The prediction of resilience and social-emotional assets among preschoolers based on The House-Tree-Person™ Projective Drawing

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Abstract

Recognition and remediation of resilience and social-emotional Assets in order to preventing psychopathological states in preschool children is important. This study aims to predict the resilience and social-emotional Assets among preschoolers based on The House-Tree-Person™ Projective Drawing. In the cross-sectional descriptive study, among kindergartens in Varamin City, The one kindergarten in the child care center of the Varamin 15-khordad Social Security hospital randomly selected and forty two preschoolers in this kindergarten participated in the study. Participated preschoolers were Staff's offspring of the Varamin 15-khordad Social Security hospital during November 2014 to July 2015. Participants were assessed by The House-Tree-Person™ (H-T-P™) Projective Drawing Technique and The Social-Emotional Assets and Resilience Scales for Preschoolers (SEARS-Pre). Data analysis performed by analysis of multiple linear regression. The results showed that among House-Tree-Person indicators of resilience (R) and House-Tree-Person indicators of social-emotional assets (SEA), House drawings, Tree drawings, and Person drawings have significant correlation with resilience and social-emotional assets (P≤0.01). Also, 35% of the resilience variance and 44% of the social-emotional assets variance was explained by indicators of the House-Tree-Person Projective Drawings for preschoolers. In this regression model, solely House drawing has significant standard regression coefficient. According to scoring system of House-Tree-Person projective drawings technique, House drawing has merely significant role in prediction of resilience and social-emotional assets among preschoolers. Therefore, further studies is essential for validation this findings and finally administrating The House-Tree-Person™ Projective Drawing as appropriate instrument by kindergarten teachers and child clinicians in educational matters and clinical practices.

Key words: Resilience, Emotions, Preschool, Projective techniques.

Introduction

Preschool period is very influential for individual's development in further life span (Sallquist, Eisenberg, Spinrad, Eggum, & Gaertner, 2009). Recognition and remediation of psycho-social competences in order to preventing Psychiatric disorders in preschool children is important. Psychiatric disorders in preschoolers aged 4–6 years are frequent due to factors including parental health factors and level of competences among these younger children (Gudmundsson et al., 2013, Lambert, Cress, & Epstein, 2015). Resilience and social-emotional assets are essential matters for better life in Complex modern societies and these are necessity for better academic achievement and scholastic success (Merrell, 2011, Cress, Lambert, & Epstein, 2014). Therefore, early detection of Resilience level and amplitude of social-emotional assets for strengthen and promoting the child's personal growth in later life has more importance at Childhood (Southwick, Bonanno, Masten, Panter-Brick, & Yehuda, 2014).

Resilience is one of the basic character strengths that this is origin for strengths of courage in adverse circumstances and resulting in coping with internal and external adverse or catastrophic circumstances (Tedeschi & Kilmer, 2005, Southwick et al., 2014). Psychological resilience refers to a person's capability to cope with multiple stressors and to challenge the detrimental effects of stressors (Tedeschi & Kilmer, 2005). Resilience is a dynamic process related to positive adjustment in important catastrophic circumstances that in terms of people shows adaptively
positive behaviors in dealing with adversity, trauma or profound disaster (Tedeschi & Kilmer, 2005).

Social-emotional assets critical to a child’s success in kindergarten and later education and recently received increasingly attention. Social-emotional assets are multidimensional and include strengths such as self-regulation, self-management, social competence, emotional intelligence, decision making, responsibility and empathy (Merrell, 2011; Gagnon, Nagle, and Nickerson, 2007). Also, Social-emotional assets are defined as a student’s capability to management of emotions, responsible behavior, caring about others, and maintaining beneficially interpersonal relationships (Huang, Sherraden, Kim, & Clancy, 2014).

Emotional resilience and psycho-social assets during preschool predicted lower concurrent depression and anxiety in early childhood (Conway & McDonough, 2006, Mayr & Ulich, 2009). In the range the ages of 3-5, children are acquiring emotional and social skills that will serve as the base for school readiness, relationships with others and friendships with peers (Schell, Albers, von Kries, Hillenbrand, & Hennemann, 2015).

