

CHILDREN'S HOUSE-TREE-PERSON DRAWINGS AS A WINDOW INTO
MENTAL HEALTH: LINKS TO INTERNALIZING BEHAVIORS,
EXTERNALIZING BEHAVIORS AND TRAUMA

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ABSTRACT

In the present study, the newly developed House-Tree-Person (H-T-P) Scoring Manual was utilized to quantitatively assess children's drawing characteristics in relation to internalizing problems, externalizing problems, and traumatic experiences. A total of 93 children aged 6–16 participated, and their caregivers completed the Child Behavior Checklist (CBCL) and Adverse Childhood Experiences (ACE) questionnaire, while the children completed The House-Tree-Person Drawing task, the Children's Depression Inventory (CDI), the Screen for Child Anxiety Related Emotional Disorders (SCARED). Drawing features were evaluated under seven categories such as line distortions, size irregularities, location, level of detail, bizarre items, distortions and negative feelings. Controlling for age, gender, and intelligence, correlational and regression analyses were conducted to evaluate predictive relationships. While none of the regression models significantly predicted psychological symptoms overall, partial correlations showed that externalizing behaviors were positively associated with greater drawing details, and trauma symptoms were linked with more problematic person drawings. The findings suggest that while specific H-T-P features may hold clinical relevance, overall predictive power was limited in this sample. These results contribute to the psychometric investigation of projective drawing assessments and highlight the need for further validation studies in diverse child populations. Clinical implications, limitations, and directions for future research are discussed.

Keywords: House-Tree-Person Test; Internalizing Problems; Trauma; Externalizing Problems

ÖZ

Bu çalışmada, çocukların içe yönelim problemleri, dışa yönelim problemleri ve travmatik yaşantılarıyla ilişkili çizim özelliklerini nicel olarak değerlendirmek amacıyla yeni geliştirilen puanlama sistemi kullanılmıştır. Çalışmaya 6–16 yaş aralığında toplam 93 çocuk katılmış, ebeveynleri ise Çocuk Davranış Değerlendirme Ölçeği'ni (CBCL) ve Olumsuz Çocukluk Deneyimleri (ACE) ölçeklerini doldurmuştur. Çocuklar, Ev-İnsan-Ağaç Çizim testini tamamlamış, ardından Çocuklar için Depresyon Ölçeği (CDI), Çocukluk Çağı Anksiyete Tarama Ölçeği (SCARED) ile değerlendirilmiştir. Çizimler; boyut, çizgi kalitesi, konum, detay seviyesi, tuhaf elementler, bozulmalar ve olumsuz yüz ifadeleri gibi yedi ana kategori altında puanlanmıştır. Yaş, cinsiyet ve zeka kontrol edilerek korelasyon ve regresyon analizleri yapılmıştır. Regresyon modelleri genel olarak psikolojik semptomları anlamlı şekilde yordayamamış olsa da, kısmi korelasyonlar dışa yönelim davranışlarının daha ayrıntılı çizimlerle ilişkili olduğunu, travma semptomlarının ise kişinin kendi cinsiyetine ait çizdiği insan figürlerinde daha yüksek problem puanlarıyla bağlantılı olduğunu göstermiştir. Bulgular, belirli Ev Ağaç İnsan çizim özelliklerinin klinik olarak anlamlı olabileceğini, ancak genel yordayıcı gücün bu örnekleme sınırlı kaldığını göstermektedir. Bu sonuçlar, projektif çizim değerlendirmelerinin psikometrik incelemelerine katkı sağlamakta ve farklı çocuk örnekleriyle yapılacak ileri düzey araştırmaların gerekliliğini ortaya koymaktadır. Bulgular, klinik çıkarımlar, sınırlılıklar ve gelecekteki araştırmalar açısından tartışılmıştır.

Anahtar Kelimeler: Ev-İnsan-Ağaç Testi; İçeyönelim Sorunları; Travma; Dışayönelim Sorunları

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1. INTRODUCTION

Art has long been recognized as a medium for self-expression, offering individuals a unique way to explore and communicate their inner worlds. In psychology, the act of creating art has been increasingly utilized to uncover aspects of an individual's personality, emotional state, and unresolved conflicts. The symbolic nature of art allows for the projection of internal problems and unconscious processes, making it a valuable tool for understanding the complexities of the human mind.

Children often express their emotions through play, as they may struggle to understand and articulate their problems due to limited cognitive and language development. Drawing serves as a powerful tool for children to communicate their inner world, allowing them to process their emotions, thoughts, and experiences. This medium enables them to express their inner struggles and perceptions without requiring advanced language skills or an understanding of their emotional challenges. Therefore, projective tests are commonly used in clinical settings for children, which has consistently been rated as among the 10 most frequently used assessment devices (Lubin, Larson, & Matarazzo, 1984; Watkins, Campbell, Nieberding, & Hall-mark, 1995).

Human figure drawings have been used by mental health practitioners for many years (Handler & Thomas, 2013). One of the most used projective tests is the House-Tree-Person (H-T-P) drawing test by Buck (1948). According to a survey conducted by American Psychological Association (APA), it is the 8th most used tool (Camara & Nathan, 2000). In the original H-T-P drawing technique, children are asked to draw a house, a tree and a person, each will be drawn to separate papers. The drawings are used to understand children's psyche (Buck, 1948). It has benefits such as it is structured, non-verbal and it is not affected by culture, which can reflect personality traits and problems more accurately (Guo et. al, 2023).

There are some studies that have been conducted to understand H-T-P drawings and its correlation with psychopathology in both children and adults. One of the earliest studies about the House-Tree-Person (HTP) drawing test found a significant correlation between

psychopathology and line strength (Michal Smith 1953). Another survey consists of 1906 college freshmen suggested an increased accuracy of screening for mental health issues by using H-T-P and SCL-90 together (Li et. al., 2018). In addition, research suggested that H-T-P is effective for categorizing depression, anxiety and other mental disorders (Dewaraja& Sato& Ogawa, 2006; Yang& Zhao& Sheng 2019; Chen& Xu, 2008).

House drawing characteristics are considered to reflect family life and self-image (Zhang, 2010). The meta-analysis conducted by Guo et.al. (2023), found important correlations between H-T-P drawing characteristics and mental health. For instance, using excessive details in house drawings suggest internal conflicts and anxiety whereas no additional decoration suggests low psychological energy, depression and lack of motivation (Guo et.al.,2023). They have also found that very small and two-dimensional houses is an indicator of depression, anxiety and schizophrenia and appeared in drawings of patients who suffer from these disorders more often than normal group (Guo, et.al., 2023).

Tree imagery is often considered to symbolize growth and reflects a person's feelings and environment (Cai et.al., 2012). According to a previous study, only depressed patients draw a dead tree (Hui, 2014). In addition, bizarre or distorted tree imagery such as sharp branches, flattened crowns and so on often indicates emotional apathy, lack of vitality and motivation to live (Fukunishi et.al., 2002 & Wang et.al., 2019). Similarly to the house drawings, very small tree imagery is often associated with loneliness and lack of self-confidence, whereas a large tree symbolizes vitality (Wang et.al., 2019).

According to a study conducted with Vietnamese refugees in the United States, the children who had increased the number of foster home placements drew bizarre people and showed high emotionality (Yama, 1990). Studies show that H-T-P drawings are important and useful for trauma debriefing (Malchiodi, 1997; Eth & Pynoos, 1986). In addition, some researchers suggested that individuals with high activity levels tend to have more meticulous drawings than individuals with low activity levels (Lange-Kuettner et.al., 2002). However, the existing literature presents inconsistent and limited findings, leaving the relationship between drawing quality and psychopathology uncertain.

Overall, this study explored the relationships between specific drawing characteristics and psychological symptoms such as internalizing problems, externalizing problems and traumatic experiences, areas that lack in depth research, particularly within the Turkish

population. By examining these relationships, the research expected to provide valuable insights into how children's drawings may correlate with these psychological factors, thereby contributing to the field of child psychology and its therapeutic applications. The H-T-P Scoring Manual has been developed and has preliminary results regarding the H-T-P drawing characteristics and its relationship with attachment styles and mentalization (Kanbur, 2023). However, H-T-P characteristics and its relation to pathology has yet to be studied. Hence, it is expected to be a valuable addition to the literature by investigating the relationship between drawing characteristics and internalizing problems, externalizing problems and trauma.

2. LITERATURE REVIEW

2.2 Introduction to Projective Tests

2.1.1. Historical Evolution of Projective Tests

Art is as old as humanity itself, with evidence of early humans creating drawings in caves and other artistic expressions as a means of communication and self-expression. This intrinsic need to express oneself through art has, over time, cultivated a foundation for interpreting personality and emotions through these mediums. Cultural narratives and folklore have further contributed to this tradition, often associating specific colors with emotional states or personality traits—for example, red symbolizing anger, blue representing sorrow, and yellow signifying cowardice (Klopfer, 1973).

Projective tests, which involve the use of artistic expression as a means to interpret personality, have long been an integral component of clinical psychology. Ambiguous stimuli elicit unconscious needs and anxieties (Bellak, 1954 & Holt, 1956). Ambiguous stimuli creates different responses from different people, which means response to such stimuli is unique to each person. People interpret and make sense of ambiguous stimuli according to their own inner world. This serves as a tool for reflecting emotions, thought and experiences that words may not convey.

Projective tests formally began with Carl Jung, he developed a method called Word Association Test. There was a study conducted by Jung in order to understand the psyche of the participants. In this study, he presented 100 words to two groups. Group one included individuals with signs of emotional disturbances. The second group included individuals with no sign of emotional disturbances. All participants were given a word and Jung asked them to respond with the first word that came to their minds when hearing each said word. According to Jung, the reaction times and response quality should be different and he identified these differences.

After Jung, Hermann Rorschach developed one of the most well-known projective test, Rorschach Ink Blot Test in 1921 (Rorschach, 1921/1942). In the Rorschach test,

individuals are shown a set of 10 inkblot images, consisting of five black-and-white and five colored designs, presented on separate cards. They are then asked the question, "What might this be?". The responses provided insight into the participants' inner world and personality through careful analysis of their reaction times, as well as the shape, form, and movement reflected in their answers (Rorschach, 1921). Rorschach Inkblot Test is one of the most used projective tests. According to Lilienfeld et.al. (2000), Rorschach Inkblot Test stands on a firm scientific foundation after John Exner's development of Comprehensive System.

The Thematic Apperception Test (TAT) was initially developed by Henry Murray at the Harvard Psychological Clinic during the early 1930s (Murray, 1943). It features 31 cards depicting ambiguous scenarios, involving social interactions, aggression, competition. Respondents are asked to examine each card and create a story. The story should include (a) the events leading up to the scene depicted, (b) the actions currently occurring, (c) what is likely to happen next, and (d) the thoughts and feelings of the characters shown (Murray, 1943). These narratives are believed to provide valuable insights into the respondents' motivations and personality traits (Carter et.al., 2013).

Projective tests are commonly used in clinical settings however, there have been controversial opinions about the use of projective techniques in the field of psychology. One of the main criticisms regarding this issue is that they lack standardization, and they are not consistent (Guo et.al., 2023). The interpretation and scoring of projective tests are subjective, hence it is difficult to have consistent and reliable results (Chen & Yan, 2022). Overall, projective tests are commonly used as a tool to access the unconscious in clinical settings. There is controversy around their validity and reliability, however due to its benefits, it is widely used in clinical settings.

2.1.2. Drawing- Based Projective Tests

Drawing tasks as projective tests draw upon the connection between art and expression utilizing artistic creations as a window into the inner workings of the mind. They provide insights into an individual's emotional state through artistic expression. They utilize the symbolic and often unconscious elements of drawings to explore emotional, psychological and cognitive states, particularly in children who often use drawing as a primary mode of self-expression and have limited verbal skills to express their feelings and thoughts.

Drawing as a projective medium, emerged in the beginning in the 1870s, where they were collected and analyzed for understanding mental health and cognitive development in the context of child psychology (Puglionesi, 2016). After that, other child psychologists followed his path and conducted research to understand the relationship between the drawings and children's minds. After the 1900s, drawing tasks had become widely recognized as an assessment for children's cognitive ability and development, with ideas introduced by prominent figures such as Frederic L., Burke, James Mark Baldwin, James Sully, William Stern and others (Martin, 1991). The followers of psychodynamic psychology such as Freud and Jung, suggested that drawings are a medium to understand the inaccessible inner world and troubles (Anastasi, & Foley, 1941).

In 1982, Dalette and Hendrickson investigated the Human Figure Drawings to understand the relationship between self-esteem of high school students and the size of their drawings (Lilienfield et.al., 2000). The study depicted a significant correlation between self-esteem for male students and the height of the drawings (Chie & Haruo, 2004).

According to Goodenough (1926), children's language is drawing with which they express their interpretation of their environment. He developed an important psychometric scale, Draw-A-Man (DAM) test in 1926. It is a standardized test with a sample size of nearly 4000 and it aims to assess cognitive abilities of children (Goodenough, 1926). It is a relatively simple test; children were asked to draw a man on a paper. A systematic scoring system was developed to measure cognitive ability. Later, it was revised as The Goodenough-Harris Draw-a-Person Test (DAPT) (Harris, 1963). DAPT was an attempt to expand the age limit to adolescence and to derive a point scale

(Kamphaus & Pleiss, 1991). Koppitz scoring system (1963), became popular and it involved emotional indicators which was important for projective interpretation.

In addition, one of the most used projective tests, The House-Tree-Person (H-T-P), was proposed by Buck in 1948. One of the many benefits it offers is the fact that it is a non-verbal test, which indicates that the drawings are not affected by culture and expression. Among projective drawing techniques, the H-T-P test has been widely utilized to assess personality and emotional well-being. By analyzing patterns, omissions, and symbolic representations in their drawings, clinicians and researchers gain a deeper understanding of the psychological experiences of individuals, making the H-T-P test a valuable tool in both assessment and intervention. It has been modified by Hammer (1969). Initially standardized for adults and adolescents, later with initial validation studies, adapted to children.

