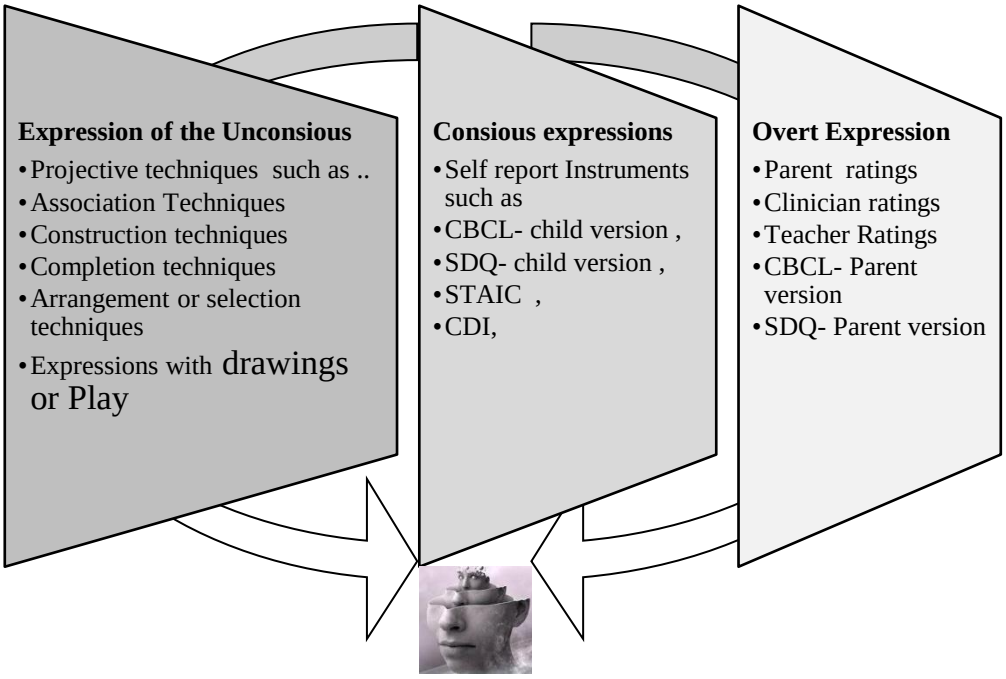
age of onset across countries of 7–9 years for attention-deficit/hyperactivity disorder (ADHD), 7–15 for oppositional-defiant disorder (ODD), 9–14 for conduct disorder (CD). Impulse-control disorders also have an extremely narrow age range of onset risk. For example, 80% of all lifetime ADHD begins in the age range 4–11, while the vast majority of ODD and CD begins between ages 5 and 15. Some anxieties disorders — the phobias and separation anxiety disorder (SAD) — also have very early age of onset distributions, with a median age range 7–14. The other anxiety disorders (panic disorder, generalized anxiety disorder, and post-traumatic stress disorder), in comparison, have considerably later distributions. The mood disorder age of onset distributions in the WMH surveys are quite similar to those for the later-onset anxiety disorders. A worrisome fact reported by the authors is that Emotional disturbances in early years are known to lead to mental health problems in adulthood (Kessler, Amminger, Aguilar-Gaxiola, Alonso, Lee, and Bedirhan Ustun (2007). These facts and figures highlight the need for timely identification of emotional problems so that necessary help may be given to the child, which require proper screening or assessment tools to identify emotional and behavioural disorders. Zaff and Calkins (2001). Costello, Mustillo, Erkanli, Keeler, and Angold (2003) reported that about 36.7% children as having at least one psychiatric disorder in the ages of 9-16 years. They also reported high rates of co-morbidity particularly within depression and anxiety disorders, and between ADHD/ conduct disorders/ oppositional defiant disorder. Besides, they also found girls to be at higher risk for psychiatric disturbance in later life when found to be having a diagnosis in childhood.

Examining the above the researcher, concludes that emotional disturbances in children are a significant problem that may go unnoticed affecting a fair number of school-going children.

2.1.8 Assessment of Emotional and Behavioral disturbances

Assessment for childhood emotional and behavioral problems pose unique issues when compared to adults, as children are rarely conscious about their internal or behavioral experiences by themselves. Therefore, early childhood assessment often relies on parent observations, interviews, rating scales, checklists or questionnaires. After the child enters school, similar tests for teachers are available. Some of the tools provide parallel versions that can be done by parent, child and or teacher. In this section an attempt is made to give a birds-eye view of all available forms of psychological assessment that can be used with this group of disorders. Figure 2.1 gives an overview of such an approach.

Figure 2.1: Schematic representation of techniques of assessment for identifying emotional disturbance



2.1.8.1. Interviews

Edelbrock and Bohnert (2000) have reviewed the use of standardized structured and semi -structured interviews for and with children and adolescent populations. These interviews are usually used for severe emotional disturbances and other psychiatric problems in this age group. They specialize in three main purposes:

1. Screening of psychiatric disorders
2. Description of children's problems behaviours and
3. Diagnosis of psychiatric disorders.

Some of the popular tools available are Kiddie- Schedule for Affective Disorders and Schizophrenia (*Kiddie- SADS present and lifetime version by Kaufman, Birmaher, Brent, Rao and Ryan, 1996*). It is designed to assess current and past episodes of psychopathology in children and adolescents according to DSM-IV and DSM-1V TR criteria by collating information for the child, parents and school. There are other versions of the test like the Kiddie -SADS- E (Epidemiological version) and the Kiddie-SADS – P version (Severity of present episode). This tool has been used widely for epidemiological studies and clinical diagnosis. (Ambrosini, 2000; Lauth, Rafn, Júlíusdóttir, Ferrari, and Pétursson, 2008; Dodangi, Ashtiani, Valadbeigi, 2014). It is suitable to use for 6-17 years. It covers 11 observational areas, 50 symptom areas and 12 summary scales.

Beyond this, there are highly structured interview schedules too, that are available. Two well-known tools in this category are: the Diagnostic Interview for Children and Adolescents(DICA) and Diagnostic Interview Schedule for Children (DISC). The DICA was one of the first structured interview for children and has been widely used in clinical and epidemiological research. It was developed in 1969 and revised in 1981 (Robin, Helzer, Croughan, and Ratcliff). It yields information on the presence or

absence of 150 symptoms and has parallel versions for children and their parents. The development of the DISC was sponsored by NIMH and has been designed for assessment of child and adolescent psychopathology in epidemiological studies. It too has a parent and child version. The child version can be completed in 40-60 minutes while the parent version can be done in 60-70 minutes. Though the test has high validity, its reliability has proven to be variable in out of clinic settings (Edelbrock and Bonhert, 2000).

Overall, the method of clinical interviewing, whether structured, semi- structured or unstructured is inevitable and provides us with irreplaceable clinical data. Yet, it is time consuming and may not be cost effective to use. Besides, as a tool for emotional and behavioral disturbances it may pose limitations in identifying internal or covert experiences for children.

2.1.8.2. Observation

Direct observations like the interviews remain an indispensable component of behavioral observations of a child. It is desirable to formalize the process by using accompanying quantifiable measures. One such measure is the Child Behaviour Checklist Direct Observation Form (CBC- DOF, Achenbach, 1986). This measure consists of 96 items covering a wide range of children's behaviours. The form can be used in any setting and needs to be filled on 6 different occasions after 10 minutes of observation each time. It renders scores on 6 factor-analytically derived scales, namely: withdrawn-inattentive, hyperactive, nervous – obsessive, depressed, attention demanding and aggressive. Other observation record forms are specific to school settings such as the Classroom Observation Code by Abikoff and Gittelman (1980). Direct observations can also be taken in the course of conducting other standard

measures such as during IQ assessment like the WISC-IV or during neuropsychological tests. As an approach to assessment, Direct observations prove time consuming and inconvenient as compared to other methods and so clinicians or researchers may like to rely on indirect observations made by parents or teachers.