Little behavioral rating scales exist to assessing the social-emotional competences of preschoolers. Projective drawings measures allow the gathering of data directly from child without depending on the reports of their parents or teachers (Roysircar and Pignatiello, 2011). Evaluating of resilience and social-emotional assets in preschool children is important for understanding normal development and for informing better care and tailored remedial training (Nese, Doerner, Romer, Kaye, Merrell, & Tom, 2012, Conway and McDonough, 2006). Using of multi-method, multi-setting and multi-source measure for assessing the social-emotional assets is important (Whitcomb & Merrell, 2013). Although, there are many good psychometrically social and emotional behavior rating scales attainable but the majority of these scales identify problem behaviors and psychopathologies and overlook critical aspects of child well-being (Kemp, Marcenko, Lyons, & Kruzich, 2014, Merrell, Felver-Gant & Tom, 2011).

Children’s drawings are natural and spontaneous activities, worldwide affairs and go along with same developmental phases in the world (Deaver, 2009). The House-Tree-Person (HTP) drawing technique is widely used in psychological evaluations including concepts such as the self-image, self-esteem and developmental issues (Groth-Marnat & Roberts, 1998, Fujii et al, 2016). The House Tree Person drawing (HTP) technique firstly was developed from a developmental perspective (Buck 1981) and later conceptualized by McAllen (2004) for research and clinical purposes. House-Tree-Person Test (HTP) as an assessment instrument is intended to exhibit the indicators of emotional maladaptive and adaptive states, interpersonal connectedness cognitive maturity and personality integration (Oster & Crone, 2004).

In fact, projective assessment measures continue to be greatly used despite some criticisms surrounding those (Li, Chen, Helfrich, & Pan, 2011). Drawings are immediately persuasive and require less or no training to administration and many children often participated in drawing with very enjoyment. Thus, there is necessary to use nonverbal technique of drawings for exploration of children's inner emotional status (Skybo, Ryan-Wenger, & Su, 2007, Hamama & Ronen, 2009). Because of the neutrality and the familiarity of house, tree, and person concepts, participants project their psychological states and feelings into the formation of these concepts (Dewaraja, Sato, & Ogawa, 2006; Fujii et al, 2016). In assessment procedures, HTP drawings focus on the child’s internal psychological world instead of mostly non-projective assessment scales. The house drawing point outs a self-portrait of relationships by individuals; the tree drawing indicates interpersonal relationships and self-reflection; the person drawing exhibits the unconscious and conscious representation of the self (Roysircar, 2013a).
HTP projective drawings technique has characteristic advantages for using by preschoolers. Firstly, HTP projective drawings enable researchers to investigate children without having to rely on their caregivers or other adults in an exclusive manner (Daglioglu, Çalışandemir, Alemdar, & Kangal, 2010). For example, HTP was used to evaluate anxiety of children after the 2004 Tsunami (Dewaraja et al., 2006). Secondly, the HTP projective drawings technique is an effective measure for gathering data directly from younger children (Oster & Crone, 2004, Tanaka & Sakuma, 2004). Thirdly, the HTP is capable to decrease or remove biases that are integral part of other children-focused measures. Thirdly, HTP drawings could decrease the obstacles of language and culture due to the very small involvement of language in the administrative process of the HTP (Tanaka & Sakuma, 2004).

Recently, different versions of HTP projective technique have emerged and modified for assessment of preschoolers and younger children (Daglioglu et al, 2010; Sandak, Huss, Sarid, & Harel, 2015). Currently, HTP projective technique used in wide assessment battery by researchers and clinicians (Li, Chung, Hsiung, Chen, Liu, & Pan, 2014). Clinicians utilize the HTP projective drawings to identifying the indicators of psychological states such as resilience, ego strength, and self-perception (Wang, Xu & Wang, 2010). For instance, in the study by Wang et al. (2010) on 197 children of ages 9 to 13 years, the House drawings of the 71 child from the disaster location had curtains on the windows and smaller house doors that interpreted as indicators of anxiety.

Clinicians’ subjective interpretation about drawings is one major difficulty in the HTP. H-HTP drawings with objective rating overpower this main problem of applying picture drawing instruments. Despite the fact that children in different groups and sociocultural backgrounds are able to declare their feelings and thoughts through projective drawings, values culturally adapted interpretations was used in this study for interpretation of the House-Tree-Person (HTP) drawings in regard with the Iranian cultural values. As some advantages of the H-HTP, this measure has simplified objective and brief items (31 items) and also has content-based manner. By concentration upon the content of the drawings, this scoring system is capable to reaches to holistic aspects of a drawing and takes away subjective interpretations that have bothered past scoring manuals.