Following this, Kinetic House-Tree-Person Drawings (K-H-T-P) was developed by Robert C. Burns in 1987. According to Burns (1987), there were several limitations to H-T-P test and to overcome the limitations, he included actions to the drawings. In addition, in H-T-P, the focus is on resolving sexual and aggressive impulses whereas in K-H-T-P, the main goal is to achieve human potential (Snow & D'amico, 2009).

2.2 House- Tree- Person Test

John N. Buck (1906-1983) who often worked with withdrawn children developed one of the most common projective tests, The House-Tree-Person test in 1948. He wanted to understand withdrawn children and realized that drawings are a gateway for them to communicate (Buck, 1948). Later it has been revised by Buck & Hammer (1969), is a projective test which measures psychological and emotional functioning (Weidman, 2017). H-T-P test can be administered to children, adolescents and adults. The main objective of the H-T-P test is to assess various aspects of an individual's personality such as unconscious conflicts, internal dynamics and cognitive ability by analyzing their drawings and responses to related questions (Buck, 1948). This test offers valuable clinical insights into a person's psychological, emotional, and mental health. It is often utilized as a component of a diagnostic battery and aids in the development of treatment

plans. The House-Tree-Person (H-T-P) test evaluates an individual's level of personality integration, cognitive maturity, and interpersonal connectedness (Oster & Crone, 2004, p. 92). Given the neutral and universally familiar nature of the house, tree, and person concepts, individuals naturally project their emotions and psychological state onto these drawings (Devora & Fryrear, 1976, 2006; Groth-Marnat, 1997; Groth-Marnat & Roberts, 1998). Additionally, the H-T-P test serves as a valuable research tool for identifying common psychological characteristics within specific groups of individuals (Oster & Crone, 2004, p. 92).

The test was administered by providing a paper and a pencil and asking the participants to draw a house, a tree and a person on each sheet. After each drawing was completed, relevant Post-Drawing Interrogation (P-D-I) questions were asked. Some of the examples of the P-D-I questions are the following: Whose house is this? What kind of tree is this? Who is this person? (Weidman, 2017). Buck and Hammer developed a scoring system comprising both objective qualitative methods and subjective quantitative approaches.

According to Buck (1948), quantitative scoring measured intellectual ability whereas qualitative scoring for P-D-I's measured personality. The House-Tree-Person test employs a two-phase approach to assessing personality. The free-hand drawing phase provides a non-verbal, creative, and largely unstructured way for individuals to express themselves (Buck, 1948). The Post-Drawing Interrogation (PDI) phase complements this by allowing clients to verbally describe, define, and interpret the objects they have drawn, offering insights into their apperceptions and thought processes (Buck, 1948). In assessing children's drawings for cognitive development Buck (1948) argued that analyzing the drawings according to the following standpoints is important: Concept, details, proportion, perspective, time, comments, line quality, trends in composition, proportion, dimensions, and details of the drawings are scored quantitatively.

2.2.2. General Qualities of House Tree Person Test

The initial step in interpreting children's drawings involves closely observing how they engage with the provided pencil and paper. This includes analyzing how they utilize the space on the page and the relative proportions allocated to the house, tree, and person

within their drawings. These observations provide valuable insights into the child's overall drawing characteristics.

Additionally, an important dimension of personality assessment through drawings lies in examining the characteristics of the lines, such as their pressure, force, and shading. These features can offer further understanding of the child's emotional state and expressive tendencies.

The size of the drawings is often related to the self-awareness and psychological state of the patient (Guo et al., 2023). For instance, a very large figure might represent aggressive tendencies, grandiosity, and high self-esteem whereas tiny figures might indicate low energy levels and shrunken ego (Machover, 1949). Thus, small figures can suggest withdrawal, avoidance, indecision and unclear self-awareness (Deng, 2014).

A study conducted by Son (2019) found that individuals with strong social skills and self-confidence rarely drew small figures, whereas those with high creativity often depicted larger figures, and emotionally sensitive individuals tended to create figures of average size (Son, 2016).

Another important aspect to be considered when interpreting the drawings is the placement of the figures. Some individuals place the figures in the center, and some at the bottom or top edge. According to Foley & Mullis (2008), the use of the bottom edge of the paper in the children's drawing is an indication of feelings of inadequacy and insecurity, as well as a need for support. On the other hand, the use of the top edge of the paper indicates inconsistency, imbalance and a deficiency in feeling grounded (Foley & Mullis, 2008). According to Buck, using the left side of the paper indicates the need for emotional satisfaction (Uzunboylu ve Evram, 2017). Therefore, the placement of the figures in the drawings of children reveals that they may experience insecurity, inadequacy and internalizing problems.

The presence or absence of essential features in house, tree, and person drawings holds significant interpretive value. Previous studies indicate that the drawings of individuals with depression often lack thematic content and emotional expression (Hui, 2014). In person drawings, the absence of elements such as facial features or limbs is associated with incomplete self-representation. The omission or partial loss of limbs may reflect diminished self-awareness and a lack of will to live (Guo et al., 2023).

Proportion of the drawings are also important factors for interpretation. Overly symmetrical drawings might indicate compulsiveness, controlled and cold personalities whereas overly disproportionate drawings might represent incoordination and physical inadequacy (Machover, 1949). Bizarre and distorted figures which can be defined as the figures that deviate from reality, are important indicators for mental disturbances (Guo et. al., 2023). Some researchers found that bizarre houses like churches and temples are more likely to appear in schizophrenic patients (Kwak & Lee, 2010).

Similar to other qualities, excessive detailing may have a significant meaning. Excessive details indicate strong inner anxiety, on the other hand, extremely simplified drawings may indicate avoidance, withdrawal and lack of motivation (Guo et.al., 2023). Shading is often interpreted as an indicator of anxiety, with the specific area of the figure that is shaded carrying functional significance (Machover, 1949). A previous study found that shading, chaotic and curved lines indicate anxiety, depression and external stress (Sheng et. al., 2019). Intense and aggressive scribbling is viewed as a manifestation of aggression and an attempt to conceal underlying emotions (Machover, 1949).

In addition to the level of detail, the pressure and firmness of the lines are crucial factors for interpretation. Lines may appear faint, heavy, dim, fragmented, or reinforced (Machover, 1949). Weak or intermittent lines often indicate indecision, unclear self-awareness and emotional tendencies (Deng, 2014). Heavy lines are often associated with neurotic tendencies, while dim lines indicate timidity, uncertainty, and a tendency toward self-effacement (Machover, 1949). Bold lines in a drawing convey an impression of courage and strength and are often used to emphasize the central focus, representing the core of emotions and feelings (Aurellia et. al., 2023). In addition, a study by Penzes et al. (2018) suggested that line repetition in drawings reflects an emotional release aimed at helping the individual achieve a sense of calm.

2.2.1.1. House

According to Buck (1948), the house symbolizes the home environment, where the most fulfilling or distressing interpersonal relationships take place. It offers valuable insights into a child's connection to reality, sense of accessibility, and psychosexual adjustment

(Buck, 1948). House drawings are often indicative of familial relationships and the home environment. According to Chen (2015), a house drawing featuring a smoking chimney can signal family conflict and heightened anxiety. Similarly, the size of the house often reflects family dynamics, with very small houses frequently associated with families characterized by low intimacy and significant conflict (Chen, 2015). Additionally, two-dimensional house drawings are frequently associated with introversion, depression, and withdrawn personality traits (Yan et al., 2014).

The absence of doors and windows is considered an important indicator of mental disturbances, as these features represent channels for interaction with the external world. A missing door, for example, suggests defensiveness, emotional withdrawal, and impaired communication (Deng, 2014). According to Jolles (1971), windows are channels for contact and its absence indicates hostility and withdrawal. In another study conducted with schizophrenic patients found that the houses drawn by individuals with mainly negative symptoms had narrower windows and lower doors which represents a lack of interest in social interaction (Zhou et. al., 2019).

2.2.1.2 Tree

The tree symbolizes an individual's self-perception in relation to their environment. This is because its structure and form are less influenced by conventional stereotypes compared to the more familiar representations of the house and the person (Buck, 1948). Tree imagery often represents emotional experiences associated with growth and can illustrate the connection between an individual's internal emotional state and their interactions with the external world (Guo et.al.,2023). The overall organization of the drawing is believed to reflect an individual's sense of internal balance and emotional coherence (Buck, 1948).

Large trees are typically indicative of vitality, whereas very small trees suggest feelings of loneliness and a lack of self-confidence (Wang et al., 2019). Patients with eating disorders tend to draw smaller trees (Mizuta et. al., 2002). According to Hui (2014), depictions of dead trees appeared exclusively in individuals experiencing depression. It is further suggested that the trunk represents an individual's sense of basic strength and

stability, with a very small trunk indicating a loss of ego control and a very large trunk symbolizing aggressive tendencies (Jolles, 1971). In addition, narrow trunk is found to be related with anorexia nervosa, anxiety, depression, withdrawal and dependency (Mizuta et. al., 2002).

The branches reflect the individual's perceived ability to derive satisfaction from their environment (Buck, 1948) as well as their flexibility and adaptability (Jolles, 1971). Sharp branches indicate aggression and destructive tendencies (Guo et. al.,2023). A study found that pointed crowns and sharp or disordered branches symbolizes impulsive and aggressive tendencies in schizophrenic patients with mainly positive symptoms (Zhou et. al., 2019). Roots in tree drawings are interpreted as representing an immature mind and internal conflict (Deng, 2014).

2.2.1.3 Person

Human figure drawings symbolize conflicts, anxieties, impulses and characteristics of the individual, projecting their body meanings to the drawing (Machover, 1949). According to Buck (1948), person drawings can reflect an individual's current self-perception, illustrating how they view themselves in the present, or how they feel and aspire to be. Machover (1949) posited that an incomplete person drawing reflects an incomplete self-image, while the omission of specific body parts may signify perceived dysfunction or loss of that body part's role (Guo et al., 2023). Head can be interpreted as the location of the self. The head symbolizes intellectual capacity, social dominance, and the regulation of bodily impulses (Machover, 1949). A head drawn disproportionately large or out of proportion to the human figure indicates that the child may be struggling to achieve emotional and social balance (Çankırılı, 2011; Dilci, 2014).

Facial features are often considered as the part of the body that helps us communicate. For example, drawings of the shape of the mouth represent emotions such as happiness and sadness (Rose, 2014). In another study, it has been found that the mouth depicted as close, narrow or in the form of a line in children's drawings is considered an indication that the child is hesitant to establish relationships with others (Altınköprü, 2003). According to Akkapulu (2010), the eyes drawn as small dots indicate an individual's

tendency to hide negative emotions and sadness, while eyes depicted larger than normal are seen as a sign of uneasiness and anxiety. The neck, which connects the head to the body, can convey physical impulses and mental control functions (Machover, 1949).

Drawing of arms and hands can be considered functionally. Arms are a way to contact the environment, and the hands are a way to touch, feel, and perform skills. Arms drawn close to the body are interpreted as a sign of insecurity or reluctance to engage with the environment whereas arms extended outward on both sides are interpreted as a sign of openness, and a willingness to engage with the environment (Bahçivan-Saydam, 2004).

Legs and feet enable us to stand up and be grounded. Omitting legs and feet indicates lack of control and a need for support (Bahçivan- Saydam, 2004). In relation to the detailing, adding exaggerated clothes to the drawings might indicate perfectionism, need for approval and grandiosity (Bahçivan-Saydam, 2004).

2.2.2. Reliability and Validity Studies

Projective tests are widely regarded as valuable tools for exploring a client's inner psyche and are commonly employed in clinical settings. For instance, children's drawings are frequently utilized to assess emotional distress, trauma, anxiety, depression, and cognitive development. However, the accurate and consistent interpretation of these drawings necessitates standardization. Projective tests face significant challenges related to reliability and validity, as noted by Vass (1998). The lack of standardization and subjectivity in interpretation contribute to conflicts in the literature regarding their scientific credibility. Despite these concerns, numerous empirical studies have examined the reliability and validity of the H-T-P test in various populations, particularly in diagnosing anxiety, depression, trauma, schizophrenia, and personality traits. Bieliauskas (1956) examined the inter-rater reliability of the H-T-P test and found moderate to strong agreement among scorers. However, the study also highlighted the need for greater standardization in scoring procedures to improve consistency and accuracy in interpretation.

Projective tests are inherently subjective, making it crucial to examine potential biases to minimize inconsistencies in interpretation. One study conducted by Hammer (1953) investigated the influence of clinicians' personalities on their assessment of hostility in House-Tree-Person (H-T-P) drawings, specifically examining whether a clinician's own aggression and hostility levels affected their perception of hostility-related features in children's drawings. The findings revealed moderate to high inter-rater reliability among clinicians in rating hostility and aggression within the drawings. However, a strong correlation ($r = 0.94$) was found between the level of hostility clinicians perceived in the drawings and their own hostility levels, suggesting that clinicians with higher personal aggression tended to perceive more hostility in projective drawings, indicating a potential bias in interpretation (Hammer, 1953).

There have been studies investigating the relationship between the H-T-P drawing characteristics and eating disorders such as anorexia nervosa and bulimia nervosa. A study by Mizuta et. al. (2002) conducted with 147 patients established a couple of drawing qualities that are correlated with eating disorders. Among these qualities are the size of the tree, the width of the trunk and the location of the tree. They found that a small tree, a narrow trunk and a tree located on the left side of paper are related to anxiety, low self esteem, withdrawal, depression and dependency (Mizuta et. al., 2002).

Another significant area of research involves the use of drawing tests in assessing individuals with schizophrenia. According to a study by Gryzwa et al. (1998), individuals with varying degrees of schizophrenia exhibited different performance patterns in drawing assessments. Zhou and colleagues (2019) conducted a study with 58 participants to examine the relationship between schizophrenia symptomatology—specifically, positive and negative symptoms—and their impact on House-Tree-Person (H-T-P) drawings. Their findings indicated that drawing characteristics varied based on symptom presentation. Individuals with predominantly positive symptoms produced drawings featuring more expressive and intense elements, such as sharp branches, whereas those with primarily negative symptoms exhibited more subdued and negative features, such as weak or underdeveloped arms (Zhou et. al., 2019). These findings suggest that H-T-P drawings may offer valuable insights into the symptomatology and severity of schizophrenia.