2.1.8.3 Behaviour Ratings and checklists.

These are the most common mode of assessment for behaviours of children and adolescents as they follow an indirect, retrospective, format of allowing adults to rate the child or adolescent for the occurrence, frequency, and intensities of problem behaviours. Thus, they provide descriptions of and help to specify dimensions of the child's behaviour. They are generally comprehensive and cost effective allowing an objective measure for outcomes of treatment. One of the most widely used checklists is the Child Behaviour Checklist (CBCL, Achenbach, 1991). This has a teacher and parent version. The checklist consists of 112 items rated on a 3-point scale and can be used for children form the age of 4 to 18 years. Scored items can be clustered into three profiles: social competence, adaptive functioning and syndrome scales. The tool has exceptional psychometric properties and has been used widely for clinical settings and research. Some criticisms made on the tool is that some of the items lack clear definition and are open to varying interpretations by parents. Like other behaviour rating scales and checklists, it remains open to biases of raters. (Greene and Ollendick,2000)

Hecker (2004) adds a list of other representative child behaviour rating scales. Those that are relevant to the assessment of emotional and behaviour problems are: Behaviour Assessment System for Children (Reynolds and Kamphaus,1992) which is similar in content to the CBCL and Social Skills Rating System (Gresham and Elliot,

1990), which essentially gives specific information about social skills, problem behaviours and academic competence.

One of the more recently developed tools for assessing behaviours of children and is quickly gaining the status formerly enjoyed by the CBCL is the Strength and Difficulties Questionnaire (Goodman,1997). The Strengths and Difficulties Questionnaire (SDQ) is a brief behavioral screening questionnaire that can be used for 3-16 year olds. It exists in several versions to meet the needs of researchers, clinicians and educationalists. All versions of the SDQ ask about 25 attributes, some positive and others negative. These 25 items are divided between 5 scales:

1) Emotional symptoms (5 items)
2) Conduct problems (5 items)
3) hyperactivity/inattention (5 items)
4) Peer relationship problems (5 items)
5) Pro-social behaviour (5 items)

The same 25 items are included in questionnaires for completion by the parents or teachers of 4-16 year olds (Goodman, 1997). A slightly modified informant-rated version for the parents or nursery teachers of 3 and 4 year olds is also available.

Questionnaires for self-completion by adolescents ask about the same 25 traits, though the wording is slightly different (Goodman et al, 1998). This self-report version is suitable for young people aged around 11-16, depending on their level of understanding and literacy. In low-risk or general population samples, it is recommended to use an alternative three-subscale division of the SDQ into 'internalising problems' (emotional and peer symptoms), 'externalising problems' (conduct and hyperactivity symptoms,) and the pro-social scale (5 items) (Goodman

et al, 2010 from http://www.sdqinfo.com/a0.html).The questionnaire also includes an impact supplement a follow-up version. These are optionally used. More information about this tool is provided in Chapter 3.

2.1.8.4. Self- Report Instruments

Apart from interviewing, one way to access information about a child's covert processes would be to use self -report instruments that ask a child to rate or report on their own feelings and behaviours. Global self-report measures are available for the CBCL, which is known as the Youth Self-Report form (CBCL-YSR) and is applicable for ages 11-18 years. The SDQ too has a student version which can be used for 11-17 years. Other self-report checklists or questionnaires may tap more specific areas of interest such as the '*State-trait anxiety inventory for children' by Spielberger (1973),* which measures whether anxiety present in a child is more a general trait or situation specific. Some other such measures are Fear Survey Schedule- Revised (FSSR), developed by Ollendick (1983), Revised Children's Manifest Anxiety Schedule (RCMAS: Reynolds and Richmond, 1978), Childhood Depression Inventory (Kovacs, 1992). Still other tests examine covert processes like self- esteem, self-perception, self-concept like the CFSEI by Battle (1982), the Pier's- Harris Self Concept scale (Pier's, 1984), and Self Perception Profile for children (Harter,1985).

These instruments are very useful in providing short, norm-based and quick assessment of clinical and related phenomena. However, looking at the above self-report instruments, some limitations too are evident. One is that there are less instruments to tap covert experiences, available for younger children. There are certain difficulties in the use of self-report inventories such as there is a possibility that children may not understand the items fully or are unaware of their internal

processes therefore making their reports inaccurate. It is also possible that by using instruments specific to one clinical phenomenon, a clinician misses out on crucial information about co-morbidity.

2.8.1.5. An overview of Projective Techniques

Another set of techniques available to psychologists for the assessment of emotional and behavioral issues are "projective techniques". The term projective method was first introduced to describe a category of test for the study of personality, based on psychoanalytic theory, with unstructured and ambiguous stimuli. By using vague material that are open to subjective interpretation, it was assumed that unconscious projections of the innermost aspects of mental processes could be tapped which is also called the projective hypothesis (Frank, 1939). A classification of projective techniques offered by Lindzey(1959), divides them into five categories.

2.1.8.5.1. Association techniques: These techniques require the subject to make associations the material presented. The Rorschach Inkblot test and The Word Association Test are popular tests in this category. The former presents inkblots and the subject has to respond by saying what it looks like. The latter test presents a list of words one by one and the subject must respond with the first word that comes to the mind.

2.1.8.5.2. Construction of stories or sequences: Construction tests like the Children's apperception test (Bellak and Bellak,1971) present 11 cards with animal or human figures. Looking at the cards, the child has to make a story which is then used to understand significant needs, environmental factors and conflicts of the child. This test is used for children aged 3-10 years.

***2.1.8.5.3. Completion techniques*:** These techniques are semi projective as they provide part of the material and the child has to complete it. Some popular methods under this category are- the Sentence Completion Test and Rosenzweig's Picture Frustration Test. The former provides incomplete sentences to be completed and the latter provides sketches of frustrating situations where there are empty dialogue boxes to be filled by the subjects.

***2.1.8.5.4. Arrangement/ Selection of pictures or verbal choices*:** This is best represented by the Szondi test. This test consists in showing the examinee a series of facial photographs, displayed in six groups of eight each. All 48 subjects featured in the photographs are mental patients, each group containing a photo of a person whose personality had been classified as homosexual, a sadistic, an epileptic, an hysterical, a catatonic, a paranoid, a depressive and a manic patient. The subject is asked to choose the two most appealing and the two most repulsive photos of each group. The choices will supposedly reveal the subject satisfied and unsatisfied instinctive drive needs, and the subject's dimensions of personality.

2.1.8.5.5. Expression with drawings or play: Expression Techniques include the most popular drawing techniques like the Draw- a- person technique and the House tree person tests where the child has to make drawings and these are further interpreted on the basis of omissions or unusual presentations of details in the drawings. Play based assessments are mostly informally used to arrive at conclusions. There are no standardized play measures (Schaeffer and O'Connor, 1994).

These above-mentioned techniques are very useful in the understanding of personality and psychopathology of children and adults. They are of immense value in structuring psychotherapy or counselling sessions for clients. Research on projective techniques

as tools of psychological assessment have constantly churned out mixed results, yet they remain popular tools. Practitioners and academicians alike can appreciate the complex vastness of the subject matter that confronts psychologists, namely the human mind and behaviour. It is therefore imperative that a variety of tools be used in the field of psychology which can give us some scientific inlets into human psyche. Psychometric or behavioral assessments generally show better validity and reliability, yet they may be incapable of giving us information on the unconscious activity in the human personality or pathology.

With children, psychological tests about covert phenomenon pose special problems. They have limited language development and may not understand questionnaires very well which can lead to misunderstanding of data. Secondly, they may feel threatened by questionnaires and so may attempt to give only desirable e responses. They may lack awareness and comprehension of what they are experiencing due to which misrepresentations of data can occur. When we rely on indirect observations like parent or teacher for ratings, biases can creep in. Looking at these factors the investigator concludes that to access covert information about feelings and behaviour of children one non- threatening, short and easy to administer method is by the use of projective drawings. Among the drawing methods two well-known methods are the Draw a Person test and the House Tree Person test which are the focus of this study. We shall review existing literature on these techniques in subsequent sections.

2.1.9. Section Summary

In this section we have seen the current definitions and diagnostic criteria or emotional disturbances. Emotional and behavioral disturbances have emerged as a significant problem in the child and adolescent years as prevalence rates have ranged

from 7% to more than 32%. Their characteristics are diverse and there is high degree of co-morbidity in this group of disorders. Academic and social problems are some common outcomes. Age of onset shows that many of the disorders in this group have an early onset, even as early as 4 years. With regards to gender differences, generally research reports that males may be more affected by this, however some studies report no significant difference too. Besides these, it is also established that emotional and behavioral problems-whether internalizing or externalizing remain stable over time and have negative outcomes in adulthood. This makes it important that these disorders are identified early in childhood, and intervention be made available to children who are at risk or are diagnosed for these. The assessment of emotional and behavioral disturbances can be done by a number of techniques such as interviews, observations, using behavioral rating, self-report measures or projective techniques. Each method has relative advantages and disadvantages. However, there is need for a non-threatening screening device that can be used within the community at large, that can help identify emotional and behavioral disturbances at an early stage.