Although, there are predominant scales for measuring resilience and socially emotional assets in early childhood, but better methods for measuring resilience and social emotional assets among preschoolers are projective techniques (Roysircar, 2013a; Mayr & Ulich, 2009). Also, Wang et al. (2010) remarked that House-Tree-Person Drawings technique is suitable to assessing the preschooler's emotional indicators. According to Tanaka & Sakuma (2004), there is a significant correlation between sizes of drawings and self-esteem as main prerequisite of resilience and psychological assets in preschool children. In addition to childhood drawings applications, drawing techniques is developing for assessment of adulthood normal and psychopathological characteristics with using quantitative scoring (Li et al., 2011, 2014).

Little research has been done regarding to indicators of preschooler's drawings through HTP surrounding emotional and social competences especially about resilience and social-emotional assets. This study was aimed to investigate predictive value of The Person House Tree drawing (PHT) technique for prediction of resilience and social-emotional assets in preschoolers.

**Methodology**

**Participants:** The study design was cross-sectional descriptive study and the statistical population was all preschool children with age ranging 4 to 6 year-olds in kindergarten of the
Varamin 15-khordad Social Security hospital, Iran from November 2014 to July 2015. The kindergarten of the Varamin 15-khordad Social Security hospital randomly selected among other kindergartens in Varamin City. Forty two preschool children between the ages of 4 and 6 years (M=5.04, SD=0.794) were participated in the study from the kindergarten in the child care center of the Varamin 15-khordad Social Security hospital. In all participants, 12 (28.6%) preschool children were 4-year-old, 16 (38.1%) of them were 5-year-old and 14 (33.3%) of them were 6-year-old. Twenty two (52.4%) participating preschoolers were boy and 20 (47.6%) participating preschoolers were girl. All participated preschoolers were Staff’s offspring of the Varamin 15-khordad Social Security hospital. They have monolingual Persian language and mainly have moderate socioeconomic status. Participants have monthly family income in range from $500 to $4,000 and mean monthly income was equal with $1,900.

All preschool children in kindergarten were eligible for study except to those lacks of inclusion criteria. Four preschool children at age ranged 4 to 6 year-olds excluded from study because of lacking the inclusion conditions. Also, 2 preschool children didn’t complete the study tasks and so on withdrawn from study. Thus, final sample consisted of 42 preschool children. Inclusion criteria were age between 4 and 6 years old, enrollment and entrance in kindergarten, having the psychological and physical health, fluency in Persian language, providing consent for participation by Parent, and preschooler’s educator agreement to participation. Exclusion criteria were insufficient intelligence, sensory-motor disability and predominant psychological disorders via diagnosis by child clinical psychologist/psychiatrist. Preschoolers who meet the excluding criteria were ruled out by an educator of kindergarten before the study beginning. Demographical data such as socio-economic status, age and preschooler’s home setting were also controlled in this study.