Furthermore, H-T-P drawing tests are not only for psychological assessment, they are also used to investigate personality types. According to a study by Lee (2019), the central location of vertical line, two-dimensional house and tree, and adding details to the person drawing were negatively correlated with pathological personalities such as neuroticism, addiction and impulsiveness (Lee, 2019). Another study investigated the drawing characteristics and their relation to Big Five personality traits in college students. Extraversion influenced figure size, mouth shape, arm balance, shoe depiction, and gender representation, while openness was linked to figure size and details like ears, collars, buttons, and neckties. Agreeableness affected facial and body features, including eyes, eyelashes, nose, mouth, neck thickness, legs, facial expressions, hair, and gender representation. Conscientiousness showed differences in figure size, eyes, nose, ears, facial expression, head-to-body ratio, and gender. Neuroticism was associated with the most variations, influencing 12 aspects, including figure size, facial and limb features, and clothing elements, reflecting emotional instability and self-perception differences (Son, 2016). Another study analyzing H-T-P drawings and its relation to Five-Factor Personality Traits, conducted with 186 high school students between the ages 12-15 found that the size of the person drawings were positively related to openness to experience and agreeableness, whereas high conscientiousness generated larger house and tree (Kato & Suzuki, 2016).

2.3 The H-T-P Drawing Manual

A recent thesis by Kanbur (2023) examined the relationship between H-T-P drawing characteristics, attachment styles, and mental state talk. Kanbur (2023) highlighted that many studies attempting to create a standardized scoring system for the H-T-P test have incorporated various emotional indicators. While these indicators often share underlying themes, their specific wording and number vary significantly across studies. As a result, highly specific scoring criteria rarely appear in actual drawings, making standardization challenging. Furthermore, the literature lacks sufficient research on the validity and reliability of the H-T-P test in children. To address these gaps, Kanbur and the author

developed a novel H-T-P Scoring Manual to systematically analyze drawing characteristics, where higher total scores indicate more problematic behaviors. The present study also employed this new scoring system to explore its associations with internalizing and externalizing behaviors, as well as traumatic experiences. Notably, the current study and Kanbur's study share a partially overlapping sample. While Kanbur focused on attachment styles and mental state talk using the Attachment Doll Story Completion Test (ASCT) and The Coding System for Mental State Talk, the present study investigates internalizing, externalizing, and trauma-related symptoms using the Child Behavior Checklist (CBCL), Child Depression Inventory (CDI), SCARED, and Adverse Childhood Experiences (ACE) questionnaire.

Findings from Kanbur's (2023) study revealed a significant negative correlation between attachment security and total H-T-P scores, suggesting that children with secure attachment styles exhibited fewer problematic drawing characteristics. However, H-T-P scores did not significantly differ among children with secure, avoidant, anxious, and disorganized attachment styles. While a significant relationship was observed between attachment security and total H-T-P scores, multiple regression analysis indicated that attachment security had limited predictive value for overall drawing scores. Additionally, Mental State Talk (MST) scores were not significantly correlated with total H-T-P scores. Securely attached children produced drawings that appeared more typical in terms of size, detail, and proportions, with no major omissions. Their drawings generally reflected a positive and lively tone. In contrast, children with avoidant attachment styles exhibited more omissions and disconnected lines, whereas those with anxious attachment styles created highly detailed drawings that conveyed multiple emotions. Drawings by disorganized children appeared more chaotic and inconsistent. Furthermore, bizarre and hostile elements were more frequently observed in the drawings of children with anxious and disorganized attachment styles. Notably, stick figures were exclusively present in the drawings of children with avoidant and disorganized attachment styles.

Regarding Mental State Talk (MST) and drawing characteristics, findings showed that higher MST scores were associated with larger, more detailed drawings, whereas lower MST scores correlated with smaller figures. Additionally, a greater presence of

inappropriate mental state attributions was linked to a higher frequency of bizarre items in the drawings.

2.4 Internalizing Problems and Drawings

In literature, there are a number of studies conducted with adult participants that resulted in a number of emotional indicators present in H-T-P drawings correlating with mental health issues. A study conducted with 51 participants, found that H-T-P drawings exhibit distinct and consistent internal structures, suggesting that these structures can effectively differentiate between clinical and control groups (Vass, 1998).

Another study by Sheng et al. (2019), which focused on anxiety in cancer patients, involved 167 participants and demonstrated that the H-T-P test is both applicable and effective in screening for anxiety. This study identified nine drawing characteristics indicative of anxiety, including excessively large drawing sizes, duplicated figures, and shadowed figures. A study by Wang (2018) identified specific drawing characteristics associated with anxiety in college students, including excessive erasure, shading, and overly small figures. Additionally, the study found that female students with anxiety were more likely to engage in excessive erasure compared to male students (Wang, 2018). Although there are conflicting results according to the size of the figures, anxiety and the size of the drawings seems to have a relationship.

According to a study conducted by Chen & Bin (2011), aimed to analyze the projective drawings and its relation to anxiety. They found 5 characteristics significantly predicting anxiety including shaded roof, detailed roof, person with long arms, figures expanded the whole paper and person who had both hands behind the body (Chen & Bin, 2011).

A study by Murayama et. al. (2016), found that older adults with depression draw significantly smaller sized trees and crowns when compared to non-depressed older adults (Murayama et. al., 2016). Similarly, another study has found that smaller tree trunks indicate depression whereas wide tree trunks indicate long-term mood stability (Gu et. al., 2020). Additionally, a study conducted by Takashi & Hashimoto (2009) found that extremely small trees represent self-denial and loneliness and are depicted frequently in children who refuse to go to school. Conversely, larger tree drawings correlated positively

with higher social competence (Suzuki & Kato, 2016). According to these results, figures with smaller sizes have a positive correlation with depression. Lee (2019) found that depressed individuals were more likely to depict houses with disproportionate parts and tended to omit rectangular-shaped doors.

Additionally, a study conducted by Yang (2019) found that small drawing size, weak lines, interrupted lines and simplified drawings were correlated with depression in cancer patients (Yang, 2019), further highlighting the potential of H-T-P drawings as a diagnostic tool for assessing depressive symptoms. A study investigating the tree drawings and its relation to depression found that specific tree drawing characteristics, such as trunk size, shading, and missing branches correlate significantly with depressive symptoms (White et. al., 2011). Another study conducted with high school students examined the drawing characteristics in the House-Tree-Person (H-T-P) test and their relationship to depressive symptoms. The researchers identified seven key features that were more prevalent in the drawings of students with depression compared to their non-depressive counterparts. These included lack of details, excessive blackening of the paper, highly detailed tree crowns, hands drawn behind the back, and omissions of facial expressions. The study found that these characteristics were significantly associated with depressive symptoms, leading to the conclusion that the H-T-P test can serve as an effective pre-screening tool for detecting depressive tendencies in junior high school students (Guo, Yu, Wang, Qin, & Zhang, 2023).

Another study investigated the relationship between H-T-P drawing characteristics and mental health in transgender adolescents. They found that higher levels of psychological distress often produced drawings with signs of emotional turmoil such as dark shading, small or enclosed figures, disorganized or chaotic drawings. In addition, missing body parts or faint lines indicated feeling of physical inadequacy, drawings that appear to be isolated or disconnected reflected social withdrawal, structured and balanced drawings suggested attachment security (Soll et. al., 2019).

2.5 Externalizing Problems and Drawings

Externalizing symptoms, including aggression, impulsivity, and rule-breaking behaviors, are often manifested in children's interactions with their environment. Research suggests that children with externalizing symptoms tend to depict exaggerated, aggressive, or chaotic elements in their drawings, such as sharp tree branches, oversized figures, and distorted or fragmented features. By analyzing these visual indicators, the H-T-P test serves as a non-verbal tool for identifying externalizing behaviors and assessing their underlying psychological processes. For instance, a study by Hammer & Piotrowski (1953) identified specific drawing characteristics linked to aggression and hostility, including windows without curtains or shutters, figures carrying weapons or depicted in aggressive stances, mutilated or degraded drawings, and oversized figures extending beyond the page margins.

According to a study by Kurithi and Menickam (2023), drawing characteristics of aggressive adolescents differ significantly from their non-aggressive peers. Hostility was positively correlated with realism, physical aggression negatively correlated with line distortions and verbal aggression was negatively correlated with rotation. Furthermore, they found that poor line quality was linked to lower physical aggression, suggesting aggressive individuals have more assertive and heavy-handed strokes. Lack of repetitive details or overworking parts of drawings were associated with increased aggression (Kurithi & Menickam, 2023).

Hirakawa (1993) suggested that adolescents with delinquent behaviors tend to draw stick figures in human drawings. Another study investigating the relationship between H-T-P test and school adjustment with Japanese early adolescents. Their findings suggest that students who drew smaller figures were less likely to engage in delinquency, potentially indicating lower externalizing behaviors (Suzuki & Kato, 2016).

2.6 Traumatic Experiences and Drawings

Trauma and abuse and its relation to children and adolescent's H-T-P drawings is a topic of interest in the literature. Blain et. al. (1981), found that the H-T-P test can discriminate

strongly between abused and non-abused children (Blain et. al., 1981). More recently, a study conducted by Louw and Ramkisson (2002), found that H-T-P test show a significant difference between sexually abused groups and non-abused groups. They found that sexually abused children reflected more sexual concepts in their drawings and they revealed feelings of aggression and hostility more than the non-abused peers (Louw & Ramkisson, 2002).

Another study investigated the House-Tree-Person (HTP) drawings of 88 Haitian children to assess their trauma response following the 2010 earthquake and ongoing societal challenges. They found that in person drawings, the absence of limbs, facial features, or human-like characteristics suggests low self-esteem and emotional detachment; in house drawings, the lack of windows, empty houses, and minimal detailing suggests a sense of insecurity and vulnerability and in tree drawings, bare trees with no leaves, exposed roots, or lack of grounding symbolize emotional instability and a weak sense of resilience (Roysircar et al., 2019).

Buck (1948) suggested that scars and broken branches in tree drawings symbolize an individual's traumatic experiences. He further hypothesized that the placement of scars on the trunk of the tree could indicate the time of the trauma. To test this hypothesis, Lyons (1955) conducted a study with 50 participants, asking them to draw a tree and imagine it had been struck by lightning. Participants were then instructed to mark an "X" on the tree where they believed the lightning would have struck. Following this exercise, they were interviewed about the worst event they had experienced and the timing of that event. The study found no significant correlation between the placement of the scar in the tree drawing and the timing of the trauma (Rankin, 1994).

However, research by Torem et al. (1990) demonstrated that the presence of scars on the trunk could effectively differentiate between individuals who had experienced physical, sexual, or verbal abuse and those who did not report any history of abuse. These findings suggest the importance of H-T-P drawings in identifying trauma-related indicators, though further research is needed to validate their predictive accuracy.

According to a thesis study aimed to investigate the relationship between children who experienced traumatic events and their drawing qualities, those who reported experiences of sexual and/or physical abuse displayed images of disorganized body parts, incomplete

figures, and ambiguous human representations. Additionally, children with a history of trauma depicted figures with varying degrees of disorganization, developmental regression, or conflicting features (Brennan, 2024).

2.7 Current Study

The present study aims to examine the associations between the characteristics of House-Tree-Person (H-T-P) drawings and internalizing problems, externalizing problems, and traumatic experiences in a sample of Turkish children referred to a university-based outpatient clinic for psychological assessment. According to findings in literature, House-Tree-Person Test offers several advantages, including its structured format, non-verbal nature, and cultural neutrality, making it a potentially accurate tool for reflecting personality traits and identifying psychological issues (Guo et al., 2023). However, most previous studies have predominantly focused on adult participants, resulting in a gap in applicability when assessing children and adolescents. Expanding research in these areas would enhance the generalizability and validity of the H-T-P test for younger clinical populations.

To address this need, the present study employs a newly developed H-T-P Scoring Manual. This scoring manual quantifies seven categories of drawing characteristics: line distortions, size irregularities, location, level of detail, distortions, negative facial expressions, and bizarre items. Each category consists of multiple items, which are scored on a 0-1 or 0-2 scale, depending on the nature of the characteristic. Higher scores correspond to a greater presence of problematic drawing features. For instance, a high line distortion score indicates greater occurrences of shading, interrupted lines and chaotic lines in the drawings. Similarly, a high size score reflects drawings that are either excessively small or large. Line distortions has frequently been linked to emotional regulation and internalizing symptoms such as depression and anxiety. Lines that appear broken, faint, overly shaded, or chaotic have been associated with internal emotional turmoil and psychological distress (Li et al., 2011; Dewaraja et al., 2006). Previous studies have highlighted the size of drawings can reflect levels of psychological energy and self-worth. Very small figures are often indicative of withdrawal, low self-esteem,

and insecurity (Guo et al., 2023; Wang, 2018), while oversized figures may be reflective of compensatory behaviors or externalizing tendencies such as impulsivity or aggression (Groth-Marnat & Roberts, 1998). Due to these previous findings, the aim of this study is to investigate the relationship between specific drawing characteristics such as atypical details, size irregularities, bizarre items and line distortions and externalizing problems, internalizing problems and traumatic experiences.

The goal of this study is to examine the associations between distinct indicators in children's H-T-P drawings and children's internalizing behaviors and externalizing behaviors. Additionally, this study explores the children's drawing characteristics and its relationship with traumatic experiences, as measured by the Adverse Childhood Experiences (ACE) scale, and seeks to identify specific drawing characteristics associated with trauma. It is hypothesized that the children with higher levels of internalizing and externalizing symptoms will obtain higher scores in the recently developed H-T-P Scoring Manual. In addition, children who had experienced traumatic experiences are similarly expected to have higher scores in the H-T-P Scoring Manual. Higher scores in the Scoring Manual represent higher levels of problem behavior.

In summary, this study aims to broaden the application of the House-Tree-Person (H-T-P) test by examining the relationship between children's drawing characteristics and internalizing symptoms, externalizing behaviors, and traumatic experiences. The hypotheses are presented in the following:

H1: Controlling for age, gender and intelligence higher total Line Distortion scores, lower total Size Irregularities scores, and higher total Atypical Details scores will positively predict internalizing scores and anxiety scores.