2.2. Section B Past Research on Projective drawings techniques: The Draw-A Person Test (DAP)

2.2.1. The Beginnings- Goodenough, Machover and Koppitz

A historical search into the beginnings of the Draw a person test reveals that the technique came into use with the foundation work of Florence Goodenough (1926) who introduced the possibility of using Human figure drawings as a measure of Intelligence. The test was called the Draw- a- man test and it occupied a significant place in the repertoire of a clinical psychologist's small tool kit of assessments in the middle of the century (Pickren, 2010) and continues to be popular despite dissent

(Watkins, Campbell, Nieberding, and Hallmark,2005). The technique in its current form, is a modification of the original procedure made by Harris (1963) who introduced the change of including woman and self-drawings rather than just the drawing of man and the name was modified to draw-a- person test.

Much of the current literature on the Human figure drawings (HFD) as a personality measure was derived from Machover's (1949) seminal work on interpretation of drawings. Machover, and later Hammer (1958), based on their extensive clinical experience, postulated that drawings reflect how one views himself or herself within the environment; one's attitudes, concerns, feelings and perceptions are projected into the drawings. Distortions in the drawings are seen as symbolic representations of conflicts within the individual. Machover introduced a qualitative system of interpreting the drawings and identified a number of "signs" appearing in HFDs that could be used to generate hypotheses about personality traits and emotional functioning. Machover's hypotheses provoked a great deal of research, but little of this body of research has been focused on children. (Webb, 1993)

No discussion on the technique of Human figure drawings can ignore the contribution of Koppitz who conducted extensive early work on Human figure drawings. Her work included research on the Bender Gestalt test (Koppitz,1959, 1960a and 1950b) and on Human figure drawings (HFD). Koppitz work added much to the understanding of Human figure drawings as a tool to screen and diagnose for emotional disturbances. Her new scoring system provided the quantitative method of scoring for the diagnosis emotional disturbances, which was a departure from the qualitative methods adapted by Machover (1953). As we shall see in the subsequent sections of the review, the

threads of these three techniques are pursued in various applications across a volume of research.

Koppitz (1966a) examined the validity of emotional indicators on HFD. She compared 30 emotional indicators on human figure drawings for 76 clinical and 76 well-adjusted children in the age range of 5-12 years. The emotional indicators were divided into 3

categories: such as quality of drawings (9 items), unusual items and omissions. Results show that 16 of the items were more indicative of emotional disturbance (e.g. crossed eyes, omission of legs etc.) the items tested were clinically valid emotional indicators on children's drawings. Emotional indicators were also found to occur more often on HFD's of the clinical group. It was concluded that an absence of serious emotional problems, and that the presence of 2 or more indicators is highly suggestive of emotional problems.

She also found specific indicators on the HFD that correspond with shyness and aggression of children in a study conducted over 31 pairs of children (20 pairs of boys and 11 pairs of girls) one of whom were aggressive and the other group was of shy, withdrawn and depressed children (Koppitz,1966b). It was found that tiny figures, omission of nose, moth and hands were associated with shyness and timidity. Gross asymmetry of limbs, teeth, long arms, big hands, genitals were more suggestive of hostile attitudes and impulsivity.

The indicators suggested by Koppitz have been the content of many subsequent researches as we shall see in the next sections. Here, a clarification is necessary. The Draw- a- person test, and Human figure drawings are very similar tests and have similar conditions of administration and interpretation. The terms have been used

interchangeably in the existing literature, hence in this review to maintain uniformity, the test name ‘D-A-P’ is adopted.

2.2.2. Applications of the DAP in the Context of Development

Many studies in the existing literature on the DAP focussed on examining its use as a measure of intelligence or cognitive development. To a limited extent, the DAP has also been explored as a measure of social, emotional and artistic development. Magnusson and Kaplan (1964) conducted an experimental study of the Draw-A-Person test. The hypothesis that girls who draw a figure of the opposite sex first in the Draw -A-Person test have a lower mean intelligence level than girls drawing a figure of the same sex first has been investigated. The hypothesis was based on results reported earlier. It was not verified by this study.

Struempfer (1971) studied drawings by 79 children with a mean age of 11.44 yrs and rated them on the Harris-Goodenough (HG) and Dunn-Lorge (DL) scales. Acceptable re-rater, interrater, and retest reliabilities were found. The criterion measures used were: HG Point Scale IQs, an individual and a group intelligence test, scholastic achievement tests, examination marks, rankings by teachers, father's occupation, a dexterity test, and Cattell's Jr.-Sr. High School Personality Questionnaire. Validities ranged from low to moderate. No consistent pattern of correlations with the various intelligence scores emerged. Validities tended to be higher for the HG than for the DL scores suggesting that the Harris-Goodenough scale was more accurate measure of intelligence.

Gayton , Tavormina, Evans and Schuh (1974) examined the comparative validity of the Harris and Koppitz scoring systems for human-figure drawings. Using the WISC for criterion validity, they examined drawings of 50 boys between 6 years 3 months to

12 years 11 months of age for the medical centre of the University of Rochester, who were administered these tests as part of a regular psychological evaluation. No differences were found between the Harris Point Scale and the Koppitz system in terms of inter-scorer reliability and concurrent validity. The Harris system was better able to give a specific IQ.

Fabry and Bertinetti (1990) assessed whether the Human Figure Drawing Test provides an assessment of nonverbal cognitive maturity, correlations for 31 youngsters who ranged in age from 6-0 to 10-10 on the Human Figure Drawing Test and the Verbal, Performance, and Full Scale IQs of the Wechsler Intelligence Scale for Children-Revised (WISC-R) were examined. Significant correlations were observed for the Verbal, Performance and Full scale IQ. Of these, the highest value of .69 was seen for drawings and WISC-R Performance IQs was significant, suggesting the assessment that these tests are largely nonverbal.

Chappell and Steitz (1993) studied young children's human figure drawings and cognitive development. The age-stage relationship between young children's human figure drawings and Piaget's levels of cognitive development was investigated using 45 young children ages 4 through 6 years. Analyses indicated a distinct monotonic trend between cognitive stage and drawing level. As cognitive ability increased so did drawing level. This suggests that children's human figure drawings can be a simple tool for the quick assessment of cognitive levels in young children.

Vedder, Van de Vijfeijken and Kook (2000) studied whether Koppitz's norms for cognitive development are applicable for Caribbean children. 49 girls and 47 boys form in grade 4 were taken with a mean age 0f 10.5 yrs. HFD and Standard progressive matrices were conducted. Chi squares and correlations were used in

analysis. The results showed that norms were found valid but a need to consider cultural similarities was highlighted by the authors.

Ter Laak, De Goede, Aleva and Van Rijswijk (2005) examined aspects of reliability and validity of the D-A-P test. Their study included 1I5 children in the age group of 7 -9 yrs who were attending regular or special schools. Judges ratings for developmental level, cognitive development, social development, drawing skill, impulsiveness, self-image was taken. Findings showed that DAP is sufficiently reliable to estimate level of cognitive development but not for socio emotional development.

More recently, Imuta, Scarf, Pharo, and Hayne (2013) studied children's human figure drawings (HFDs) to assess their intellectual ability. They used the Draw-A-Person Intellectual Ability Test for children, adolescents, and adults (DAP:IQ) as a screening measure of intelligence in both children and adults. In Experiment 1, 100 4- to 5-year-old children completed the DAP:IQ and the Wechsler Preschool and Primary Scale of Intelligence-Third Edition. In Experiment 2, 100 adults completed the DAP:IQ and the Wechsler Abbreviated Scale of Intelligence. The authors found only weak to modest correlations between scores on the DAP:IQ and the Wechsler tests and concluded that practitioners should not rely on HFD tests as a projective measure of intelligence.