**Instruments:** The Social-Emotional Assets Scale for Preschool (SEARS-Pre): SEARS-Pre is instrument based on the original Social-Emotional Assets and Resilience Scale (SEARS; Whitcomb & Merrell, 2013, Ravitch, 2013) that completed by teachers or instructors to rate social and emotional competences in this study. The original SEARS is a strength-based instrument designed for assess the level of resilience and socially-emotional assets for ages 5-18 years (Whitcomb & Merrell, 2013). The SEARS-Pre contained 42 items about social-emotional assets in three factors of Self-regulation/Social Competence, Empathy/Responsibility, and Emotion knowledge/Expression. The SEARS-Pre contained 42 items about social-emotional competences asking instructors to rate the occurrences of preschooler's behavior on a 4-point Likert-type scale (0=Never, 1=Sometimes, 2=Often, 3=Always). It is expected that preschool instructor completed this measure about 15 minutes. In this measure, 24 items related to resilience and 18 items related to social-emotional assets (Merrell, 2011). The higher scores indicate the greater level of resilience and better social-emotional assets. The face validity, content validity, concurrent validity and criterion validity of SEARS versions confirmed by child specialists and psychometrics (Cordier et al., 2015). The internal consistency with Cronbach's alpha coefficients for subscales of measure was 0.95 for self-regulation and social competence, 0.92 for expression and emotional awareness, 0.90 of empathy and responsibility and for the SEARS-Pre total was .97 which indicates the strong internal consistency reliability for the SEARS-Pre interpretation (Whitcomb & Merrell, 2013, Merrell, 2011; Merrell, Cohn, Tom, 2011). The scale validities approved by Iranian child practitioners and psychometrics in this study. Also, Cronbach's alpha coefficients between .89 and .96 confirmed internal consistency of this scale in this Iranian sample.
The House-Tree-Person™ (HTP™) Projective Drawing is a projective technique for assessing an individual’s extent of personality integration, interpersonal connectedness and cognitive maturity” (Buck, 1981). HTP instrument is applied for assessment and interventional planning for persons with 3 to 15 years old (Buck, 1981, Kato & Suzuki, 2016). In this instrument, the house indicates the person’s home life and familial connections; the tree reveals the person’s interpersonal relationships, self-reflection and connection with the environment; and the person represents the consciously and unconsciously representation of the self, personality, relations with others, and relational mutual attitudes (Roysircar, 2013a). HTP drawings in this study were quantified by scoring system of Multicultural Measurement of Haitian House-Tree-Person Drawings (Roysircar, 2013b). The Haiti House-Tree-Person (H-HTP) instrument is projective drawing technique that uses a quantitative scoring system in subscales of Resilience, Vulnerability, and Aggression (Roysircar, 2012). Scoring criteria were developed for drawing’s scoring of 4 to 15 years old children by Roysircar (2013b) through discussions and consensus among inter-raters in international settings in terms of the Haitian children’s drawings. Scoring based on Haitian House-Tree-Person Drawings was divided to positive scores and distress scores for drawings of house, tree, and person on the basis of the presence of a descriptor: 0=not present, 1=only one descriptor, and 2=two descriptors (Roysircar, 2012). H-HTP has strong interrater and internal consistency reliabilities. Interrater reliability with Cohen’s κ across all two pairs of raters for Positive House (κ=.91), Distressed House (κ=.70), Positive Tree (κ=.93), Distressed Tree (κ=.88), Positive Person (κ=.91) and Distressed Person (κ=.86) were good to excellent (Roysircar, 2013a). Internal consistency reliability using Cronbach’s α by 4 raters for Positive House (α=.75), Distressed House (α =.71), Positive Tree (α=.75), Distressed Tree (α=.95), Positive Person (α=.80) and Distressed Person (α=.95) were appropriate to excellent (Roysircar, 2013a). The validity of The Haiti House-Tree-Person (H-HTP) measure confirmed in this study and internal consistency by Cronbach’s α ranged in .76 to .94 for this Iranian sample.

**Procedures:** Firstly, the study approved by Committee of Advanced Studies in Semnan University, Iran, Faculty of Psychology and Educational Sciences with the number code of 98.94.767. All parents of preschoolers were completed informed consent and agreement forms prior to administration the study for sought permission on account of preschoolers didn’t have enough knowledge about research ethical considerations. Also, participants voluntarily could resign of the study whenever and the study performed based on respect to the rights of the preschool participants, anonymousness and confidentiality. In addition, all educators of preschoolers informed about participation of their preschool trainees in the study. In the next step, after coordinating with the Management of kindergarten in the Varamin 15-khordad Social Security hospital, the sample was randomly selected and the study was administrated. Preschoolers were painting the HTP drawings and their educators simultaneously were answering The Social-Emotional Assets and Resilience Scales for Preschoolers (SEARS-Pre) for each kindergartner.

HTP instrument was administrated in individual manner. Each preschool child was delivered a first sheet of paper and respectfully prompted, “Draw a house”. Then, the child was delivered a second sheet of paper and respectfully prompted “Now draw a tree”. Eventually, the child was delivered with a final sheet of paper and respectfully prompted, “Now draw a person”. In trend of administration, the preschooler was seated on a table at the front of the tablet at ease in a calm room along with examiner. The HTP drawings were not restricted in time. Also, preschoolers have free choice of pencils and colors. The HTP technique administrated in two phase. In phase
one, freely drawing of the house, tree, and person were performed and in phase two, Post-Drawing-Interrogation was performed to the participants. Educator participation in the study included recruiting preschoolers and completing scales about participating preschoolers at time. All kindergarten educators were female and were experienced staff of the kindergarten. Parent participation included completing an informed content about involvement of their child in in the study. All preschoolers who participated in the study were cleanly dressed and appeared pleased and active.

Statistical Analysis: In order to the data analysis, descriptive statistics (frequency, percentage, mean and standard deviation) were used for classification and categorization of data. Also, for predicting the resilience and social-emotional assets among preschoolers on the basis of the HTP drawings, the analysis of multiple linear regression was used. Data analysis was performed using SPSS-22 software. Statistical significance in this study was determined on basis of $P \leq 0.05$.