H2: Controlling for age, gender and intelligence, higher total Line Distortion scores, higher total Size Irregularities scores and higher total Bizarre Items scores will positively predict externalizing scores.

H3: Controlling for age, gender and intelligence total Bizarre Items scores, lower total Atypical Details scores and higher total Same-Gender Person score will positively predict adverse experiences scores.

3. METHODS

3.1. Participants

Major portion of the data has already been collected at the Psychological Counseling Center at Istanbul Bilgi University, under the supervision of Assoc. Prof. Sibel Halfon. The initial data was gathered from children who applied for routine psychological assessments at the center. The remaining small portion of the data was collected from volunteering participants responding to the research announcement. A risk assessment was made prior to testing by an interview. This interview evaluated the presence of developmental disorders such as Autism Spectrum Disorder (ASD), psychotic symptoms, a possibility for any risk of self harm and harm to others. These participants were excluded from the study. In addition, two questions about the presence of current psychiatric diagnoses were asked in the consent form. Among a total of 149 participants, 5 of them were excluded due to the fact that they did not fit the age range. The age range of 6-16 years is commonly used in projective drawing tests because it encompasses key developmental stages in children's cognitive, emotional, and motor skills. This age range was also selected due to the observation that in literature, drawing tasks were mainly conducted with school-aged children. Additionally, 14 of them were excluded due to their intelligence score being below 70, as such scores are classified as a threshold for mental retardation (American Associations of Mental Retardation, 2002) and these extremely low scores may indicate intellectual disability (Kaufman et al., 2006). It is assumed that drawings of these children will not reveal an adequate level of information (Keskinova & Ramo Akgün, 2002). One participant was excluded due to a diagnosis of Autism Spectrum disorder. 36 of the remaining participants were excluded as they had not completed all the required assessment instruments. As a result, 93 participants were included in the study.

This study included 93 children (52% males) aged between 6-16 years old. Mean age was 9.15 (SD = 2.612). Only 25% of the participants were aged 10-16 year old however skewness and kurtosis levels of age variable indicated a relatively normal distribution

(Skewness = .789, Kurtosis = -.172). Mean Full Scale Intelligence Quotient (FSIQ) scores of the participants were 100.13 (SD = 14.38). 23.6 % of the intelligence scores were obtained by The Wechsler Intelligence Scale for Children, Revised Edition (WISC-R; Wechsler, 1974) and 76.4 % of them were obtained by the The Wechsler Intelligence Scale for Children Fourth Edition (WISC-IV; Wechsler, 2003) were administered. A detailed overview of age, gender, intelligence and behavioral problem levels are presented in tables 3.1. and 3.2.

Table 3.1. Demographic Characteristics of Participants

	<i>n</i>	<i>%</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
Gender						
Female	45	48.3				
Male	48	51.7				
Age			9.15	2.612	.789	.25
Female			8.87	2.49	1.12	-.9
Male			9.42	2.72	.53	-.685
Intelligence			100.13	14.384	.176	.25
Female			102.44	14.422	.118	.354
Male			97.9	14.1	.234	.343
CBCL Total t Scores			59.99	9.761	-.46	.251
Female			59.57	10.054	-.404	.357
Male			60.38	9.575	-.524	.343
CBCL Internalizing t Scores			59.95	10.073	-.051	.251
Female			58.77	10.517	-.127	.357
Male			61.02	9.633	.102	.343
CBCL Externalizing t Scores			56.54	10.493	-.094	.251
Female			57.16	10.884	-.018	.357
Male			55.98	10.203	-.205	.343

Note. Standardized t values of CBCL scores are used in analysis in order to rule out the effect of age in score interpretation.

Table 3.2. Symptom Levels of Participants (CBCL)

Categories	Normal	Borderline	Clinical
Total	41 (44.6%)	14 (15.2%)	37 (40.2%)
Female	21 (47.7%)	4 (9.1%)	19 (43.2%)
Male	20 (41.7%)	10 (20.8%)	18 (37.5%)
Internalizing	43 (46.7%)	16 (17.4%)	33 (35.5%)
Female	22 (50.0%)	6 (13.6%)	17 (36.4%)
Male	21 (43.8%)	10 (20.8%)	17 (35.4%)
Externalizing	57 (62%)	9 (9.8%)	26 (28.3%)
Female	24 (54.6%)	6 (13.6%)	14 (31.8%)
Male	33 (68.7%)	3 (6.3%)	12 (25%)

Note. Numbers indicate: Frequency (Percentage)

3.2. Instruments

3.2.1 House- Tree- Person Test

The House-Tree-Person (H-T-P) test developed by Buck in 1948. The test is based on the premise that children, through their drawings of a house, tree, and person, project their understanding of their surroundings. The house represents their perception of their home environment, the tree reflects their relationship with their environment and body, and the person depicts their self-image (Buck, 1948). In this task, children were instructed to draw a house, a tree, and a person on separate sheets of paper, using only a pencil and no eraser. Following the drawings, they answered a set of standard questions regarding their artwork (Appendix B).

3.2.2 H-T-P Scoring Manual

A House-Tree-Person (H-T-P) Scoring Manual was developed to systematically assess children's inner psyche and mental health through their drawings. This section provides a detailed explanation of its development, including a thorough literature review that explored both the theoretical background of the H-T-P test and previous research on its reliability and validity. The initial phase involved an extensive literature review of both theoretical foundations and empirical research on the H-T-P test. Notably, the studies by Li et al. (2011) and Guo et al. (2023) played a crucial role in guiding item selection, as they successfully examined the test's relationship with various mental health dimensions. Meanwhile, theoretical frameworks established by Burns (1987) and Machover (1949) provided the necessary interpretative background.

Following the literature review, a preliminary item pool was created, consisting of 129 items across four main categories: (1) General characteristics, (2) House characteristics, (3) Tree characteristics, and (4) Person characteristics (evaluated separately for both genders), with a total of 129 items. Unlike prior studies that primarily focused on the presence or absence of features, this manual aimed for a more in-depth assessment. For example, in house drawings, the door was not only coded for presence or absence but also categorized by size (1 = small, 2 = average, 3 = large). A pilot study was conducted with 40 drawings from 10 participants, scored by a team of three Master's students, achieving an inter-rater reliability of .78. Following this, the raters reviewed the items and scoring process. Items that were rarely observed (e.g., legs turned inwards, pointed chin, oversized clothing) or difficult to assess (e.g., erased figures, carefully drawn heads, rotated figures) were removed. The revised item list was then refined with the guidance of an expert (Assoc. Prof. Sibel Halfon).

Following the pilot study, simplification was deemed necessary. Instead of applying the same set of items across all drawing categories, items specific to only one category were eliminated (e.g., oversized eyes in person drawings and scars on the trunk for tree drawings). Items were also generalized, such as replacing "large person" with "large figure." However, certain exceptions were retained due to their clinical significance,

including, one-dimensional figures, widely acknowledged in the literature as an important diagnostic feature, and negative facial expressions (e.g., anger, sadness, disgust, fear), which were considered highly relevant to emotional indicators. As a result of these refinements, 14 key scoring items remained, categorized into seven major themes: line distortions, size of the figures, location, level of details, distortions, negative facial expressions, and bizarre elements. Notably, negative facial expressions were only coded for person drawings.

To further refine the scoring system, the remaining items were categorized into thematic groups with input from an expert (Assoc. Prof. Sibel Halfon). For instance, chaotic lines, line pressure, and interrupted lines were grouped under line distortions, as they collectively assessed the consistency and clarity of strokes. Similarly, poor proportions and disconnected parts were categorized under distortions, as they reflected the distorted nature of the figures. As a result, seven general scoring categories were identified: line distortion, size irregularities, location, atypical detail, distortions, negative facial expressions, and bizarre items. Among these, negative facial expressions were exclusive to person drawings.

In the finalized scoring manual, items were rated using two different scoring methods: Binary Scoring (0 or 1): Some items were scored as present (1) or absent (0). Three-Point Scale (0, 1, or 2): Other items were rated as not present (0), somewhat present (1), or fully present (2). Each category's total score was calculated by summing the scores of individual items within that category, with higher scores indicating poorer drawing quality and greater emotional distress, based on prior research (Guo et al., 2023; Li et al., 2011). For categories containing opposite characteristics, such as atypical detail (simplified figure vs. detailed figure) and line distortions (light lines vs. heavy lines), only one of the two opposing items was scored, while the other was assigned a score of zero. Figure 3.1. & Figure 3.2. provide a detailed visual representation of the scoring method. The scoring process for the House-Tree-Person (H-T-P) drawings was conducted by the researcher and a Clinical Psychology Master's student, both of whom contributed to the development of the H-T-P Scoring Manual. To ensure inter-rater reliability, the raters jointly scored 50 out of the 415 drawings, yielding a high level of agreement (Intraclass Correlation (ICC) = .93). Following this, the remaining drawings were divided between

the two raters, with the researcher scoring 215 drawings and the Master's student scoring 250 drawings. To assess the internal consistency of the finalized scoring system of H-T-P Total scores, Cronbach's alpha was calculated as .72. The internal consistency of the finalized scoring system for subscales were in acceptable parameters (Line Distortions $\alpha = .78$, Size $\alpha = .77$, Atypical Details $\alpha = .79$, Bizarre Items $\alpha = .74$, Size Irregularities $\alpha = .76$, Same- Gender Person $\alpha = .77$). According to George & Mallery (2010), this range falls within acceptable parameters. During this analysis, paired scoring items (e.g., light lines vs heavy lines and large figure vs. small figure) were entered as a single total item, as only one of the paired characteristics could be scored per drawing. Additionally, since some items were scored on a 3-point scale and other items were scored on a 2-point scale, the standardized Cronbach's alpha is used to ensure comparability across items. This ensures that the internal consistency reliability is not biased by differences in the scoring range of individual items.

4. **Figure 3.1. H-T-P Scoring Manual**

Categories	Items	Scores		
Line Distortions	1. interrupted lines	0 = not present	1 = present	
	2. chaotic lines	0	1	
	3. light lines	0	1	
	4. heavy lines	0	1	
	5. shading	0	1	
Size Irregularities	6. small figure	0 = not present	1 = somewhat present	2 = present
	7. large figure	0	1	2
Location	8. drawn off-center	0	1	2
Distortions	9. poor proportions	0	1	2
	10. disconnected parts	0	1	2
Bizarre Items	11. bizarre items	0	1	
Atypical Detail	12. simplified figure	0	1	2
	13. detailed figure	0	1	2
	14. significant omissions	0	1	
	<i>1p. One dimensional body parts (person)</i>	0	1	2
Negative Facial Expressions	<i>2p. Anger</i>			
	<i>3p. Fear</i>			
	<i>4p. Disgust</i>	0	1	
	<i>5p. Sadness</i>	0	1	
Detailed omissions – house	door	0	1	
	windows	0	1	
	roof	0	1	
	chimney			
Detailed omissions – tree	trunk			
	canopy	0	1	
	branches	0	1	
	leaves	0	1	

	fruits	0	1
	ground line	0	1
	root		
Detailed omissions – person	head		
	hair	0	1
	eyes	0	1
	ears	0	1
	nose	0	1
	mouth	0	1
	hands		
	feet		
	arms	0	1
	legs	0	1
	neck	0	1

Figure 3.2. Scoring Table Showing The Calculation Category And Total H-T-P Scores

ITEM TOTALS	
	total light
	total heavy
Total Line Distortions	total chaotic*
	total large
Total Size	total small
total location	
total distortions	
total bizzare items	
	total simple**
Total Atypical Detail	total detailed
Total Negative Facial Expressions (p)	
House Total	

Tree Total	
Person Total	Same-gender person
	Opposite gender person
H-T-P Total	

Note. *total chaotic items = 1 + 2 + 5, **total simple items = 12 + 14 + 1p.

3.2.3. The Child Behavioral Checklist for Ages 6-18 (CBCL)

The Child Behavior Checklist (CBCL) is a widely used assessment tool designed to evaluate behavioral and emotional difficulties in children and adolescents (Derks et. al., 2006). The CBCL is applicable to individuals aged 6 to 18 years and consists of 113 items. Parents complete the questionnaire by rating their child's behavior over the past six months using a 3-point Likert scale: 0 (never), 1 (sometimes), and 2 (frequent).

There are also several demographic questions in CBCL such as the age, gender, hobbies of the children, academic activities, parent's employment and their socioeconomic status. It has Internalizing Problems, Externalizing Problems and Total Problems subscales. Internalizing Problems subscale include somatic problems, anxiety and depression, Externalizing Problems subscale include aggression and attention problems. Total problems subscale consists of both internalizing problems and externalizing problems. Some of the items of CBCL are the following: *"Parents' occupation, education, age, child's gender, inability to concentrate for long periods, inability to sit still calmly, being very active and restless, fear of going to school, frequently starts or gets involved in fights, bites nails, very fearful and anxious."* CBCL cut-off scores are determined based on T-Scores which are calculated through ASEBA. T-Score mean is 50 and standard deviation is 10. $T \leq 59$ is considered as normal range, $T = 60-63$ is considered borderline range and $T \geq 64$ is considered in the clinical range (Achenbach & Rescorla (2001)).

The CBCL has significantly high internal consistency ($\alpha = .97$) and test- retest reliability ($r = .94$) (Achenbach & Rescorla, 2001). The Turkish adaptation of the scale also has high internal consistency ($\alpha = .94$) and test-retest reliability ($r = .93$), and has been made

by Erol & Şimşek (2000). The responses are analyzed using the Achenbach System of Empirically Based Assessment (ASEBA), which generates a comprehensive report classifying children's internalizing, externalizing, and total behavioral problems into normal, borderline, or clinical categories. The assessment covers various domains, including anxiety/depression, social withdrawal, somatic complaints, social and thought problems, attention difficulties, rule-breaking behavior, and aggression levels. In this study, CBCL total problems scores have acceptable levels of internal consistency ($\alpha = .85$), Internalizing problems scores have acceptable levels of internal consistency ($\alpha = .73$), externalizing problems scores have acceptable levels of internal consistency ($\alpha = .72$).