Developmental stages in drawing ability have been extensively covered in text and research. Mann and Lehman (1976) studied the changes in use of transparency in drawings in 91 children aged 4-9 years. They concluded with a need to use psychological interpretations of transparency with caution as transparency in light of age, drawing ability and type of transparency used. Brown (1977) compared the

medium of using clay and drawings in a sample of 386 3- to 11- yr.-old. It was decided to have the children draw two figures of a man, to test the reliability of the first products and to compare the children's development in two- and three-dimensional media. The first drawings made were found to be reliable examples of what children would do when asked to draw the figure of a man and the two media were found comparable.

Strommen (1987) examined developmental trends in drawings using multi-dimensional scaling on the Goodenough- Harris Draw-A- Person test for children aged 4-8 years. He found two main factors in scoring i.e core features and elaborations, He found it an adequate measure of drawing development but needing adaptation in scoring if it were used as a tool in art education. One can find summaries of the progression of a child from the scribble stage to using drawings as a medium of imagination and expression in Gardner (1980) and Cantlay (1996). These are not reproduced here. Groves and Fried (1991) studied the developmental items on children's human figure drawings to replicate and extend Koppitz's norms to younger children. In the first part of the study, concordance was seen with Koppitz's schema of expected, common, not unusual and exceptional items by males and females in children between 5-7 years. In the second part of the study, the drawings of 3- year old children were taken and similar concordance was seen. This lends more credibility to the Koppitz's system.

2.2.3. Characteristics of Drawings

The size of drawings is a characteristic of drawings that has often been the subject of research e.g. Craddick (1963) and Black (1972), Burkitt, Barrett and Davis (2003) examined whether children in the ages of 4- 8 years increase the size of their drawings

to show positive characterisation and reduce the size of their drawings to show a negative characterisation. The children first drew a baseline drawing of either a man, dog or a tree and then were asked to draw a positive and negative characterised version of the same. It was found that children drew the positive characterised figures larger and the negatively characterised figures smaller. Conducting an experimental study to see the effect of brief and elaborate mood induction procedure on the size of drawings, Burkitt and Barnett (2006) found that children tended to increase the size of drawings whether a negative or positive mood was induced. The relative size of the figures drawn under negative mood induction was smaller. The study throws light on how children may react on human figure drawings under the influence of negative or positive mood.

2.2.4. Applications of the DAP to the School Context

The DAP has been a popular tool in the school context. Lubin, Reed, Matarazzo and Seever (1985) found the DAP listed among the top 10 used psychological assessment procedures across five different professional settings. On the other hand, in a study conducted by Giordano, Shweibert and Brotherton,1997 of 118 school counselors, the DAP test and other projective tests did not figure in the list of top 10 used tests by the practitioners in Illinois. A survey of existing literature revealed that, in the school setting the DAP has been used to predict school achievement, learning disabilities and for classification for special education services. Some illustrative research is presented here.

2.2.4.1.DAP and school achievement

In the year 1959, Koppitz, Sullivan, Blyth and Shelton examined whether the Bender Gestalt Test and human figure drawings could be used as predictors of school

achievement. The Subjects were 143 children from six beginning first grade classes. Tests were scored according to the Koppitz system and were then correlated with scores from an Achievement test that was administered seven months after the first two tests. Results show that the BGT and the HFD both have the ability to predict achievement, but this power increases when they are used together as multiple predictors.

Koppitz (1960) also studied how teacher's attitude can affect children's performance on the Bender Gestalt Test and human figure drawings. It was hypothesized in this study that the attitude of a driving, authoritarian, and restrictive teacher will be reflected in a high incidence of constriction, tension, and striving indicators on the Bender and Human Figure Drawings of her students. On the other hand, it was predicted that an easy going, permissive, and warm teacher's attitude will be reflected in a low incidence of tension indicators on the Bender and the Human Figure Drawings. She also examined whether drawing characteristics in kindergarten would change if the medium for drawing was switched from pencil to crayons (Koppitz,1965). She concluded that when looked at developmentally there was no difference between the two, however this did not hold true for emotional indicators.

Koppitz (1966a) also studied the influence of emotional indicators on human figure drawings and school achievement of first and second graders. This study investigated the relationship of the 30 EIs and school achievement in the first two grades. It was found that four of these EIs (omission of mouth, body, and arms, and grotesque figure) are significantly related to adjustment in kindergarten and can predict achievement in the third grade.

Hammer and Kaplan (1966) investigated the test- retest reliability in the gap of a week, of different aspects of human figure drawings using a sample of 1305 children of 4,5,6 grades. They found that of all body parts omitted, fingers omitted were the most reliable. Other reliable features that emerged were: upper, lower, left placement on page, drawing heads without bodies, shading, erasures, type of mouth, buttons (for boys on same sex drawings and girls on opposite sex drawings). Sex differences were seen in the following- boys drew heads without bodies, used shading, drew teeth, drew buttons on same sex figures more often. While, girls used erasure, omitted parts of the body and drew buttons on opposite sex drawings more often.

Cox, Koyasu, Hiranuma, Perara (2001) compared the performance of 7 year olds and 11-year-old children from Japan and UK on three figures: a man standing and facing the viewer, a man running towards the right and a man running towards the viewer. Cultural differences were found as Japanese children showed better adaptation of their drawings. In both cultures, older children and girls received higher ratings as they included more details.

Venter and Bham (2003) studied the usefulness of commercially available 'culture fair' tests in which the DAP formed a part of the battery, in the assessment of educational success in Grade 1 Black pupils in South Africa. A parental questionnaire was used to examine non-academic predictors of educational success, such as birth history, socio-economic status and the medical profile. One hundred and three Grade 1 pupils were tested in the first term. Non-academic variables that were significantly associated with academic success were birth asphyxia, overcrowding and maternal education. The psychometric subtests that were significantly associated with academic

achievement were the VMI, DAP, the Raven's Progressive Matrices, TVPS and WISC mazes.

2.2.4.2.DAP and Exceptionality

Pollak (1986) reviewed a number of researches pertaining to LD and found that the use of the Goodenough- Harris scoring method would result in lower IQs as children with LD may have visual motor difficulties. He also felt that this tool would be limited in its potential to screen students with LD for emotional disturbances as their attention difficulties and poor grapho-motor skills may result in their being misdiagnosed as having emotional and social problems.

Evans (1999), examined human figure drawings of children with spina bifida, where lower limbs and sensorimotor skills were affected and compared the drawings with that of normal children. They found that there was no significant distortion of the proportion of the lower limb in relation to the head and body, suggesting that if there is a body image distortion, it does not necessarily impact drawings.

Lee and Hobson (2006) studied whether children with autism differ from children with learning difficulties on drawings of self and others. 14 children were taken from each group matched for chronological and verbal mental age. The children were asked to make two drawings one of a human figure and the second, a house. To neutralize the order of presentation the tasks were repeated in the reverse order. It was found that children with autism drew human figures that appeared the same despite instructions to draw a person and then themselves. The houses, were however better detailed and distinct. Children with learning difficulties, however, drew distinctive human figures and houses. The findings suggested that children with autism had difficulties in mental representations of themselves.

Perets-Dubrovsky, Kaveh, Deutsh-Castel, Cohe, and Tirosh (2009) assessed the reliability and validity of the human figure drawing test among children with attention-deficit hyperactivity disorder (ADHD) and/or learning disability, boys (n= 136) between the ages of 8 and 10 years, with either or both ADHD and learning disability, were included. Two drawings were used: person and house, tree and person. The drawings were analyzed using the Koppitz emotional and developmental scales. Conner's teacher and parent rating scales and the Matching Familiar Figure Test were administered. High inter-test reliability for the emotional scale and a significant negative correlation between the 2 scales were found. The reported anxiety and learning were significantly correlated with the cognitive score. A combination of cognitive and emotional items resulted in 67% correct classification of ADHD and learning disability. The authors concluded that this test can be used as part of the assessment of ADHD and/ LD.

2.2.4.3. DAP and Special Education

Weber (2007) studied the usefulness of the Draw-A-Person-in-The-Rain projective drawing as a screening for special education evaluations. The research objective of this study was to investigate the usefulness of the Draw-A-Person-In-The-Rain (PITR) projective technique as a means to screen students in need of special education evaluations. Students (K-12) from a 5-county area in Northwest Indiana participated in the study (N=229). The study involved the creation of a scoring system designed to help discriminate between children with special education needs and the general education stream.The use of color was introduced in this study and appears to play a major role in the discrimination between special education students and their general education peers. The study also indicated that the student's projection of perceived

stress was useful in helping to discriminate between populations. The screening was deemed quick, simple to use, and useful by the school psychologists participating in the study. With an initial success rate of correctly classifying 77% of the students in general education and special education, strides were made towards beginning an empirical foundation for the use of this tool as an effective screening device. Findings from this study suggest that the PITR: WEST may prove itself useful not only as a screening tool for special education needs, but also as a supplemental aid to help school psychologists make placement decisions.