Because of small sample size, normality test with One Sample Kolmogorov-Smirnov Test calculated. Kolmogorov-Smirnov values for resilience and social-emotional assets ($Z=.882$, $P=.417$), house drawing-resilience ($Z=.929$, $P=.354$), tree drawing-resilience ($Z=.781$, $P=.576$), person drawing- resilience ($Z=.568$, $P=.904$), house drawing-social-emotional assets ($Z=1.015$, $P=.254$), tree drawing-social-emotional assets ($Z=1.376$, $P=.065$) and person drawing-social-emotional assets ($Z=.747$, $P=.633$) were non-significant that showed sample data follows a normal distribution and so there was the feasibility of using parametric statistical analysis including multiple linear regression.

**Results**

Samples of House, Tree, and Person drawings by 3 Preschool children in concordance with scores of resilience and social-emotional Assets were presented in figure 1. Descriptive statistics (mean, standard deviation and correlation matrix) of the variables was provided in Table 1.

As seen in the table 1 between the triple variables of resilience in Tree drawing (7.95±1.89), House drawing (7.95±2.90) and Person drawing (7.02±3.49), Tree drawing and House drawing has had the same mean. In addition, the mean and standard deviation for the variable of social-emotional assets in Tree drawing (10.95±4.01), House drawing (14.24±4.21) and the Person drawing (10.21±3.76) was obtained respectively. Table 1 shows that among House-Tree-Person indicators of resilience, Tree drawing (R) has positive and significant correlation with resilience ($r=0.47$, $P \leq 0.01$). Also, House drawing (R) has positive and significant correlation with resilience ($r=0.56$, $P \leq 0.01$) While Person drawing (R) has negative and significant correlation with resilience ($r=0.56$, $P \leq 0.05$). Also, the findings of table 1 shows that among House-Tree-Person indicators of social-emotional assets, the Tree drawing (SEA) with ($r=0.49$, $P \leq 0.01$), House drawing (SEA) with ($r=0.61$, $P \leq 0.01$) and Person drawing (SEA) with ($r=0.55$, $P \leq 0.01$) have positive and significant correlation with social-emotional assets. It is noteworthy that all the correlations are positive and at $P \leq 0.01$ were significant.

Before the multiple regression analysis, assumptions were considered and gathered data were checked for distribution and normality. Firstly, univariate outliers using rectangular graph (box plot) were examined. The results showed 7 outliers that substituted by data mean. In addition, the distribution of the variables was evaluated by rectangular plot. Results showed that median line for most of the variables located in the middle of rectangular diagram and constructing the similar figures. In addition, the Kolmogorov–Smirnov test showed that the distribution of residuals for Resilience ($z= 0.118$, $P=0.153$) and social-emotional assets ($z= 0.117$, $P=0.165$) are normal. In addition, cumulative distribution plot of observed values and expected values was
revealed a dip of 45 degree and all points on the line that indicates the normal distribution of residuals. In addition, The Durbin Watson statistic was used to assess the independence of errors. The results showed the assumption of independence for Resilience (DW=2.28) and social-emotional assets (DW=1.96) is established. Multicollinearity assumption was examined via Tolerance and variance inflation factor (VIF). The results showed that the minimum and maximum tolerance for variance inflation of Resilience was 0.83 to 1.20. Also, the minimum and maximum tolerance for social-emotional assets was 0.59 and 1.71 that indicates there is no multicollinearity between the independent variables.

Figure 1. Samples of Preschooler’s drawings. A: 5-year-old boy; living in moderate family income; Resilience score: 80.16; Tree drawing (R) score: 9.03; House drawing (R) score: 10.63; Person drawing (R) score: 9.78; Overall Social-Emotional Assets score: 58.91; Tree drawing (SEA) score: 13.53; House drawing (SEA) score: 18.22; Person drawing (SEA) score: 12.74. The child included multiple colors in the drawings and his drawings were well-formed especially in House drawing task. The predominant color used blue B: 5-year-old boy; living in moderate family income; Resilience score: 56.12; Tree drawing (R) score: 6.10; House drawing (R) score: 5.15; Person drawing (R) score: 3.91; Overall Social-Emotional Assets score: 40.32; Tree
drawing (SEA) score: 7.18; House drawing (SEA) score: 10.43; Person drawing (SEA) score: 6.49. The child used some color in the drawings and his drawings were not well-formed in all drawings. The preschooler omitted the person drawing firstly and then draws again in smaller and asymmetric figure. Also, the preschooler used small part of paper for his drawings. Note that the ears are missing in his person drawing. C: 5-year-old boy; living in moderate family income; Resilience score: 73.94; Tree drawing (R) score: 8.32; House drawing (R) score: 9.17; Person drawing (R) score: 8.66; Overall Social-Emotional Assets score: 53.18; Tree drawing (SEA) score: 12.35; House drawing (SEA) score: 16.93; Person drawing (SEA) score: 11.37. The child used several color in the drawings and his drawings were partially well-formed especially in House drawing task. Also, the ears are missing in his person drawing.