3.2.4. The Children's Depression Inventory (CDI)

The Children's Depression Inventory (Kovacs, 1978) is a self-report measure designed to assess depressive symptoms in children and adolescents. The inventory consists of 27 items and is derived from the Beck Depression Inventory (Kovacs & Beck, 1977). The measure has demonstrated correlations with overall depression ratings (Kovacs & Beck, 1977) as well as clinical diagnoses of depression (Carlson & Cantwell, 1980). Aim of the inventory is to identify overt indicators of childhood depression (Kovacs, 1978). These symptoms include sleep disturbances, appetite changes, sadness, suicidal ideation, and other emotional difficulties. The scale can be administered either by reading the items to the child or having the child read and complete it. The questionnaire consists of 27 items rated on a three point Likert Scale. The child is asked to select the statement that best describes their feelings over the past two weeks. Some of the CDI's items are the following: *"I always feel sad, I hate myself, all bad things are my fault, I think about killing myself, I feel like crying every day, I always feel tired, almost every day I have no appetite, I have no friends, nobody loves me."* Each item is scored based on symptom severity, with values of 0, 1, or 2 points. The maximum possible score is 54, with higher scores indicating greater levels of depression. CDI scores cut-off was determined by normative studies, clinical research and statistical analyses (Timbremont et. al., 2008). The CDI was adapted into Turkish by Öy (1991) for use in Turkish-speaking populations.

The clinical cutoff score was determined to be 19, suggesting that scores at or above this threshold indicate significant depressive symptoms.

The psychometric properties of CDI was widely studied. The internal consistency and item-total score correlations of the CDI are considered satisfactory, with coefficient alpha values ranging from .71 to .89 (Volpe et. al., 2001). Additionally, multiple studies have reported sufficient stability coefficients, supporting the reliability of the CDI over time (Nelson et. al., 1987). A recent study by Masip et. al. further examined the psychometric properties of CDI finding that its internal consistency ranged from Cronbach's alpha =.82 (test phase) to .84 (retest phase) in a community sample, and .85 in a clinical sample. Its test-retest reliability was also high, with a correlation of .81 indicating a strong measurement stability over time (Masip et. al., 2010). In terms of its concurrent validity, the CDI correlated significantly with the *Reynolds Adolescent Depression Scale (RADS)* ($r=.81$) in the community sample and ($r = .83$) in the clinical sample (Masip et. al., 2010), further supporting its effectiveness as a measure of depressive symptoms.

The CDI has demonstrated strong reliability and validity across various populations, including its Turkish adaptation, making it a suitable measure for assessing depressive symptoms in children (Masip et al., 2010; Volpe et al., 2001). By using CDI scores, this research aims to examine the relationship between depressive symptom severity and drawing characteristics such as line distortions, size of the figures, and level of detail in H-T-P drawings. In this study, CDI Total scores have acceptable levels of internal consistency ($\alpha = .74$).

3.2.5. The Child and Parent Screen for Child Anxiety Related Emotional Disorders (SCARED)

The Screen for Child Anxiety Related Emotional Disorders (SCARED) is a psychological assessment tool used to evaluate anxiety symptoms in children and adolescents developed by Birmaher et. al. (1999). The questionnaire comprises 41 items, rated on a 3-point Likert scale. Turkish reliability and validity study was conducted by Çakmakçı (2004) for use in Turkish-speaking populations. The scale has both a parent and child version, and in this study, the 41-item child version was used. Each item is rated on a 0-2 scale, with

higher scores indicating higher levels of anxiety. The maximum possible score is 82 with higher scores indicating more severe anxiety symptoms. A total score of 25-30 indicates a borderline level of anxiety whereas 31- 41 above serves as a clinical warning for anxiety disorders. The scale consists of six subscales measuring different anxiety dimensions: Somatic Symptoms/Panic Disorder (13 items; 0-26 points), Generalized Anxiety Disorder (9 items; 0-18 points), Separation Anxiety (8 items; 0-16 points), Social Anxiety Disorder (7 items; 0-14 points), and School Avoidance (4 items; 0-8 points). SCARED cut-off scores determined based on percentile distributions, clinical validation studies, and receiver operating characteristic (ROC) curve analyses (Birmaher et. al., 1997; 1999). Some of the items of the SCARED are the following: *"I get headaches while at school, I feel scared when I sleep away from home, I feel restless, I get stomachaches at school, I worry about going to school, I have nightmares about bad things happening to me, I worry that something bad will happen to my mother and father, and I feel anxious about the future."*

Birmaher et al. (1997) reported strong reliability, with Cronbach's alpha coefficients between .74 and .93 for the total and subscale scores, and test-retest reliability coefficients between .70 and .90, demonstrating the scale's consistency and validity in assessing anxiety symptoms in children. According to a recent study conducted by Behrens et. al. (2019), the test-retest reliability of SCARED was found to be moderate to high for both parent and child reports over time, supporting the stability of the SCARED as a consistent measure of anxiety. Both parent and child SCARED scores were moderately correlated with clinician-rated anxiety severity using the Pediatric Anxiety Rating Scale (PARS). This study supports the reliability and validity of SCARED in both clinical and research settings (Behrens et. al., 2019). In this study, SCARED scores have acceptable levels of internal consistency ($\alpha = .74$).

3.2.6. Adverse Childhood Experiences (ACE)

The Adverse Childhood Experiences (ACE) questionnaire is a screening tool designed to assess a child's history of trauma and was originally developed by Felitti et. al. (1998) as a part of a large-scale study conducted by the Centers for Disease Control and Prevention

(CDC) and Kaiser Permanente. An adapted version of the original ACE questionnaire developed by Dube et al. (2003). The questionnaire consists of 10 items that assess exposure to different forms of childhood adversity, including abuse (emotional, physical and sexual), neglect (emotional and physical), and household dysfunction (parental separation/ divorce, domestic violence, substance abuse, mental illness, and incarceration of a family member). Caregivers provide reports on their own adverse experiences as well as those of the child. The ACE scores range from 0 to 10, with higher scores indicating greater exposure to adverse experiences, which have been linked to an increased risk of mental health disorders, substance abuse, and chronic physical illnesses (Felitti et.al., 1998). Some of the items in ACE are the following: *"Since your child was born, how often has a parent, stepparent, or another adult in your household cursed at, insulted, or humiliated your child; acted in a way that made your child afraid of being physically hurt; pushed, grabbed, shoved, slapped, or thrown something at your child; or hit your child so hard that marks or injuries were left?"* ACE cut- off scores are empirically derived, meaning it is based on observed patterns of risk rather than arbitrary categories. Researchers use statistical models to determine where health risks begin to escalate significantly (Wade et.al., 2017).

The Turkish adaptation of the ACE Questionnaire was conducted by Gündüz et al. (2018) to assess its reliability and validity in a Turkish sample. The study confirmed the psychometric strength of the questionnaire, with a Cronbach's alpha of .74, indicating satisfactory internal consistency. Similar to the original version, the Turkish adaptation maintains 10 items and follows the same scoring system. Parents self-report whether they experienced each type of adverse experience before the age of 18 by responding 'Yes' (scored as 1) or 'No' (scored as 0). They also report whether their child has experienced similar adversity using the same format. The total ACE Score is obtained by summing all affirmative responses, with higher scores reflecting increased exposure to childhood adversity. ACE scores 0-3 indicates low exposure to adverse experiences, lower risk for negative outcomes. ACE scores 4 or more indicates increased risk of psychological distress, chronic diseases, and other long-term consequences (Felitti et.al., 1998). Furthermore, according to a study conducted by Karatekin et. al. (2019), the Turkish

version of ACE's internal consistency, test-retest reliability, concurrent and convergent validity were in acceptable parameters (Karatekin et. al., 2019).

Given the well-established link between childhood adversity and psychological distress, the ACE questionnaire is included in this study to investigate how early traumatic experiences are reflected in House-Tree-Person (H-T-P) drawings. Previous research suggests that children with high ACE scores tend to depict more fragmented, incomplete, or distorted figures in projective drawings (e.g., Roysircar et al., 2019), making this a critical measure for exploring trauma indicators in children's drawings. In this study, ACE Total Adverse Experiences Scores have acceptable levels of internal consistency ($\alpha = .73$).

3.2.7. Wechsler Intelligence Scales for Children

Wechsler Intelligence Scale for Children – Revised Edition (WISC-R; Wechsler, 1974) and the Fourth Edition (WISC-IV; Wechsler, 2003) were used to assess and control participants' intelligence scores. During the initial years of data collection (2016–2017), the WISC-R was utilized. Subsequently, the assessment protocol shifted to incorporate the more recent WISC-IV. The Turkish adaptation of WISC-IV was conducted by Öktem and colleagues in 2011 using a large standardization sample. WISC-IV was found to be more reliable for differentiating clinical profiles, however prior research has supported the combined use of Full Scale IQ (FSIQ) scores from both versions (Mayes & Calhoun, 2006; Watkins et al., 2007).

The Wechsler Abbreviated Scale of Intelligence, Second Edition (WASI-II; Wechsler, 2011) is a shortened version of the Wechsler Intelligence Scale for Children, Fourth Edition (WISC-IV; Wechsler, 2003) and it is used for 7 participants. WASI-II includes two key subtests: Block Design which measures Perceptual Reasoning and Similarities which measures Verbal Comprehension. For Block Design, the participants are expected to duplicate the design pictures on blocks, and it will be time limited. For Similarities, the participants are expected to choose the two objects who are similar to each other. The overall intelligence score is determined by calculating the average performance across both subtests. This abbreviated version is considered a valid alternative when full-scale

administration is impractical (McCrimmon & Smith, 2013). As intelligence scores in the present study served only as an exclusion criterion and control variable, the inclusion of WASI-II was deemed appropriate.

3.3 Procedure

Between 2016 and 2023, Clinical Psychology Master's students from Istanbul Bilgi University administered the H-T-P test as part of their clinical training. These students received formal training in the administration of the assessment instruments to ensure standardized procedures. Families seeking psychological assessment at the Psychological Counseling Center were invited to participate in the ongoing research. During the intake session, parents were informed about the study and those who agreed to participate signed a written consent form, along with an additional consent form for video and audio recording. Before testing, oral consent was also obtained from the children. This study was approved by the Istanbul Bilgi University Ethics Committee, ensuring that all procedures complied with ethical research standards.

Testing was conducted over two separate sessions at the Istanbul Bilgi University Psychological Counseling Center. Each session took place in a psychotherapy room, where only the child and the administrator were present to ensure a distraction-free environment. As part of the clinical practicum, students administered several additional assessments alongside the H-T-P test. Intelligence testing was conducted during the second session, which lasted two to three hours, depending on the child's performance. The first session lasted approximately one hour. Between sessions, parents were asked to complete the Child Behavior Checklist (CBCL) and Adverse Childhood Experiences (ACE) along with several additional scales to gather complementary data on the child's emotional and behavioral functioning.

The procedure differed for voluntary participants who had not applied for psychological testing. Unlike clinical cases, these children only attended a single session. Parents who volunteered to participate completed an online demographic form, which included the consent form and a screening questionnaire to determine if their child met the inclusion criteria. Once eligibility was confirmed, the researchers contacted the parents to schedule

a testing session at the Psychological Counseling Center. During the session, the researchers administered the assessments. While the child was in the testing room with the researcher, parents were asked to complete the CBCL and ACE form. The order of test administration was as follows: The Wechsler Abbreviated Scale of Intelligence, Second Edition (WASI-II), House-Tree-Person Test (H-T-P), Child Depression Inventory (CDI) and Screen for Child Anxiety Related Disorders (SCARED). The session lasted approximately one hour.

During the administration of the House-Tree-Person (H-T-P) test, the child and the administrator sat opposite each other at a table in a structured setting. The child was provided with four A4-sized white sheets of paper and two pencils, while erasers and colored pencils were not available. If a child requested an eraser, they were informed that it was unavailable and were instead encouraged to cross out any part they wished to modify. The test began with the administrator explaining that the child would be asked to draw a series of images. First, the administrator placed a sheet of paper vertically in front of the child and instructed them to draw a house. Once the drawing was completed, Post-Drawing Interrogation (PDI) questions related to the house were asked. The same process was repeated for the tree and person drawings, with the instruction not to draw a stick figure for the person. Finally, the child was asked to draw a second person of the opposite gender, followed by another set of PDI questions.

After the drawing phase, the Children's Depression Inventory (CDI) and the Screen for Child Anxiety Related Disorders (SCARED) were administered. The researcher read all questions aloud to the child and recorded their responses. For the Child Behavior Checklist (CBCL) and Adverse Childhood Experiences (ACE) questionnaire, an online link was sent to the parent (usually the mother), who was instructed to complete the forms. The results were then processed through ASEBA for analysis.

During the coding process, H-T-P drawings were scored independently, with coders being blind to the child's CBCL, CDI, SCARED, and ACE scores to prevent any bias. The person drawing was coded first based on the child's gender, followed by the opposite-gender figure. To ensure consistency, coders were aware only of the child's gender, but they had no access to other identifying data. The researcher and an additional coder used

only the children's initials and ID numbers during the scoring process, ensuring objective and unbiased evaluation.

3.4 Data Analytic Strategy

All statistical analyses were conducted using IBM SPSS Statistics Version 25. To investigate the relationships between internalizing problems, externalizing problems, trauma exposure, and H-T-P scores, while controlling for age, gender, and intelligence, Pearson correlation and multiple regression analyses were conducted. Initially, Pearson correlation coefficients were calculated to assess the associations between H-T-P drawing characteristics, possible confounds, and the scales including SCARED Scores, ACE Scores, CDI Scores, CBCL Total Scores, CBCL Internalizing Scores, and CBCL Externalizing Scores. Regression analysis aimed to determine whether specific drawing characteristics significantly predicted childhood adversity, internalizing behaviors and externalizing behaviors.

5. RESULTS

4.1. Descriptive Statistics

Initially, descriptive statistics were examined for all variables. During preliminary data screening, the distribution of the items were examined for normality. The results indicated that Bizzare Items scores (Skewness = 2.270; Kurtosis = 5.466) and Negative Feelings scores (Skewness = 3.459; Kurtosis = 14.380) were outside the commonly accepted thresholds for normal distribution. In order to correct this non-normal distribution, a square root transformation was applied to the variables using IBM SPSS which resulted in improved distribution for Bizzare Items variable (Skewness = 1.399; Kurtosis = 0.463). However, despite transformation, Negative Feelings Score remained non-normally distributed (Skewness = 1.399; Kurtosis = 4.323) and was subsequently excluded from further analyses.