Apart from the school context, the DAP has been put to frequent test in the clinical context. Some of the significant explorations are covered in the next section.

2.2.5. Applications of DAP in the Clinical Context

In the clinical situation, a large bulk of research has been directed to the understanding and validation of indicators on the Human figure drawings of emotional disturbance. Some of the research is also directed towards understanding the tool's application to screening of emotional disturbances

2.2.5.1.Emotional disturbance and DAP

Koppitz (1966a) conducted a study to determine whether 30 drawing items have clinical validity and can be considered true emotional indicators on HFDs of children. It was hypothesized that if these items were emotional indicators then (1) they would occur more often on HFDs of children with emotional problems than on the drawings of well-adjusted pupils, and (2) the HFDs of children with emotional problems would show a higher incidence of emotional indicators than would the HFDs of well-adjusted pupils. The subjects for this study were 76 pairs of public school children matched for age and sex. yielded significant results and supported the two hypotheses

tested. Koppitz(1966b) also studied emotional indicators on Human figure drawings in shy and aggressive children and found that omission of nose, mouth and hands, making tiny figures were associated with shyness. Other features like gross asymmetry of limbs, teeth, long arms, big hands and genitals were seen more often in drawings of aggressive children.

Koppitz(1968) also examined differences in emotional indicators related to variation in socio-economic status. She compared students of lower class and middle class 4th and 5th graders and found that children of the lower class showed more signs of anxiety and feelings of inadequacy while the middle-class subjects were more aggressive and expansive. These differences disappeared when subjects were matched for age, sex and IQ. Gender differences were also found in the study, where more boys than girls were found to be having emotional problems (1/3 of boys> 1/6 of girls)

Mebane and Die (1970) attempted to devise a scoring system for the DAP using its most reliable and valid signs mainly to measure private interpersonal attitudes by the Leary's Interpersonal diagnostic system and to validate it against other projective measures of interpersonal attitudes like the TAT. 47 male undergraduate students of psychology between ages 19-27 years were given the TAT and the DAP. They did not find any agreement between the indices of TAT and Leary's system of 8 categories.

Goldman and Warren (1976) did preliminary analyses of human figure drawings as a kindergarten screening measure. Human-figure drawings have been used to identify children with emotional problems, through combining two widely used measures (Koppitz Emotional Indicators and Evanston Early Identification Scale) they tried to provide a basis for the construction of a rational scale. The specific aims were (a) to

determine which items correlated significantly with the combined total scale scores. (b) to determine which items correlated significantly with independent judgments of clinical high risk, and (c) to factor analyse the total item pool in order to determine whether. One hundred and ten kindergartners, from diverse racial and socio-economic backgrounds and schools and ranging in age from 4.11 to 6.10 yr., were given the Draw-A-Person test. Of 56 males and 54 females. Clinical judgment of high risk plus omissions of central body parts (mouth, nose, eyes) had high factor loadings on the first factor; peripheral body-part omissions (legs. arms) had high loadings on the second factor. The authors concluded that together, a relationship is suggested between body integrity and severity of problem which needs further exploration.

Golomb (1987) examined the drawings of emotionally disturbed children and of developmentally normal children to determine whether the clinical sample used deviant strategies. A total of 108 emotionally disturbed children and 227 normal children, ranging in age from 6 to 14 years, were given four drawing tasks. The drawings were scored for type of compositional strategy. Comparisons across age groups reveal that differences do not consistently favor either group. The development of compositional strategies therefore appears to occur independently of emotional disturbance and to remain relatively unaffected by psychopathology. This finding suggests that caution be exercised when the drawings of emotionally disturbed children are examined for indicators of pathology.

Naglieri and Pfeiffer (1992) compared the Draw-A-Person: Screening Procedure for Emotional Disturbance (DAP: SPED) scores for 54 normal students and 54 students with conduct and oppositional defiant disorders who attended a psychiatric day treatment facility. Both samples were aged 7-17 years. The samples were matched by

sex, race (White/Non-White), and geographic region. The DAP: SPED mean T score earned by the 54 subjects in the clinical sample (M= 56.63, SD = 10.27) was significantly higher ($t = 4.05$, $p < .001$) than that of the 54 normal subjects (M= 49.37, SD = 8.68), indicating that the clinical group produced more signs associated with emotional disturbance than did the normal group. Further analysis indicated that use of the DAP: SPED increased diagnostic accuracy by 25.8%. These results suggest that this new approach to scoring the man, woman, and self- drawings may be more useful than previous human figure drawing techniques.

Webb (1993) examined the relationship between the HFD and the CBCL (Achenbach & Edelbrock, 1983) an instrument with well- established validity for discriminating between clinical vs. normal populations. Concurrent validity also was explored between the HFD and teacher and physician ratings of children's psychosocial problems. The subjects for the study were 1122 children (570 boys and 552 girls) from the New Haven, Connecticut area who were participants in a larger study (the Greater New Haven Children's Health Survey) of the detection and treatment by paediatric clinicians of psychosocial, developmental, and behavioral problems in children. The children ranged in age from 4 to 8. Of the 1122 children, a final sample of 1056 drawings were finally included in the study.

This study suggests that, when used alone, the HFD is limited as a screening instrument in both regards. In differentiating the clinical from the comparison groups, it missed a substantial number of positive cases, while misclassifying as positive a substantial number of negative cases. By combining criteria (using both the presence of certain Els along with the presence of two or more Els in the drawing), the specificity was raised, but at the expense of the sensitivity. Criterion validity was explored by using kappa coefficients with the CBCL and TRF were very low showing

that HFDs and the two scales did not match with the HFDs as well as within themselves. Poor inter-informant reliabilities were also seen The researcher concluded that human figure drawings could not be used reliably for classification of cases/ differential diagnosis and research without much being left to clinical judgement and expertise.

Catte and Cox (1999) compared the human figure drawings of a group of emotionally disturbed boys with well-adjusted boys across Koppitz's emotional indicators and according to newer UK norms. It was found that emotionally disturbed children included significantly more number of indicators in their drawings but did not differ in type of indicators.

Cox and Catte (2000) studied whether the greater number of emotional indicators found on human figure drawings of severely disturbed children were due to the level of disturbance or due to poor drawing ability. The matched a sample of 44 severely disturbed boys with normal boys having similar drawing ability and found that judges could not differentiate between the two. They concluded that differences seen in previous research thought to be due to emotional disturbance, could have actually been due to their poor drawing abilities.

Elif Daglioglu, Deniz and Kan (2009), conducted a study with the aim of examining the emotional indicators in the drawings of 5 and 6 year-old girls and boys attending preschool. A total of 235 children attending preschools in central Bolu participated in the study. Their human figure drawings were analysed and evaluated in line with Koppitz's 5-category emotional indicators which included impulsivity, insecurity-inadequacy, anxiety, shyness-timidity and anger. An examination across all emotional

indicators showed that boys produced drawings with more emotional indicators than girls did.

Crusco (2013) investigated whether children identified as having internalizing (emotional problems) or externalizing (behavioral problems) behaviours, which were diagnosed on the Rutters' Parent questionnaire, could be differentiated on the DAP-Screening Procedure for emotional disturbance. 7-year-old drawings were taken from an earlier sample scored by the Good enough – Harris method were now scored again. The findings showed that DAP- SPED could not tell reliably whether a child was with or without emotional disturbance when compared against the Rutter's' questionnaire. The test however was more reliable when used on clinically diagnosed sample.

Handelzalts and Ben-Artzy-Cohen (2014) investigated the DAP indices of height, width (size), and inclusion/omission of details and their relation to body image as measured by a self-report scale (Gray's body image scale) and manifested by the diet behaviours and body mass index of 55 healthy female students. Although the drawings of the diet group were smaller, there was no significant relationship between figure size and diet behaviours. However, body image as measured by a self-report scale did result in significant differences between groups. Moreover, there was a significant correlation between the size of the figure drawn and body image as measured by a self-report scale (larger figures correlated with better body image). No significant results were found for the omission/inclusion indices of the DAP. These results are discussed in light of previous findings regarding the DAP.