Table 1. Mean, standard deviation and correlation between variables (n=42)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Mean±SD</th>
<th>r</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Resilience</td>
<td>68.21±13.14</td>
<td></td>
</tr>
<tr>
<td>2. House drawing (R)</td>
<td>7.95±2.90</td>
<td>0.56*</td>
</tr>
<tr>
<td>3. Tree drawing (R)</td>
<td>7.95±1.89</td>
<td>0.47* 0.42*</td>
</tr>
<tr>
<td>4. Person drawing (R)</td>
<td>7.02±3.49</td>
<td>-0.44** -0.43* -0.37**</td>
</tr>
<tr>
<td>5. Overall Social-Emotional Assets</td>
<td>49.95±9.92</td>
<td>0.92* 0.49* 0.33** -0.40*</td>
</tr>
<tr>
<td>6. House drawing (SEA)</td>
<td>14.24±4.21</td>
<td>0.61* 0.90* 0.30* -0.38** 0.61*</td>
</tr>
<tr>
<td>7. Tree drawing (SEA)</td>
<td>10.95±4.01</td>
<td>0.49* 0.51* 0.80* -0.37** 0.46* 0.52*</td>
</tr>
<tr>
<td>8. Person drawing (SEA)</td>
<td>10.21±3.76</td>
<td>0.55* 0.52* 0.52* -0.70* 0.53* 0.52* 0.60*</td>
</tr>
</tbody>
</table>

*P≤0.01, **P≤0.05

a Resilience indicator; b Social-Emotional Assets indicator; c SD=Standard Deviation

Table 2. Summary of regression model and analysis of variance statistics in predicting resilience and social-emotional assets

<table>
<thead>
<tr>
<th>Model</th>
<th>Sources</th>
<th>SS</th>
<th>Df</th>
<th>MS</th>
<th>F</th>
<th>Sig.</th>
<th>R</th>
<th>R²</th>
<th>AdjR²</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Regression</td>
<td>2226.97</td>
<td>3</td>
<td>742.32</td>
<td>6.895</td>
<td>0.001</td>
<td>0.594</td>
<td>0.35</td>
<td>0.30</td>
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<tr>
<td></td>
<td>Error</td>
<td>4091.32</td>
<td>38</td>
<td>107.67</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total</td>
<td>6318.29</td>
<td>41</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Regression</td>
<td>1772.65</td>
<td>3</td>
<td>590.88</td>
<td>9.939</td>
<td>0.001</td>
<td>0.663</td>
<td>0.44</td>
<td>0.39</td>
</tr>
<tr>
<td></td>
<td>Error</td>
<td>2259.25</td>
<td>38</td>
<td>59.45</td>
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<tr>
<td></td>
<td>Total</td>
<td>4031.91</td>
<td>41</td>
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</tbody>
</table>

As can be seen in table 2, for model 1 the results of the regression model is significant (P=0.001). In addition, the result of the table 2 shows that 35% of the resilience variance among preschoolers was explained by the predictor variables (Projective House drawing, Projective Tree drawing and Projective Person drawing). According to table 2, for model 2 significant prediction in model verified (p<0.0001) and 44% of the variance of preschoolers' social-emotional assets was explained by the predictor variables (Projective House drawing, Projective Tree drawing and Projective Person drawing). Multiple linear regression examining role of HTP indicators in predicting resilience and social-emotional assets were presented in Table 3.

Table 3. Multiple linear regression examining role of HTP indicators in predicting resilience (N=42)