CBCL Total scores (N = 93) revealed that 40.2 % of the participants were in the clinical range for total problems (internalizing and externalizing comorbid), 15.2 % of the participants were in the borderline range for total problems and 44.6 % of the participants were in the normal range for total problems. For internalizing problems, 35.5 % of the participants were in the clinical range, 17.4 % of them were in the borderline range whereas 46.7 % of them were in the normal range. For the externalizing problems, 28.3 % of them were in the clinical range, 9.8 % were in the borderline range and 62 % of them were in the normal range.

ACE scores (N = 87) revealed that 19.5 % of the participants were considered to have been exposed to trauma (N = 17), on the other hand 80.5 % of them were not (N = 70). 23.3 % of the females were in the traumatic range (N = 10), whereas in males 15.9 % of them were in the clinical range (N = 7).

CDI scores revealed that 14.4 % of the participants in this study were considered to be in the clinical range (N= 13). 85.6 % of the participants were considered in the normal range (N = 77). 11.4 % of the females were considered in the clinical range (N = 5) whereas 17.4 % of the males were considered in the clinical range (N = 8)

SCARED scores revealed that 49.4 % of the participants were in the clinical range (N = 44) and 14.6 % of the participants were in the borderline range for anxiety, while 36 % (N = 13) of the participants were considered in the normal range for anxiety (N = 32). 52.3 % of the females were in the clinical range (N = 23) and 11.4 % of them were in the borderline range for anxiety (N = 5). On the other hand, 46.7 % of the males were in the clinical range (N = 23) and 17.8 % of them were in the borderline range (N = 8).

House-Tree-Person test. Average Total H-T-P Scores of the participants were 29.3 out of a maximum score of 80 (SD= 5.232). When categories were separately examined, *negative facial expressions* were observed the least among all categories (M= .17, SD = .481) followed by *bizarre items* (M =.43, SD = .852). Meanwhile, *size irregularities* category scored the highest among all categories (M = 5.89, SD = 1.598). In proportion to the maximum score that can be obtained, children obtained the highest scores in their *tree* drawings (M = 6.43, SD = 1.556). According to these findings, on average the highest number of emotional indicators were observed in children's tree drawings, mostly regarding the size of the drawings. Further information related to H-T-P drawings were presented in table.

Table 4.1. Descriptive Statistics for Children’s Trauma, Internalizing Problems, Externalizing Problems Variables

ACE Scores	<i>Normal</i>	<i>Traumatic.</i>	
Total	80.50%	19.50%	
Female	76.70%	23.30%	
Male	84.10%	15.90%	

SCARED Scores	<i>Normal</i>	<i>Borderline.</i>	<i>Clinical</i>
Total	36%	14.60%	49.40%
Female	36.30%	11.4%	52.30%
Male	35.5%	17.80%	46.70%

CDI Scores	<i>Normal</i>	<i>Clinical.</i>	
Total	85.60%	14.40%	
Female	88.60%	11.40%	
Male	82.60%	17.40%	

6. **Table 4.2. Total H-T-P Scores**

Categories (Max. Possible Score)	<i>Min.</i>	<i>Max.</i>	<i>M</i>	<i>SD</i>	Skewness	Kurtosis
Total Line Distortions (20)	0	13	6.59	2.909	.262	-.446
Total Size Irregularities (8)	0	8	5.89	1.598	-.882	1.035
Total Atypical Detail (24)	3	14	7.01	2.291	.679	.459
Total Distortion (16)	0	9	4.09	2.234	.25	-.873
Total Negative Expression(8)	0	3	0.17	0.481	3.459	.495
Total Location (8)	0	8	4.19	2.58	-.056	-1.13
Total Bizzare Items (4)	0	4	0.43	0.852	2.27	5.466
Total House (17)	3	11	6.77	1.629	.127	.495
Total Tree (17)	3	10	6.43	1.556	.098	-.575
Total Same Gender Figures (23)	3	13	8.11	2.019	.109	.121
Total Opposite Gender Figures (23)	3	15	8.08	2.203	.476	.639

4.2. Hypothesis Testing

A Pearson correlation analysis was conducted to examine the relationships between CBCL Internalizing Scores, CBCL Externalizing Scores, ACE Scores, SCARED Scores, CDI Scores and various H-T-P categories controlling for age, gender and intelligence. The results indicated that SCARED scores were significantly negatively correlated with *size irregularities* scores ($r(87) = -.232, p = .024$) and significantly positively correlated with *bizarre items* scores ($r(87) = .239, p = .024$). Externalizing scores were significantly correlated with *atypical detail* scores ($r(90) = 0.298, p = .004$), while ACE scores were positively associated with total *same-gender person* scores ($r(84) = 0.215, p = .047$). To further investigate whether these relationships remained significant after controlling for age, intelligence and gender, a partial correlation analysis was conducted. The results showed that the correlation between SCARED Scores and Size Irregularities Total Scores weakened and was no longer statistically significant ($r(87) = -.202, p = .063$). Similarly, the correlation between SCARED Scores and Bizarre Items Total scores was no longer statistically significant ($r(87) = .208, p = .053$). The positive correlation between Externalizing Scores and Atypical Detail Total Scores remained significant ($r(84) = 0.284, p = .007$). Additionally, the correlation between ACE Scores and Same-Gender Person Total Score remained significant ($r(84) = 0.242, p = .028$). According to these results, children exposed to more adverse experiences had more problematic same-gender person drawings and children with more externalizing behaviors had more details in their drawings.

To further examine the predictive power of H-T-P drawing characteristics for internalizing, externalizing behaviors and adverse experiences, a series of multiple regression analyses were conducted to assess the study hypotheses.

The first hypothesis was whether higher *total Line Distortions scores*, lower *total Size Irregularities scores*, and higher *total Atypical Details scores* will positively predict internalizing problems. A multiple regression was conducted to predict internalizing problems based on *line distortion total scores*, *atypical detail total scores*, and *size irregularities total scores* independent of age, gender and intelligence. The listed predictors accounted for 6.4% of the variance (Adjusted $R^2 = .064$) which was found to

be non-significant ($F(6,84) = .952, p = .463$). A multiple regression analysis was conducted to predict anxiety symptoms based on *size irregularities total scores*, *line distortion total scores* and *atypical detail total scores* independent of age, gender, and intelligence. The model overall was not statistically significant ($F(6,82) = 1.585, p = .162$) and accounted for 3.8% of the variance (Adjusted $R^2 = .038$). Overall, the results suggest that the drawing characteristics examined in this study do not significantly predict internalizing symptoms. In summary, the first hypothesis was not supported.

The second hypothesis was whether higher *total Line Distortion* scores, higher *total Size Irregularities* scores and higher *total Bizarre Items* scores will positively predict externalizing scores. A multiple regression was conducted to predict externalizing behaviors based on *line distortions*, *atypical details*, *size irregularities*, and *bizarre items total scores* independent of age, gender and intelligence. The listed predictors accounted for 11.8% of the variance ($R^2 = .118$) which was found to be statistically non-significant ($F(4,83)=1.837, p = .152$). Therefore, hypothesis 2 was not supported. While there was a significant correlation between externalizing behaviors and total atypical detail score, the regression analysis did not show a predictive relationship.

The third hypothesis was whether *total Bizarre Items scores*, lower *total Atypical Detail scores* and higher *Same- Gender Person Total Score* will positively predict adverse experiences scores. A multiple regression analysis was conducted to predict adverse childhood experiences based on *atypical detail total scores*, *bizarre item total scores*, and *same- gender person total score* independent of age, gender, and intelligence. The listed predictors together accounted for 8.5% (Adjusted $R^2 = .085$) of the variance which was found to be non-significant, ($F(6, 79) = 1.226, p = .302$). Overall, the model as a whole was not significant, therefore no significant relationship was found between trauma scores and *Bizarre Items Total Scores*, *Atypical Detail Total Scores* and *Same- Gender Person Total Scores*. Hypothesis 3 was not supported as well. Although there was a significant correlation between traumatic experiences and same- gender figures total score, the regression analyses did not support this association.

7. DISCUSSION

The present study examined the associations between internalizing problems, externalizing problems, and traumatic experiences with children's House-Tree-Person (H-T-P) drawings, using a structured H-T-P Scoring Manual developed by the author & Kanbur (2023). The quantitative interpretation of H-T-P drawings remains underexplored in the literature, making the development of such manuals essential for improving the test's reliability and validity. Particularly, research focusing on H-T-P drawings in Turkish children is limited. More notably, studies investigating the relationship between H-T-P drawing characteristics and psychological symptoms (internalizing, externalizing, and trauma-related problems) within Turkish samples are almost non-existent. To address this gap, the current study analyzed the relationships between H-T-P drawing features and psychological difficulties while controlling for age, intelligence, and gender.

The first hypothesis posited that there will be a relationship between the H-T-P drawing characteristics of children and their internalizing problems. Specifically, it was expected that children with internalizing difficulties, such as anxiety, would use lighter, fainter lines, excessive shadowing, smaller figures and more detailed figures. The second hypothesis predicted that children with externalizing problems were expected to use heavier lines, larger figures, and display more bizarre items in their drawings. The third hypothesis predicted that children with traumatic experiences would incorporate more bizarre or unusual items, less detail in their drawings and their self-representation drawings would indicate higher scores representing more emotional disturbance. The implications of these findings, along with potential clinical applications, study limitations, and directions for future research, will be discussed in the following sections.

5.1. Discussion of Findings

5.1.1. Internalizing Problems and H-T-P Drawings

The present study hypothesized that higher total Line Distortions scores, lower total Size Irregularities scores, and higher total Atypical Detail scores would positively predict internalizing symptoms. However, this hypothesis was not supported, as the overall regression model was not statistically significant. Although correlation analysis revealed a significant negative relationship between anxiety symptoms and the size of the figures, the relationship became non-significant when controlling for gender and intelligence. Similarly, line distortions and atypical details scores did not significantly predict internalizing problems. Unlike previous studies that have primarily focused on total H-T-P scores rather than examining specific drawing characteristics (Li et al., 2011; Guo et al., 2023; Sheng et al., 2019), the current study aimed to take a more nuanced approach by analyzing various drawing features separately. This decision was based on the understanding that different aspects of drawings—such as line distortions, size irregularities, atypical details, and bizarre elements—may provide unique insights into various psychological dimensions rather than being combined into a single composite score. However, the results indicated that specific category scores may not be as conclusive or informative as total H-T-P scores. This may be due to the interconnected nature of drawing characteristics, where individual features alone may not sufficiently reflect underlying psychological distress. Given this, it is possible that a total scoring approach, rather than focusing on different drawing elements, may be more effective in capturing the relationship between emotional disturbances and projective drawings. Intelligence emerged as significant predictor of H-T-P categories' scores. Given that the H-T-P test was originally designed as a measure of intelligence (Buck, 1948; Machover, 1949), the significant relationship observed between intelligence and H-T-P scores provides support for the concurrent validity of the newly developed H-T-P scoring manual. This finding aligns with the test's historical foundation and suggests that cognitive abilities may influence certain drawing characteristics, reinforcing the importance of considering intelligence when interpreting H-T-P scores.

The present study found that anxiety symptoms were not significantly correlated with total size scores. This finding is not consistent with previous research demonstrating that individuals with anxiety often depict smaller figures in projective drawings, reflecting emotional withdrawal, insecurity, and diminished psychological energy (Wang, 2018; Yang, 2019). Smaller human figures in drawings are often associated with feelings of vulnerability, social inhibition, and self-doubt, which are characteristics of anxiety-related disorders (Sheng, 2019). Guo et al. (2023) found that individuals with anxiety were significantly more likely to draw very small figures compared to non-anxious individuals, reinforcing the idea that drawing size may be an important indicator of psychological distress. Although previous research has suggested that anxiety symptoms are associated with smaller figure sizes in projective drawings, the current study did not find a significant relationship between anxiety symptoms and total size scores. One possible explanation for this unexpected finding is that internalizing symptoms might not always be overtly expressed in children's drawings, particularly in standardized scoring systems. While some children with anxiety and depression may draw smaller, more fragile figures, others may exhibit different artistic styles or coping mechanisms that do not align with traditional H-T-P interpretations (Sheng, 2019). Additionally, the act of drawing itself may serve as a form of self-expression or regulation, meaning that children with internalizing symptoms do not necessarily produce drawings that overtly reflect their distress (Fury et al., 2010). Moreover, drawing size is also influenced by cognitive and motor development, which could obscure the relationship between anxiety and drawing size in younger participants.

In addition, the absence of a significant relationship between line distortions and anxiety in this study differs from previous literature that found a connection between chaotic or hesitant line work and anxiety symptoms (Sheng, 2019). This discrepancy may be due to differences in sample characteristics, scoring methods, or cultural factors influencing the way children express distress through drawings.

Below there are 3 pictures for item-based comparisons of children with normal levels of problem behaviors.

Figure 5.1. Drawings of Children Who Has Normal Levels of Internalizing Problems, Externalizing Problems and No Exposure to Trauma



Note. The house is made by a 7 year old male who has an internalizing problems score of 8, externalizing score of 11 and adverse experience score of 3. The tree is made by a 13 year old female who has an internalizing problem score of 6, externalizing score of 3 and adverse experience score of 1. The person is made by a 15-year old female with an internalizing problem score of 7, externalizing problem score of 8 and adverse experience score of 3.

The drawings in figure 5.1 are made by children who has normal levels of internalizing problems. As suggested by the literature, all drawings seem usual in terms of size and proportions. There are no significant omissions in the drawings. There are no chaotic or interrupted lines and no shading, however the tree has fainter lines. They have some

unique details such as the smoke coming out of the chimney, flowers added to the tree, the detailed clothing, boots and jewelery added to the person drawing, however it is not excessively detailed. In general, all drawings have positive and lively details.

Figure 5.2. Drawings of Children Who Has Clinical Levels of Internalizing Problems



Note. The house is made by a 9 year old female who has an internalizing problems score of 30. The tree is made by a 14 year old male who has an internalizing problem score of 34. The person is made by 10-year old male with an internalizing problem score of 34.