Singh and Rossouw (2015) studied the efficacy of drawings as a measure of attachment style and emotional disturbance on Australian children. The current study aimed to investigate this gap in the literature. It was hypothesized that children would

differ in scores of emotional disturbances based on their attachment style. Specifically, children with secure attachment would have lower emotional disturbance than children with insecure attachment. Three human figure drawings (person, self, and family) were collected from 43 school children aged between 5 and 12 years. The drawing procedure and emotional disturbance scores were based on the Draw A Person: Screening Procedure for Emotional Disturbance developed by Naglieri, McNeish, and Bardos (1991) and the Kinetic Family Drawing developed by Burns and Kaufman (1972). Using the Family Drawing Checklist developed by Fury, Carlson and Sroufe (1997), the children's family drawings were categorized into the attachment styles of secure and insecure. This is the first study in Australia to look at these variables. Children attending a mainstream school where pathology is not expected were used in the study. Some indicators of emotional disturbance were detected; however, differences in emotional disturbance indicators between securely and insecurely attached children were not significant. Methodological issues that may have contributed to nonsignificant results, practical implications, and future directions are discussed.

2.2.5.2. Applications of DAP to Psychiatric Disturbances

Craddick (1962) studied the Draw-A-Person characteristics of psychopathic prisoners (currently known as Antisocial personalities) and college students based on Machover's theory. In her discussion of the performance of various types of personalities, Machover attributes several characteristics in drawings to the psychopath namely large drawings, central locations or shifted to the left side, shading and person drawn with hand in the pocket. The purpose of this study was to investigate the validity of Machover's hypotheses by using a group of male prisoners

who, on the Minnesota Multiphasic Personality Inventory (MMPI), could be considered psychopathic personalities. A control group of male college students (considered the "normal" group) was compared with psychopathic group. Drawings of a man by 20 male psychopathic prisoners and 20 male college students were compared in terms of characteristic features which Machover (1949) suggested were indicative of psychopaths. None of these features differentiated between the two groups with the exception of shading. Here the differentiation was in an opposite direction to that suggested by Machover, since more of the students exhibited shading in their drawings than did the psychopaths.

Clodfelder and Craddick (1970) studied the variance in size drawing in a psychotic population. Craddick (1964) found that persons simulating psychoses made larger drawings of a person than they did when they were instructed simply to draw a person. He cautioned that, comparisons of the drawings with those by actual psychotic patients in that their drawings could reflect either loss of control (large drawings) or a control-at-all-costs adjustment (very small drawings). If so, one would predict that the variance in size of drawings in a psychotic population would be greater than that obtained for a normal sample. To test such a hypothesis, the heights of DAP drawings from 69 male psychotics tested on admission to Alton State Hospital were compared with the heights of the DAP drawings for Craddick's sample of 86 males. Results suggest that psychotic patients are more varied in their degree of control as shown in the DAP than are normal as was suggested by Craddick. Further, the drawings by psychotics, as a group, appear to be more over-controlled than were those by persons in Craddick's sample who simulated psychosis.

Montague and Prytula (1975) investigated about the human figure drawing characteristics related to juvenile delinquents. Human figure drawings were scored on seven characteristics popularly attributed to juvenile delinquents, i.e., head size, shading, and three indicators of emotional conflict, i.e., transparencies, omissions, and erasures. Ss were adolescents incarcerated at training schools. Delinquency was defined in terms of MMPI profiles associated with delinquency rather than by social-legal or medical-diagnostic classification. The results fail to support popular hypotheses concerning human figure drawings of delinquents. Delinquents drew significantly more transparencies; however, no other emotional indicator was significant. It was concluded that little support exists for hypotheses concerning human figure drawings of delinquents and drawings should be used with caution in the clinical assessment of a delinquent's personality.

Tielsch (2005) extended the clinical application of human figure drawings beyond the psychiatric set up to a paediatric one. In her review article, she expressed her view that human figure drawings are a quick, easy and non-threatening tool that can give valid results when used on children and adolescents in a paediatric primary care in-patient set up.

2.2.5.3.DAP – Sexual concepts, Sexual identity and Sexual abuse

One of the areas of clinical application of the DAP has been in the area of childhood sexual and other abuse. To find out whether some features of drawings can be classified as being suggestive of sexual abuse, an understanding of normally occurring sexual symbols is needed. In this context, Rierdan and Koff(1981) examined the occurrence of sexual ambiguity in human figure drawings in 461 children from 5-9 grades. They found that 8% of the children could not determine the sex of their own

drawings and concluded that this could be indicative of confusion in sexual identity. Rodgers (1992) conducted a correlational-developmental study of sexual symbols, actions, and themes in children's Kinetic Family and Human Figure. The primary purpose of this research was to describe developmental age differences in the expression of sexual symbols, actions, and themes in the Kinetic Family Drawings and Human Figure Drawings of children ages 6 through 18 years, comparing clinic and non-clinic populations. The secondary purpose was to correlate self-reported media exposure with the expression of sexuality in the drawings. The HFD, the KFD, and an interview schedule concerning exposure to various media were administered to 560 non-clinic and 81 clinic children, ages 6-18. Sexual characteristics in children's drawings and the amount and type of media the children had experienced were analysed qualitatively and quantitatively. The Children of different age and sex include different sexual characteristics in their drawings. The HFD and KFD included many of the same sexual characteristics, which correlated with media exposure and actual sexual experience. Qualitative and quantitative differences exist between the drawings of children from non-clinic and clinic samples.

Burgess (1993) has recorded that in cases of sexual abuse, drawings encourage retrieval of experience in motoric, visual and auditory recall. Working on the premise that there is no objective, standardized procedure for classifying a given human figure drawing as that drawn by a sexually abused or non-abused child, Grobstein (1996) attempted to develop an objective classification procedure and to assess the accuracy of such a procedure in both the original sample of sexually abused and non-sexually abused research participants and a cross-validation sample of these two groups. With a sample of 163 (81 children with a history of sexual abuse and 82 children with no known history of abuse) children form the age range of 5-12 years. The results

showed significant differences between the groups and highlighted the importance of omitting arms, poor integration of drawings and shading on the figures as discriminating indicators of sexual abuse. However, drawings showed low discriminant validity and low chances of appropriate classification based on sexual abuse, if taken from a general population.

Austin (2006) investigated the validity of a non-invasive assessment instrument in providing psychologists with indicators of potential sexual abuse and differentiating between drawings of children with and without a history of sexual abuse. A sample of 89 human figure drawings were obtained from archival test data at a school for emotionally disturbed children and adolescents. Children were classified according to abuse history and drawings were scored by two psychologists using the Peterson-Hardin Screening Inventory for Child Human Figure Drawings. Results indicated that there were no significant differences between the drawing scores of children with a history of both physical and sexual abuse, those with a history of either physical or sexual abuse, and those with no abuse history. Similar findings were also reported in a study by Piperno, Francesca, Di Biasi, Stefanie, Levi and Gabriel (2007) using Kinetic family drawings.

More detailed understanding of the use of projective drawings to identify children at risk for abuse, a developmental perspective on sexual abuse through projective drawings is available in Kaufman and Wohl (1992) and Cantlay (1996).

2.2.5.4.Use of DAP in identifying Anxiety and Fears

Doubros and Mascarenhas (1967) aimed to study the effect of test produced anxiety in class room on DAP variables which are considered to be indicative of anxiety. The study included 284 students of 9^{th} grade in the age range of 14 to 18 years. Drawings

were taken immediately before and after a term exam. The study failed to find statistically significant increase in indicators of anxiety on drawings before and after the test. This suggests that test anxiety is not well reflected in the DAP and conventional signs of anxiety could not be validated. However, gender differences were seen in the choice of gender for the first drawings. Girls drew significantly more first drawings of opposite sex under conditions of anxiety than boys.

Sturner and Rothbaum (1980) studied the effect of stress on human figure drawings in 68 children who were hospitalized for surgery. They found that Emotional indicators increased in the group that was unprepared. Emotional indictors correlated with pulse rate as a measure of stress. The findings highlighted the importance of environmental variables when studying human figure drawings.