<table>
<thead>
<tr>
<th>Model</th>
<th>Variables</th>
<th>B</th>
<th>SE(B)</th>
<th>β</th>
<th>t</th>
<th>P</th>
<th>Tolerance</th>
<th>Variance inflation factor</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>Constant</td>
<td>47.95</td>
<td>11.22</td>
<td>---</td>
<td>4.27</td>
<td>0.001</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>1</td>
<td>House drawing (R)</td>
<td>1.62</td>
<td>0.63</td>
<td>0.379</td>
<td>2.55</td>
<td>0.015</td>
<td>0.77</td>
<td>1.30</td>
</tr>
<tr>
<td></td>
<td>Tree drawing (R)</td>
<td>1.53</td>
<td>1.02</td>
<td>0.216</td>
<td>1.51</td>
<td>0.140</td>
<td>0.83</td>
<td>1.20</td>
</tr>
<tr>
<td></td>
<td>Person drawing (R)</td>
<td>-0.66</td>
<td>0.60</td>
<td>-0.165</td>
<td>-1.10</td>
<td>0.277</td>
<td>0.76</td>
<td>1.32</td>
</tr>
<tr>
<td></td>
<td>Constant</td>
<td>23.58</td>
<td>5.07</td>
<td>---</td>
<td>4.65</td>
<td>0.001</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>2</td>
<td>House drawing (SEA)</td>
<td>1.19</td>
<td>0.41</td>
<td>0.439</td>
<td>2.93</td>
<td>0.006</td>
<td>0.66</td>
<td>1.52</td>
</tr>
<tr>
<td></td>
<td>Tree drawing (SEA)</td>
<td>0.23</td>
<td>0.42</td>
<td>0.089</td>
<td>0.562</td>
<td>0.577</td>
<td>0.59</td>
<td>1.71</td>
</tr>
<tr>
<td></td>
<td>Person drawing (SEA)</td>
<td>0.65</td>
<td>0.42</td>
<td>0.245</td>
<td>1.54</td>
<td>0.132</td>
<td>0.58</td>
<td>1.72</td>
</tr>
</tbody>
</table>
In table 3, for model 1 the non-standardized coefficient $B$ and standardized beta coefficient were provided based on the values of predictor variables to predict preschoolers' resilience. In terms of table 3, among predictor variables only significant variable in predicting the resilience of preschoolers was House drawing ($p=0.15$). The beta coefficient for House drawing was positive (0.379) which shows increasing scores in this variable accompanied by increased resilience scores. According to table 3, for model 2 the non-standardized coefficient $B$ and standardized Beta coefficient for predicting preschool children's social-emotional assets on the basis of the predictor variables is presented. Among the all predictors, only House drawing has significant role in prediction of the preschoolers' social-emotional assets ($p=0.006$). The beta coefficient for this variable was positive (0.439) which shows increasing in scores of House drawing accompanied by increased social-emotional assets scores.

**Discussion**

According to the findings obtained from the House-Tree-Person (H-T-P) projective technique, The House drawing has significant role in predicting the resilience of preschoolers while Tree drawing and Person drawing haven't significant predictive role in preschoolers' resilience. This finding of the research about significant role of House drawing on prediction of resilience has been congruous with results obtained by Roysircar (2013a) and Wang et al. (2010). Roysircar (2013a) remarked that projective House drawing is beneficial for detection of psycho-social competences and psychological resilience especially in early childhood. Meanwhile, in consistent with this study, Fujii et al. (2016) showed that the quantity and quality of developmental resilience, incompetence as principal factor for lack of resilience and early developmental disorder among younger children can be predicted in basis of House-Tree-Person drawings.

This result of the study is also relevant to the study by Groth-Marnat & Roberts (1998) that showed self-esteem and individual competence are main indicators of resilience that was predictable by Projective House Drawings. In exploitation behalf these results, children learn to be responsible and accountable for their achievement and own safety in home and household relations functioning as a base for resilience and overcoming weakness. Whiles the home is underpinning for resilience building, but Tree and Person don’t strengthen or don’t fostering resilience and hence have little function in prediction of resilience based upon projective drawings.

On other hand, in consistent with some findings of this study, results provided in studies by Skybo et al. (2007) and MacDonald (2009) showed that resilience was predicted by projective Tree drawing and projective Person drawing. It argued that these opposite results somewhat occurred because of different research methodology, diversity in statistical populations and using different measures.

In addition, according to the findings obtained from The House-Tree-Person Projective Drawing Technique in this study, The House drawing has significant role in predicting the social-emotional assets of preschoolers while Tree drawing and Person drawing did not significantly predict preschoolers' social-emotional assets.

Consistently in separated studies, Roysircar (2013a), Yevstigneyeva, Camara-Mejia, & Dumonteil (2014) and Wang et al. (2010) concluded that House drawing has significant role in forecasting of social-emotional assets among younger children. In the other study with similar research design, Pace, Zavattini, & Tambelli (2015) concluded that Family drawing is applicable instrument for indicating interpretation and representation of the attachment figures and also
reveal fundamental mental conditions that it was difficult to lingually express by late-adopted younger children. These results emphasize the importance of House-related drawings for identification of psycho-social states and competences among younger children. According to Roysircar (2013a), self-regulation, self-steem, self-efficacy and responsible decision-making are essential components for social-emotional assets which were predicted by the House projective drawing.