Notably, the drawings from in figure 5.2 are strikingly different from previous ones. Anxiety is characterized by excessive worry, heightened sensitivity to threats, and a tendency to withdraw from social interactions (American Psychiatric Association, 2013). Previous studies suggest that these feelings of insecurity, low self-esteem, and a desire to retreat from the external world might be reflected in the drawings by very small size (Wang, 2018). The house drawing appears notably small and lacking in detail, potentially signifying reduced psychological energy. In contrast, the tree drawing features light, interrupted lines and shaded fruits, demonstrating more detail than the house drawing. The person drawing exhibits key omissions, such as missing hands, feet, and nose, along with disproportionate features, particularly oversized eyes that extend beyond the face line. Prior studies suggest eyes depicted larger indicates a sign of uneasiness and anxiety (Akkapulu ,2010).

5.1.2. Externalizing Problems and H-T-P Drawings

The present study hypothesized that higher total Line Distortion scores, higher total Size Irregularities scores, and higher total Bizarre Items scores would positively predict externalizing symptoms. This hypothesis was not supported, as the overall regression model was not statistically significant. While detail total scores were significantly correlated with externalizing symptoms in the correlation analysis, this relationship did not hold when controlling for age, gender, and intelligence scores in the regression model. Therefore, no definitive conclusions can be drawn regarding the predictive role of H-T-P drawing characteristics in externalizing behaviors.

These findings diverge from previous research, which has often suggested that children with externalizing problems tend to exhibit drawings with chaotic elements, exaggerated sizes, and heavy-handed strokes (Kurithi & Menickham, 2023; Suzuki & Kato, 2016). Studies examining delinquent behaviors in children have also reported that stick figures, disproportionate features, and aggressive imagery are more common in drawings of children with externalizing symptoms (Hirakawa, 1993). In contrast, the present study found no significant associations between externalizing behaviors and line distortions, size irregularities, or bizarre items scores, suggesting that externalizing tendencies may not be as easily captured through quantitative scoring of H-T-P drawings.

One possible explanation for these findings is that externalizing problems may manifest in drawings in a more nuanced or individualized manner, rather than through generalizable characteristics such as increased line pressure, exaggerated sizes, or chaotic elements. It is also possible that children with externalizing problems display impulsivity or inattention during the drawing process, resulting in inconsistent representation of these features (Cox, 1993). Additionally, prior research has indicated that externalizing behaviors often involve overt actions and aggression rather than internalized representations in projective drawings (Hammer & Piotrowski, 1953).

Another consideration is that demographic variables such as gender and intelligence may play a greater role in externalizing behaviors. Given that higher intelligence scores were found to be marginally associated with lower internalizing symptoms, it is possible that

cognitive factors also influence externalizing tendencies, potentially masking any clear relationship between drawing characteristics and externalizing behaviors. Furthermore, cultural and contextual factors could shape the way externalizing symptoms manifest in drawings, particularly in non-Western populations where the expression of aggression or hyperactivity may differ (Goldner & Scharf, 2012).

The lack of significant findings could also be attributed to methodological factors. The scoring manual developed for this study aimed to quantify drawing characteristics systematically, but externalizing behaviors might be better assessed through qualitative analysis of drawings rather than strictly numerical scores. For instance, symbols of aggression, social conflict, or defiance in the content of drawings may be more revealing than structural elements alone (Putnam, 1997; van der Kolk, 2005).

Below there are 3 pictures for item-based comparisons for children with clinical levels of externalizing problems in Figure 5.3.

Figure 5.3. Drawings of Children Who Has Clinical Levels of Externalizing Problems





Note. The house drawing is made by a 6 year old male with an externalizing problem score of 31, the tree drawing is made by a 12 year old male with an externalizing problem score of 20, the person drawing is made by a 14 year old male with an externalizing problem score of 23.

The most prominent characteristic of these three drawings is the size of the figures. Both the house and tree drawings occupy the entire page, with an excessive level of detail. The house includes multiple doors, windows, antennas, and a staircase, while the tree, although not particularly large, is surrounded by additional elements such as the sun, chaotic lines, and Turkish flag symbols. Similarly, the person drawing is highly detailed, featuring elements such as eyebrows, eyelashes, a belly button, and intricate clothing details. The use of excessive details, such as multiple structural features in the house and intricate clothing details in the person drawing, may suggest a tendency toward overcompensation or a need to exert control over one's environment, traits often associated with externalizing behaviors (Koppitz, 1968; Kurithi & Menickham, 2023). In line with the literature, excessive details were observed in the drawings of children with externalizing problems. Additionally, the drawings exhibit poor line quality, with heavy-handed strokes and chaotic lines. The presence of heavy-handed strokes and sharp, jagged branches in the tree drawing may symbolize heightened aggression and emotional dysregulation, consistent with previous findings that children with externalizing problems struggle with impulse control and frustration tolerance (Hammer & Piotrowski, 1953; Suzuki & Kato, 2016). Specifically, the house drawing features heavy lines, while the tree drawing consists of chaotic lines with a combination of light and heavy lines, and its branches appear sharp and jagged.

5.1.3. Trauma and H-T-P Drawings

The current study hypothesized that higher levels of traumatic experiences would be associated with increased Bizarre Items scores, lower Atypical Detail scores, and higher same- gender person scores (self-representation) independent of age, gender and intelligence. However, despite the significant positive correlation that was found between trauma exposure and same- gender figures this hypothesis was not supported, as the overall regression model was not statistically significant. Higher same- gender figure scores indicate distortions, omissions, or exaggerated features, which may be reflective of emotional instability, identity confusion, and psychological distress. Roysircar (2019) found that children with traumatic experiences often depicted human figures with missing limbs, absent facial features, or non-human-like characteristics, all of which suggest low self-esteem, emotional detachment, and a weakened sense of resilience. Similarly, Brennan (2024) observed that children who experienced sexual or physical abuse frequently produced drawings with disorganized body parts, incomplete figures, and ambiguous human representations. However, the results of this study were not aligned with the findings in literature. The lack of a significant regression model suggests that trauma's impact on drawings may be more complex than initially assumed. While previous studies have found strong associations between trauma and distorted or fragmented human figures, these findings were often based on qualitative analyses rather than standardized scoring systems (Burns, 1987; Fury et al., 2010). Children's post-drawing explanations and personal narratives may provide critical insights into their trauma histories that cannot be fully captured by numerical scoring.

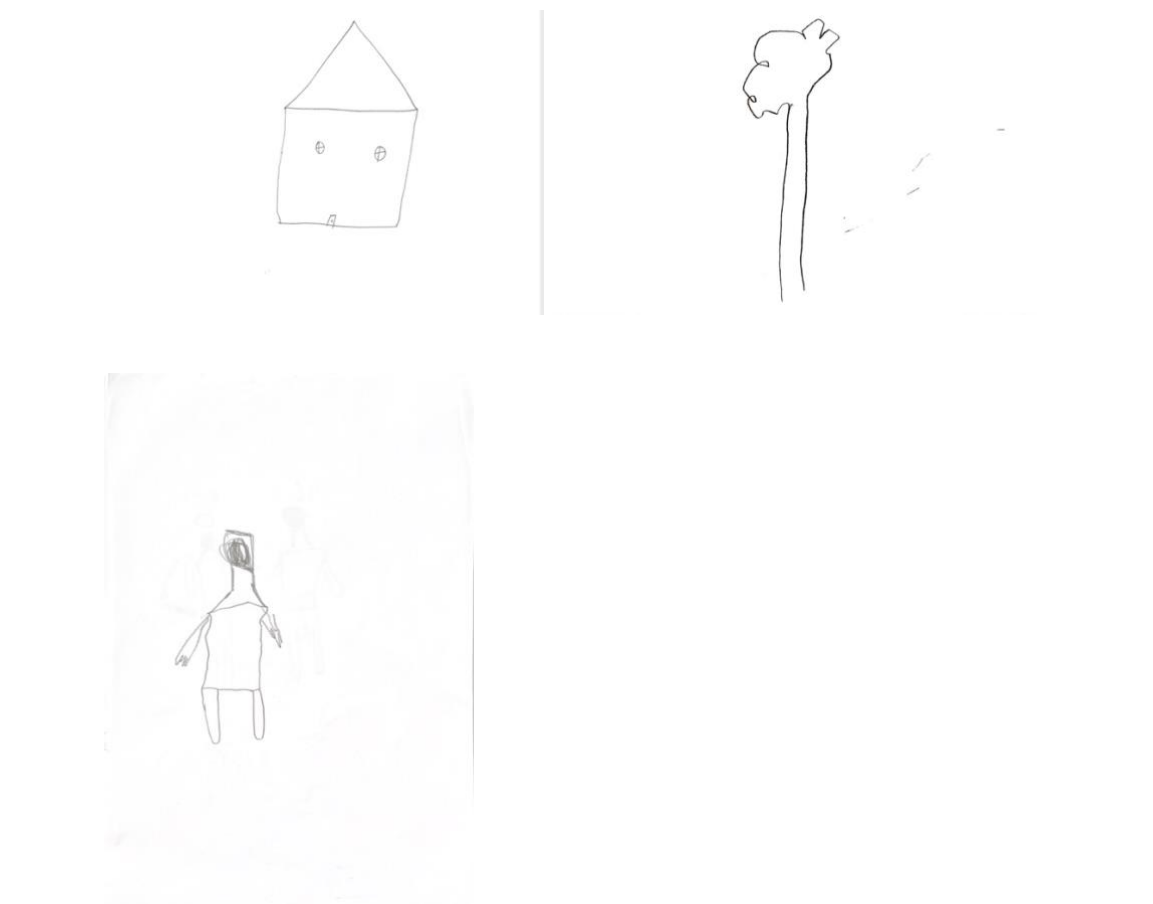
In addition, trauma scores were not significantly correlated with Bizarre Items scores or Detail scores, despite prior research suggesting that bizarre, surreal, or fragmented elements in drawings may reflect dissociation and emotional turmoil in traumatized children (Guo et al., 2023; Wang, 2019). One possible explanation for this discrepancy is that trauma symptoms manifest differently in children, depending on age, personality, and coping mechanisms (Goldner & Scharf, 2012). Some children may externalize their distress through chaotic and fragmented drawings, while others may adopt a defensive

strategy of simplification and emotional suppression, resulting in more neutral or conventional drawings (Cox, 1993).

Additionally, the developmental stage of the participants may have influenced the results. Research suggests that older children tend to develop more sophisticated drawing techniques, which could potentially mask trauma-related distortions (Yavuzer, 2016). In contrast, younger children, who have less developed motor and cognitive skills, may produce more simplistic and exaggerated depictions that align more closely with trauma-related indicators (Machover, 1949).

Below there are 3 pictures for item-based comparisons for children with traumatic experiences in Figure 5.4.

Figure 5.4. Drawings of Children with An Exposure to Traumatic Experiences



Note. The drawing of the house is made by a 7 year old female with a traumatic experiences score of 6. The drawing of the tree is made by a 6 year old male with a traumatic experiences score of 8. The drawing of the person is made by a 12 year old female with a traumatic experiences score of 10.

The most striking characteristic of these drawings is the overall absence of details and a sense of vitality, which may reflect emotional withdrawal and psychological distress. Prior research has indicated that specific omissions in drawings may serve as indicators of insecurity, vulnerability, and emotional detachment in children who have experienced trauma. For instance, in house drawings, empty or sparsely detailed structures often symbolize a lack of emotional security and a sense of instability in the child's environment (Roysircar et al., 2019). Similarly, tree drawings that lack additional details, appear bare, or float without a ground line have been associated with diminished resilience and a weak sense of stability (Hammer, 1958; Koppitz, 1968). In person drawings, the absence of facial features, limbs, or other defining characteristics often signifies low self-esteem, emotional detachment, and difficulties in self-representation (Roysircar et al., 2019). Consistent with these findings, the drawings of children exposed to trauma exhibited problematic features in their person drawings. The house is relatively large but has disproportionately small windows and doors, appearing empty which may symbolize restricted access to emotions or difficulty expressing inner experiences. The tree drawing lacks additional details, grounding, and appears to be floating—suggesting a fragile sense of security and detachment from reality. In the person drawing, the face is entirely blackened and shaded, lacking any distinguishable facial features, hair, or feet. This ambiguous and incomplete human representation aligns with previous literature suggesting that such drawings reflect a fractured self-image, emotional suppression, and a struggle to construct a coherent identity following traumatic experiences (Machover, 1949; Roysircar et al., 2019). The omission of facial features, particularly eyes and mouth, has been linked to feelings of powerlessness, fear of being seen, and an avoidance of emotional expression (van der Kolk, 2005).

5.2. RESEARCH AND CLINICAL IMPLICATIONS

This study provides empirical support for the use of the H-T-P test with children. It was seen that levels and variations within externalizing problems and trauma are reflected in children's H-T-P drawings, largely in terms of details and person drawings. Lastly, although specific categories of H-T-P score was not a valid estimator of internalizing problems, it was a significant predictor for externalizing behaviors with detailed drawings and traumatic experiences with person drawings.

While numerous studies have examined self-reports and parent-reports of children's psychological difficulties, projective drawing assessments remain underutilized in large-scale research. The present study suggests that specific drawing characteristics may be linked to externalizing and trauma-related symptoms, warranting further investigation with clinical samples. In addition, the study emphasizes the need for standardized scoring criteria in projective drawing tests. The newly developed H-T-P scoring manual attempted to provide a structured approach to evaluating emotional indicators. This manual is a significant step toward standardizing the interpretation of H-T-P drawings, enabling a more structured and objective evaluation of children's emotional and psychological states. Additionally, by focusing on a Turkish sample, the study provides valuable insights into the applicability of the H-T-P test within Turkish clinical settings. The findings offer a new assessment perspective, emphasizing the potential for integrating projective drawing tests into psychological evaluations in Türkiye.