Tharinger and Stark (1990*)* compared two methods of scoring the Draw-A-Person (DAP) and the Kinetic Family Drawing (KFD). A quantitative scoring method based on traditional individual indicators was contrasted with a qualitative scoring method based on an integrative approach designed to assess overall psychological functioning. The participants were 52 children. Using DSM-III-R, they were assigned to the following groups: mood disorder (n = 12), anxiety disorder (n = 11), mood/anxiety (n= 16), control (n = 13). Unlike scores from the quantitative approach, scores obtained from the qualitative approach on the DAP differentiated children with mood disorders and mood/anxiety disorders, but not children with only anxiety disorders, from control children. Similarly, scores from the quantitative approach, scores from the qualitative approach on the KFD differentiated children with mood disorders (but not mood/anxiety disorders) from control children. In addition, scores from the qualitative DAP and KFD scoring methods were significantly correlated with self-reported self-concept and aspects of family functioning. The authors

concluded that an integrated, holistic approach to scoring projective drawings, reflective of overall psychological functioning of the individual and of the family, can be a useful adjunct in assessing children with internalizing disorders**.**

Carroll (1997) attempted to identify the fears of school-age children, and determine the relationship between fear and anxiety. Subjects consisted of 54 children ages 8 to 12 years. Research questions were: (1) What are the fears of children? (2) What are the gender differences? (3) What is the correlation between anxiety and number of emotional indicators on children's drawings? (4) What is the correlation between fears of children and their anxiety levels? And (5) What is the correlation between self-reported fears of children and Emotional indicators on their HFDs? Measures included a structured interview, the Revised Children's Anxiety Scale (RCMAS), and human figure drawings (HFD). Findings indicated that boys feared animals and supernatural phenomena, whereas girls feared natural phenomena. There were moderate correlations between anxiety scores and number of fears and emotional indicators on HFDs. Thus, HFDs may be useful methods of assessment of anxiety and fears.

2.2.5.5. DAP and PTSD/ with other Projective Drawings

The Kinetic Family Drawing (KFD) and the Draw-A-Person: Screening Procedure for Emotional Disturbance (DAP: SPED) are used to assess emotional disturbance, facilitate expression in children reticent to discuss trauma, and as hypothesis-generating tool.

Backos (2006) as part of her doctoral research, examined these two most common drawing assessments to determine how they might be useful in identifying PTSD in mothers who have experienced intimate partner violence (IPV) and their children who

witnessed it. Forty-three mothers who experienced IPV and 59 children who witnessed the violence were assessed for the presence of PTSD and administered the DAP: SPED and the KFD.

A mixed model approach was used to assess features in the drawings. Using a qualitative analysis, she found subtle qualitative differences existed in the drawings between the groups. Themes identified in the KFD drawings by mothers with and without PTSD related to degree of family connection or separation, range of activity level, and varying affective quality. Themes in the children's drawing included varying stages of completeness in the figures and positive or negative family interaction. The analysis of the drawings showed no differences on the KFD or the DAP: SPED between the mothers and children who had PTSD and those who did not. While intended to screen broadly for emotional disturbance in children, the DAP: SPED appears to lack specificity in identifying children who have developed PTSD as a result of trauma and those who have not. Further, the mean scores on the DAP: SPED for children with and without PTSD were below the cut-off, suggesting no further testing was warranted and emotional disturbance was not present in either group. The study confirmed prior research suggesting qualitative analysis may be a more appropriate method of analysis to identify and fully describe features in projective drawings or at least a necessary accompaniment.

2.2.6. Conclusions

Analyzing the early research in the area, it is evident that the studies on the DAP have been extensive and varied. Much of the variation is seen in the early work done. The DAP has found application across different ages, clinical and non-clinical groups and in different contexts with or without variations. Most studies have focused on single

projective drawing tool across different groups. The recurrent themes were a search for valid indicators of emotional disturbance and to understand whether these indicators could reliably differentiate between clinically disturbed and non- disturbed groups. The findings helped identify indicators for future use, it also established that the number of indicators could differentiate between clinical and non- clinical groups, but types of indicators did not reliably correlate with types of pathology.

2.3 Section C: Research on the House Tree Person Test

The HTP technique was originally developed by Buck (1948). Buck believed that by allowing an individual to construct an ambiguous but familiar drawing, self-portraits and basic personality will be revealed. Symbolically, the *house* mirrors the subject's home life and intra-familial relationships. The *tree* is seen as a representation of elemental relationships with the external environment. The *person* is seen to echo the subject's relationships. Buck presented an elaborate quantitative scoring procedure to calculate IQ and an interpretative system to understand personality. The standardization falls short of psychometric standards. Validity has been established but not reliability. The qualitative interpretation presents several competing possibilities. In an extensive review of the HTP, Killian (1985) found the technique to have several shortcomings in technical aspects but useful as a screening, diagnostic, prognostic and therapeutic tool.

In comparison to the DAP, the researcher found much less literature on the HTP. The available literature is focused more on adults and finds use in clinical as well as non-clinical populations. Some of the studies are presented here.

Blain, Bergner, Lewis and Goldstein (1981) conducted a study to determine whether the HTP might be used to identify physically abused children. Drawings of 32 abused

children, 32 non-abused but disturbed children and 45 well-adjusted children were examined. The results showed that They found that the drawings were very well able to differentiate between well- adjusted and abused children but could not differentiate significantly between the abused group and non- abused disturbed group. The authors recommended 6 items to discriminate between abused and non-abused children namely: smoke coming from the chimney, absence of windows, asymmetry of limbs, absence of feet, large head, geometrical shapes drawn in body.

Allan and Clark (1984) used the HTP in art counselling for a 7-years-old child who presented with shyness, withdrawal and anxiety. HTP was combined with free drawings and other directed drawings. The authors found the HTP as a very useful tool to elicit internal symbols of the child's inner and outward worlds for further work. Van Hutton (1994) has attempted to develop a quantitative scoring method for the identification of sexual abuse through the HTP which has been used in this study.

Groth- Marnat, Roberts and Curtin (1998) conducted a study to explore human figure drawings and the HTP as measures of self-esteem against the Coopersmith Self Esteem Inventory and Tennessee Self Concept scale. The study was conducted on 40 undergraduate students and did not show significant results. The authors concluded with the need to replicate the study with clinical populations.

Stoddard (2003) compared the Kinetic-House- person test with the House- tree-person test on 204 college students who were 18 years for emotional indicators, in her doctoral work. The sample taken was non-clinical in nature. The study revealed that there 499 emotional indicators across both tests. Out of these 108 were found significant 74 of these were more often found on the HTP while 34 were found more

often on the KHTP. The HTP emerged as being stronger as a projective technique, than the KHTP as it offered more information about the subjects than the KHTP.

Louw and Ramkisson (2002) felt that there have been attempts to either develop certain measures for specific use in child sexual abuse investigations or to determine the. suitability of existing measures in this regard. In a study they aimed to determine the suitability of the Roberts Apperception Test for Children (RATC), the House-Tree-Person (H-T-P) test and the Draw-A-Person (D-A-P) test as measures of sexual abuse assessment in South African children. The research participants included 23 sexually abused girls and 17 non-sexually abused girls of the Indian community, mostly from foster homes in KwaZulu-Natal. The results revealed that the two groups differed significantly on the four scales of the H-T-P/D-A-P, whereas there were no differences in the scale scores on the RATC. However, a larger proportion of girls who were sexually abused, gave responses of a sexual nature on the RATC. It was concluded that both these instruments seem to be suitable for inclusion in an assessment battery for sexual abuse investigations in Indian girls. It was also emphasized that none of the instruments can be used in isolation. However, they can provide an indication of possible sexual abuse which must be investigated further.

Iftikhar (2010) found use for the House tree person test among a battery of tests in a pre-therapeutic assessment for a case study on a 32 years old male with antisocial personality disorder, opiate dependence and anger management issues. While the test findings were not highlighted in the study, they were used to construct a formulation for narrative therapy.

Researchers have in the past, also tried to develop more refined scoring methods. For example, Van Hutton (1992) developed a quantitative scoring system for the HTP

with an aim to identify sexual abuse through it and to identify related disturbances arising as a consequence such as increased aggression, increased preoccupation with sexual concepts, withdrawal or mistrust. Li, Chen, Helfrich and Pan (2011) developed their own scoring system for the Kinetic- House- Tree-Person drawing technique. They isolated 35 factors and compared them against the scales for measuring anxiety and depression and found low but statistically significant correlations.