Also, Li et al. (2011) suggested that house drawing is tailored assessment tool for detection of social-emotional assets in preschoolers because of its age-related relevancy, excitement and popularity among younger children. Also, it can be said home is better location for psychosocial development and is source for acquiring of social-emotional competences whiles other projective drawings indicators such as Tree and Person don’t have these suitable conditions.

In sum, it is believed that the House indicates the familial relationships and individual’s home life (Roysircar, 2013a). Therefore, this variable is more important than variables of Tree and Person in predicting resilience and social-emotional assets due to Home functions in fostering the life skills such as stress management and psycho-social competences. Also, it is believed that the tree reveals the individual’s interpersonal relationships, self-reflection and relationship with the external environment and the person represents the personality, self-representation, personal-social attitudes and self in relation to others (Roysircar, 2013a). So, the Tree and Person drawings in comparison with House drawing have little or no power on prediction of family based individual characteristics like resilience and social-emotional assets. According to Balat (2010), drawings have long-term used as psychological measures for gathering information regarding to individual’s subjective internal world and projective drawings permit the individual to express himself/herself in a favorably personal way. In accord with Oster & Crone (2004), in this study preschoolers with lower social-emotional assets had Person drawings with omitted body parts and distorted figures. Correspondingly, Oster & Crone (2004) and Wang et al. (2010) discovered that the small self-portrait was indicator for diminished self-esteem, tending to intimidation and declined resilience. In fact, self-regulation and emotional knowledge are the most important factors constructing social-emotional assets and house drawing is valid procedure for assessing them.

In contrast with the some findings of this study, Deaver (2009) and Roysircar (2013a) concluded that Tree drawing and Person drawing have significant power for predicting social-emotional assets in preschoolers. Hamama & Ronen (2009) argued that recognition of social-emotional assets regarding to the House-Tree-Person (H-T-P) projective drawings are based upon prior experiences with drawings, different subcultural issues and various definitions of social-emotional competences that bring about inconsistent results. In possible explanation, home and house holding affairs are very important for social-emotional assets in Iranian culture than the Tree of Person that have lower importance in social-emotional enhancement. Therefore, projective assessment regarding Tree symbol or Person symbol cannot predict social-emotional assets in preschool children until the role of House drawing is predominant.

Conclusion

According to the theoretical backgrounds and the theoretical assumptions (Fujii et al, 2016, Roysircar, G. (2013a), in present study H-T-P projective techniques have decisive role in the prediction of resilience and social emotional assets among preschoolers, but according to multiple regression analysis model of the study, House drawing is only significant predictor. House drawing among HTP drawings has predictive ability for prediction of resilience and
social-emotional assets among examined preschoolers. This result confirming that the House drawings can be used to make assessment as needed especially for resilience training and planning for trauma-related interventions. Key Practitioner Messages are including the House drawing has ability to predicting the resilience and social-emotional assets of normal preschool children. However, it is consequential to clarify the applicability of House drawing in clinical assessment of abnormal preschool children. Tree drawing and Person drawing have not suitability for assessment of resilience and social-emotional assets in normal preschoolers and it is pompous matter that should be considered in the assessment and interventional planning. The House drawing can be used to make assessment as needed especially for resilience training and planning for trauma-related interventions. The present results add to the evidence bulks suggesting that projective assessment particularly drawing a House may be an influential alternative to high-demanding standard objective scales for assessment of many preschool children.

Limitations
This study is not without limitations. Narrow statistical population and limited sample size are two shortcomings. The study was cross-sectional descriptive study can be prohibited to finding causal explanations. On the one hand, the results of this study were obtained using educator-reported scales and because of biases in responding it is possible that the results incompatible with actual experiences of participants. Finally, the psychometric characteristics of the House-Tree-Person (H-T-P) projective technique have been questioned. For example, Critics have claimed that HTP having many possible interpretations and excessively dependent on the administrator’s clinical judgment of examiners. In the future, utilizing a more credible and evidence-based measure for collecting data about preschoolers along with HTP could fortify the study. Furthermore, the Kinetic House-Tree-Person drawings applied on single sheet of paper and may promote the respondents' projection to the completed drawings. Anyway, authors think to be true that this study will motivating more fully developed researches in the field of projective assessment of preschoolers. It is recommended for applicability of results, future studies focus on doing study on relationships between variables that investigated in this study and tailored psychological interventions.

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References