Given the non-verbal nature of drawing assessments, the H-T-P test could serve as a valuable screening tool in settings where children may struggle to verbalize their emotional experiences. This study found potential links between person drawing characteristics and adverse childhood experiences (ACE). Given that traumatized children may struggle with verbal expression, the H-T-P test can be an effective therapeutic tool in trauma-focused interventions, reinforcing its potential role in early intervention programs. Drawing tasks can help to depict inner conflicts, provide a non-threatening way to explore trauma-related themes, and facilitate therapeutic discussions. Furthermore, due to schools being important environments for identifying children with emotional and behavioral difficulties, the H-T-P test can be easily administered in school

settings as part of universal screening efforts to detect early signs of distress, particularly in children reluctant to discuss their feelings. School counselors and psychologists could use the H-T-P test alongside teacher observations and behavioral checklists to identify children in need of further psychological support.

In conclusion, the present study contributes to both theoretical and clinical understandings of children's psychological expressions through projective drawings. While the H-T-P test shows potential as a screening tool for internalizing and externalizing symptoms, further research is required to standardize scoring systems and integrate drawing-based assessments into clinical evaluations. Clinically, H-T-P drawings offer a valuable tool for non-verbal emotional expression, particularly for children with trauma histories or difficulties articulating distress.

5.3. LIMITATIONS AND FUTURE RESEARCH

This study has several limitations, primarily related to sample characteristics. The participant pool consisted of 93 children, which is considered a relatively small sample size for establishing the validity of a scale (Comrey & Lee, 1992). A limited sample may have increased the likelihood of error and reduced the statistical power of the findings. Specifically, while variables such as gender and intelligence were normally distributed, the small sample size resulted in restricted variance and non-normal distribution in many H-T-P characteristics and problem behavior categories.

A major limitation of this study is the heavy reliance on parent-reported questionnaires (e.g., CBCL, ACE). While parent reports provide valuable insights into children's emotional and behavioral functioning, they are inherently subjective and may be influenced by parental biases (Ferdinand, 2006). Parents may overestimate or underestimate their child's difficulties based on their own psychological state, personal experiences, or social desirability concerns. Future research could triangulate findings by incorporating teacher reports, clinical interviews, or observational data for a more comprehensive assessment. Similarly, anxiety (SCARED) and depression (CDI) were assessed using self-report measures, which may have limitations for younger children. Children, particularly those with internalizing symptoms, may struggle with accurately

identifying and articulating their own emotions (Ebesutani et al., 2010). Moreover, social desirability and cognitive immaturity may affect how younger participants respond. Future research could incorporate structured clinical interviews to provide more diagnostically accurate assessments of emotional symptoms.

While an objective scoring manual was developed, subjectivity in interpretation remains a concern in projective tests. The H-T-P scoring process requires human judgment, and despite good inter-rater reliability, subtle differences in how raters perceive elements such as line distortions, distortions, or bizarre items could affect scoring consistency. Future research should explore automated scoring methods to enhance objectivity and replicability. Furthermore, the interpretation of the HTP test relies on both the characteristics of the drawing and the perception of the drawers (Burns, 1987). Since this study does not link the scoring system with children's answers for the post-drawing interrogation questions, it may well fail to produce a meaningful interpretation of the test. Future studies could incorporate P-D-I questions to enhance the interpretability of H-T-P test results. Additionally, the study utilized a newly developed H-T-P scoring manual, which, despite its structured approach, remains open to further refinement. Future research should further evaluate its validity and reliability, as well as its applicability to a broader range of psychological constructs.

This study did not control for prior artistic experience, which may have influenced drawing quality, complexity, and stylistic choices. Children with more exposure to drawing activities may demonstrate more refined and detailed drawings regardless of their psychological state. Future studies should assess whether prior exposure to art affects H-T-P drawing characteristics, possibly by including a measure of artistic experience. Another limitation pertains to the age distribution of the sample. Children aged 10-16 years were underrepresented, comprising only 25% of the total sample. Although age differences were statistically controlled, the limited number of participants in this group may have affected the reliability of findings.

Lastly, this study was conducted exclusively with Turkish children, and cultural influences on drawing characteristics should be considered. Prior research suggests that cultural norms and socialization processes influence how emotions and family dynamics are expressed in drawings (Chen, 2015). Additionally, socioeconomic factors (e.g., parental

education, household income) were not controlled, which may impact both psychological symptoms and drawing styles. Future studies should examine the generalizability of findings across different cultural and socioeconomic backgrounds.

While this study provides valuable insights into the psychological significance of H-T-P drawing characteristics, it is important to acknowledge its limitations in terms of sample size, cultural specificity, methodology, and generalizability. Future research should address these limitations by incorporating larger, more diverse samples, refining scoring methods, and integrating qualitative data to enhance the interpretability of projective drawings

8. CONCLUSION

The present study aimed to explore the relationship between children's House-Tree-Person (H-T-P) drawings and their internalizing problems, externalizing problems, and traumatic experiences. Findings from the study indicated that internalizing behaviors and size were not significantly correlated, contrary to the literature. In addition, contrary to expectations, line distortions did not significantly predict internalizing behaviors. Children with externalizing behaviors exhibited greater detail in their drawings, a result that diverged from previous research, which suggested that children with externalizing tendencies often omit details or produce overly simplified figures. Additionally, traumatic experiences were found to be significantly associated with self-representational drawings (same-gender person), supporting previous studies that highlighted disorganization, missing features, or distortions in human figure drawings of trauma-exposed children. To summarize, although these results were obtained from a limited sample size and regression analysis as a whole was not statistically significant, the findings are important additions to H-T-P and problem behavior literature.

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APPENDICES

Appendix A. Result of the Evaluation by the Ethics Committee

Result of the Evaluation by the Ethics Committee is available in the printed version of this dissertation.

Appendix B. H-T-P Post Drawing Interrogation Questions (in Turkish)

Araçlar: En az 5 tane beyaz A4 kağıt, 2 adet kurşun kalem (1 tanesi yedek)

1. “Bana bir ev çiz.”

Çocuk evi çizdikten sonra aşağıdaki sorular sorulur:

1. Bu kimin evi?
2. Bu evde kimler yaşıyor?
3. Sen olsan bu evde yaşar mıydın? (*Evet derse*, “Hangi odasında kalmak isterdin?”)
4. Bu ev sana ne düşündürüyor?
5. Bu evin en iyi/kötü kısmı/odası hangisi?
6. Bu evin en çok ihtiyaç duyduğu şey nedir?
7. Bu ev nerede?
8. Bu evin etrafında başka evler var mı yoksa tek başına mı duruyor?
9. Bu resimde ne oluyor?

2. (*Sorular bittikten sonra*) “Bana bir ağaç çiz.”

Çocuk ağacı çizdikten sonra aşağıdaki sorular sorulur:

1. Bu nasıl bir ağaç? Ne tür bir ağaç?
2. Resimde hangi mevsimdeyiz ve hava nasıl?
3. Bu ağaç kaç yaşında sence?
4. Peki, bu ağaç sağlıklı mı (yaşıyor mu ölmüş mü)?
5. Bu ağaca zarar veren birisi olmuş mu?
6. Bu ağaç nerede?
7. Bu ağacı sevdi mi?
8. Bu ağacın en iyi/kötü kısmı hangisi?
9. Yaz geldiğinde çiçek açacak mı?
10. İleride bu ağaca ne olacak?
11. Bu resimde ne oluyor?

3. (*Sorular bittikten sonra*) “Bana bir insan çiz; ama çöp adam olmasın, bütün vücudu olsun.”

Çocuk insanı çizdikten sonra aşağıdaki sorular sorulur:

1. Bu çocuk kaç yaşında?
2. Resimde Ne yapıyor?
3. Kimlerle birlikte yaşıyor?
4. Okula gidiyor mu?
5. Arkadaşları var mı?
6. Büyünce ne olmak istiyor?
7. Bu çocuğun yapmaktan hoşlandığı 3 şey nedir?
8. Bu çocuğu mutlu eden 3 şey nedir?
9. Bu çocuğu mutsuz eden 3 şey nedir?
10. Bu çocuğu kızdıran 3 şey nedir?
11. Bu çocuğu korkutan 3 şey nedir?
12. Bu çocuğun kendinde en sevdiği özellik ne?
13. Bu çocuğun kendinde en sevmediği özellik ne?
14. Bir peri gelse ve kendisinden 3 dilek dilemesini istese, neler dilerdi?

4) (Sorular bittikten sonra) **“Şimdi de bir ... (çocuğun çizdiği insanın karşıt cinsiyeti) resmini çiz.”**

İnsan resminde sorulan soruların aynısı bu resim için de sorulur

Appendix C. H-T-P Item Descriptions

Categories	Items	Description
line distortion	1. interrupted lines	Anxiously drawn, short lines on top of each other
	2. chaotic lines	Meaningless, curved lines
	3. light lines	Lines drawn with light pressure
	4. heavy lines	Lines drawn with heavy pressure
	5. shading	Entire figures or parts (e.g., eyes, hands, roof...) shaded, i.e., filled in.
Size irregularities	6. small figure	Figure size unusually small, covers a very small portion of the paper
	7. large figure	Figure size unusually large, covers a big portion of the paper
location	8. drawn off-center	Figures drawn near the edges of paper (right/indows top/bottom)
distortions	9. poor proportions	Proportions of the house, tree and indowsre not realistic. E.g., roof-to-building ratio, crown-to-trunk ratio, unusual relative sizes of body parts...
	10. disconnected parts	Parts of the figures are not connected to each other.
Bizarre items	11. bizarre items	House: violent themes, damaged, collapsed house, sharp fences around the house, sharp ice hanging down the roof..
		Tree: violent themes, damaged, dying, fallen tree, sharp branches
		Person: violent themes, figures not resembling a person (robot, animal...), sex not identified, hollow eyes (with no eyeballs), exposed genitals
atypical detail	12. simplified figure	Even if there are no significant omissions, figure is drawn bluntly, without any realistic details, just as general shapes.
	13. detailed figure	Details added outside the figure (e.g., objects in the hand of person, animals or humans next to the tree, cars, a garden or a pool next to the house, more than one house/tree/person...) or inside the figure (detailed bricks of the roof, curtains on the window, detailed texture drawing, eyelashes, detailed clothing, hair accessories, teeth, three-dimensional house...)
	14. significant omissions	Absence of one or more of: the main building, the roof, indows or doors in the house; the trunk or the crown in the tree; the head, arms, legs, hands, feet, eyes, the mouth and the neck in the person.
	<i>1p. One dimensional body parts (person)</i>	A score of 2 is given if the whole person is one-dimensional. A score of 1 is given if one or more parts of the person is one-dimensional (e.g., the legs or the arms)
negative facial expressions	<i>2p. Anger</i>	multiple emotions can be present together
	<i>3p. Fear</i>	

	<i>4p. Disgust</i>	scored 0 if the item is not present, 1 if the item is present
	<i>5p. Sadness</i>	
Detailed omissions – house	door	
	windows	
	roof	
	chimney	
Detailed omissions – tree	trunk	
	canopy	
	branches	
	leaves	
	fruits	
	ground line	
	root	
Detailed omissions – person	head	
	hair	
	eyes	
	ears	
	nose	
	mouth	
	hands	
	feet	
	arms	
	legs	
	neck	

Appendix D. Partial Correlations Between H-T-P and SCARED Scores

H-T-P Categories	SCARED Scores
Line Distortions Total Scores	Pearson Correlation -.072 Sig. (2-tailed) .525
Size Irregularities Total Scores	Pearson Correlation -.202 Sig. (2-tailed) .061
Atypical Details Total Scores	Pearson Correlation .018 Sig. (2-tailed) .866
BizzareSQRT	Pearson Correlation .231 Sig. (2-tailed) .053
Total Scores for Same- Gender Person	Pearson Correlation -0.023 Sig. (2-tailed) .834

Note. * $p < .05$. ** $p < .01$.

Appendix E. Partial Correlations Between H-T-P and CBCL Externalizing Problems

H-T-P Categories	CBCL Externalizing	
Line Distortions Total Scores	Pearson Correlation	-.59
	Sig. (2-tailed)	.605
Size Irregularities Total Scores	Pearson Correlation	-.035
	Sig. (2-tailed)	.746
Atypical Details Total Scores	Pearson Correlation	.282
	Sig. (2-tailed)	.007
BizzareSQRT	Pearson Correlation	.043
	Sig. (2-tailed)	.686
Total Scores for Same- Gender Person	Pearson Correlation	.171
	Sig. (2-tailed)	.109

Note. * $p < .05$. ** $p < .01$.

Appendix F. Partial Correlations Between H-T-P and CBCL Internalizing Problems

H-T-P Categories	CBCL Internalizing	
Line Distortions Total Scores	Pearson	-
	Correlation	.154
	Sig. (2-tailed)	.171
Size Irregularities Total Scores	Pearson	
	Correlation	.096
	Sig. (2-tailed)	.371
Atypical Details Total Scores	Pearson	-
	Correlation	.017
	Sig. (2-tailed)	.874
BizzareSQRT	Pearson	
	Correlation	-.03
	Sig. (2-tailed)	.781
Total Scores for Same-Gender Person	Pearson	
	Correlation	.022
	Sig. (2-tailed)	.836

Note. * $p < .05$. ** $p < .01$.

Appendix G. Partial Correlations Between H-T-P and ACE Scores

H-T-P Categories	ACE Scores
Line Distortions Total Scores	Pearson Correlation -.065
	Sig. (2-tailed) .564
Size Irregularities Total Scores	Pearson Correlation .13
	Sig. (2-tailed) .237
Atypical Details Total Scores	Pearson Correlation .133
	Sig. (2-tailed) .227
BizzareSQRT	Pearson Correlation -.046
	Sig. (2-tailed) .678
Total Scores for Same- Gender Person	Pearson Correlation .213

Note. * $p < .05$. ** $p < .01$.

Appendix H. Partial Correlations Between H-T-P and CDI Scores

H-T-P Categories	CDI Scores
Line Distortions Total Scores	Pearson Correlation .019
	Sig. (2-tailed) .87
Size Irregularities Total Scores	Pearson Correlation .049
	Sig. (2-tailed) .65
Atypical Details Total Scores	Pearson Correlation .154
	Sig. (2-tailed) .153
BizzareSQRT	Pearson Correlation -.024
	Sig. (2-tailed) .824
Total Scores for Same- Gender Person	Pearson Correlation .186
	Sig. (2-tailed) .082

Note. * $p < .05$. ** $p < .01$.