2.3.1 Conclusions

Examining the above literature, we can see that the HTP has wide applicability. It has been used in different cultures and across different types of psychopathology. There is more literature on the HTP with applications for adult years as compared to that with children, though the HTP has the capacity to appeal and go across to children too. The different studies have been restricted to smaller sample sizes and also suggest a need to search out better validity for the test. These are some of the issues that were evident in the course of this review on the HTP.

2.4 Section D: Studies on Children's Drawings in the Indian Context

In the Indian context, the investigator found it difficult to locate sufficient work on children's drawings. However, the studies found involving work with children's drawings has been included. Some of the early studies on children drawings in the Indian context were conducted by Dr. Pramila Phatak at Baroda and included data from other cities as well and to the development and standardization of the 'Phatak Draw-a-man' scale which could be used to measure intelligence of children in the ages of 4 to 13 years. This was later extended and revised to cover the age range of 2 ½ years to 15 ½ years. The test validation was conducted in parts over 30 years which emerged in several published and unpublished work between 1956 to 1986 (Phatak,

1988). Phatak (1966) used the Stanford-Binet test of intelligence, adapted by Kulshreshta (1971), against the Binet-Kamat test of intelligence and the Goodenough –Harris revision and extensions of Goodenough Draw-a-Man test, and correlations in the ranges of .65 to .95 were obtained. Similarly, reliability co-efficient using test-pre-test method in the range of .79 to .95 was obtained. This shows that drawings have been found useful to arrive at psychological indicators in the Indian context.

More recently, Thyagarajan and Kapur (2000) had conducted a study of artwork as therapy with emotionally disturbed children. A sample of 10 school going children aged 8 to 12 years referred for emotional disturbance was selected. 5 students each were assigned to experimental and control groups. The experimental group was taken up for 9 to 10 session of art work. The caretakers of the children also received 2 session of counselling. Pre-and post-intervention assessments were done using the children behaviour questionnaire (CBQ), the Symptom Rating checklist (SRCL). Results showed statistically significant reduction in emotional disturbance in the study group.

An overview of past Indian literature on the DAP has been presented by Kohli, Kaur and Malhotra (2007) where they describe its use with students, psychiatric patients, cases of impotence, patients awaiting surgery, emotionally disturbed children. Gender differences and the usefulness of Koppitz's emotional indicators have also been explored in the Indian context. A majority of these studies have taken place in the 1960s and 1970s. Only 2-3 of them have been conducted in the 1990s and after the year 2000. As the investigator, could not gain direct access to these studies, the readers are directed to the above source for further reading. Kohli, Kaur and Malhotra (2007) conducted a study to compare drawings of children with externalizing

disorders and internalizing disorders. 20 children with externalizing disorders and 20 with internalizing disorders were matched with a group of normal children. The drawings were then compared across the groups on parameters of size, sequence, placement of paper, omissions, distortions, location, strokes, depiction of various body parts, clothes and accessories.

Poornima, Hirisave and Subbakrishna (2014) used a case study approach to study the artwork of an eight-year-old child with multiple diagnoses. 26 sessions of intervention using a non-directive play approach with predominance of artwork, showed that the child was able to verbalize emotion and difficulties during artwork sessions. Sometimes changes in the artwork were also seen as the art progressed from scribbles to human figures in action. Studies like these further support that art can be a useful tool for emotional expression in the Indian context.

2.4.1. Conclusions

Judging from the above review, the Indian studies on projective drawings have been few and far apart. They have explored themes of Projective drawings as a measure for intellectual ability, as a tool to identify emotional disturbance, and an adjunct in art therapy. The research in India is scant and has not explored the depth and range of topics amenable to research in the use of projective drawings.

2.5 Research Gaps and Rationale of the study

A volume of work on projective drawings has been directed towards using the drawings to identify emotional disturbance and has come up with mixed outcomes. Yet the techniques are here to stay for the following reasons: -

- They are fairly quick and easy to administer.

- They do not require much specialized training to administer and score.
- They do not need much testing material and so are easily used in different settings.
- They are non-threatening to children and adults. (Tielsch,2005)

To increase their reliability in clinical use there has been effort in contemporary research to refine the scoring techniques for the Draw- a- person test, one of which is the DAP-SPED developed by Naglieri, McNeish and Bardos (1991). Another such scoring system has been developed for the House-Tree-Person test by Van Hutton (1994). These techniques have been proved to have better reliability and validity than past quantitative scoring systems in international research. Keeping these developments in mind, some of the gaps identified by the investigator are-

- There has been very little recent research on projective drawings in India, in particular using multiple drawing techniques across a continuum of normality, to clinical levels of emotional disturbance.
- There is a need to explore the use of more recent quantitative scoring methods of DAP and HTP as these have not been validated on an Indian sample.
- The validity of the quantitative scoring systems on drawing techniques has not been examined against other screening devices or quantitative measures. This is an area for further work.

The investigator attempts to address these gaps in this research.

2.6 Purpose of the Study

To validate the use of recent quantitative scoring systems for the projective drawing techniques i.e. Draw-A-Person (DAP) test and House-Tree-Person (HTP) test for

identification of emotional disturbances in children on an Indian sample by comparing them with other quantitative measures of emotional and behavioral disturbance and to study the developmental patterns of emotional indicators on the drawings of DAP and HTP.

2.7 Specific Aims and Objectives of the Study

Following are the primary objectives of the study:

1. To find out the gender and age- wise prevalence of emotional disturbance using quantitative scoring criteria of DAP and HTP to identify a group of emotional and behaviorally disturbed and non-disturbed from a sample of school-going children
2. To examine effects of age and gender trends in emotional indicators on HTP and DAP drawings in a sample of 7-11 years old school going children.
3. To find out whether there is similarity in identified emotional disturbance on the quantitative indicators of DAP and HTP for convergent validity.
4. To examine clinical validity of DAP and HTP in discriminating between clinical and non-clinical groups for emotional disturbance.
5. To find out criterion validity for the assessment scores on DAP and HTP against parent and teachers ratings of emotional disturbance on the Strength and Difficulties Questionnaire (SDQ, Goodman 1997)
6. To examine convergent validity for scores on the HTP and DAP in the group of children identified as emotionally and behaviorally disturbed and non- disturbed through drawings when compared with scores on a self-report quantitative measure of self-esteem.
7. To identify discriminating scoring indices by comparing the quantitative scoring indicators of DAP and HTP across the three identified groups i.e. emotionally

disturbed, non- emotionally disturbed through drawings in a school setting and a clinical identified group.

8. To critically analyze using a qualitative approach, the DAP/ HTP/ Strength and difficulties questionnaire/ Culture- Free self-esteem inventory and Pre-Adolescent Adjustment Scale as tools to identify emotional disturbance in a school going sample of 7- 11-year-old children.

   A secondary objective to examine how quantitative measures relate within themselves was also framed as below:

9. To find out predictive validity of indicators of emotional disturbance on DAP and HTP with scores of adjustments on a self-report measure.

2.8 Research Questions

The research questions that guided this research are:

1. What is the distribution of emotional disturbance according to age and gender, in school-going children aged 7-11 years, according to scores on the DAP and HTP?
2. Are there age and gender differences in the emotional indicators on the HTP and DAP?
3. Is the quantitative data on emotional indicators derived from HTP and DAP similar or different?
4. Are there similarities between test indicators of emotional disturbance, across children identified as emotionally disturbed on the HTP/DAP, compared with a clinically referred sample?
5. Are there differences in the HTP and DAP scores when compared across a group of children identified as emotionally non –disturbed, on the drawings with an identified emotionally disturbed and clinically referred group?

6. Is there a relationship between indicators of emotional and behavioral disturbance on the DAP/ HTP when assessed by other comparable non-projective measures (i.e. external ratings of disturbance by teacher or parent)?
7. Do projective drawings have similarities with or other self- report inventories of self-esteem and adjustment?

Having looked at the available research and the emerging needs for examining the quantitative scoring systems of projective drawings in a fresh approach, the above listed objectives and research questions were framed. The next chapter on methodology explains how the study was designed to examine the mentioned research objectives, the variables taken up, instruments selected and procedure for data collection.