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Psychometric Properties of the Self Description Questionnaire for Preschoolers in a Sample of 3- to 5-year-old Turkish Children

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Abstract

The purpose of this study was to adapt the Self Description Questionnaire for Preschoolers into Turkish and to examine the self-concept of Turkish preschoolers based on sex and age. A total of 420 preschoolers participated in the study. The viability of the six-factor solution for the Turkish sample was examined using the first- and second-order confirmatory factor analysis. As hypothesized, two items in the verbal subscale did not work in the Turkish sample. The results demonstrated that the first- and second-order factor models with 36-item and six-factor fit the Turkish sample data well. The observed scores obtained from the six sub-scales have acceptable alpha values except the verbal subscale. No sex differences were observed in self-concept scores of Turkish preschoolers. However, there was a statistically significant age difference on mathematics self-concept scale scores. Further studies should generate substitute items reflecting early literacy skills targeted in the Turkish Preschool Education Program.

Keywords: Self-Concept, Preschoolers, Instrument Adaptation

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INTRODUCTION

A growing number of studies have suggested that beliefs and perceptions about self may play an important role in individuals' social, emotional, and academic growth (Guay, Marsh, & Boivin, 2003; Marsh, Walker, & Debus, 1991; Marsh & Yeung, 1997; Skaalvik, 1997). Self-beliefs (i.e., self-concept, self-esteem, and self-efficacy) explain a significant proportion of variability in individuals' motivation and success. Children with low and high levels of self-beliefs differ in their cognitive, behavioral, social, and emotional engagement with academic and nonacademic tasks (Bong & Skaalvik, 2003). Self-concept is considered a fundamental psychological construct that influences individuals' functioning in various domains (Harter & Mayberry, 1984). Self-concept is formed through social comparisons, appraisals from significant others, successful experiences, and causal attributions individuals' make about those experiences (Skaalvik, 1997). Over the years, the conceptualization of self-concept has evolved from a global construct to domain-specific constructs (Byrne, 1996; Marsh, 1993; Shavelson, Hubner, & Stanton, 1976). This reconceptualization was mainly due to limited empirical evidence supporting the relationship between the global assessment of self-concept and academic achievement documented in previous studies (Hansford & Hattie, 1982; Marsh, 1990). Today, self-concept researchers consider self-concept as a construct with a multidimensional structure which has many components, including the global, the physical, the social, and the academic self (Marsh, 1990).

Developmental researchers have long been interested in the formation of early self – concepts, perceptions of children with regard to how good or bad they are in a particular domain, due to its link to social-emotional development and academic performance (Shavelson, Hubner, & Stanton, 1976; Damon & Hart, 1982; Harter, 1998, 2006; Jambunathan & Hurlbut, 2000; Marsh, Ellis, & Craven, 2002). Preschoolers begin to recognize that they have enduring physical and personal characteristics (Harter, 1983, 1990). In fact, some studies suggest that young children appear to be capable of producing concrete cognitive representations about the self and can report to others about their own personal traits (Damon & Hart, 1982; Erdmann, 2006; Fasig, 2000; Harter & Pike, 1984; Marsh, Craven, & Debus, 1991). Young children don not only describe themselves in terms their abilities and physical characteristics, but they also are able to assess and report their social, emotional, or psychological qualities (Goodvin, Meyer, Thompson, & Hayes, 2008).

Measurement of preschoolers' self-concept has been a challenging task for researchers (Byrne, 1996; Wylie, 1989). Measures designed to assess young children's perceptions of self-concept should target self-beliefs across multiple domains of competence, employ a suitable technique in gathering children's responses, and have sound psychometric properties (Harter & Pike, 1984; Marsh, Craven, & Debus 1998; Marsh, Ellis, & Craven, 2002). The self-beliefs measures targeting young children have employed diverse methodologies including pictures, Q-sort, questionnaires, and puppets (Davis-Keen & Sandler, 2001). However, most available measures of self-concept have limitations. For instance, studies suggest that pairing verbal statements with pictures appear to be cognitively demanding and might not be suitable for young children (Marsh, Craven, & Debus, 1998; Marsh, Ellis, & Craven, 2002). Conceptual and methodological limitations of available measures have led researchers to continue to devise new ways to assess self-beliefs in young children (Byrne, Shavelson, & Marsh, 1992; Chapman & Tunmer, 1995; Marsh, Craven, & Debus, 1991; Wylie, 1989).

Marsh, Ellis, and Craven (2002) developed a new measure, the Self Description Questionnaire for Preschoolers (SDQP). This scale was designed to measure multiple domains of self-concept and structured based on SDQ–I (Marsh, Craven, & Debus, 1998), which has a sound psychometric properties (Byrne, 1996; Hattie, 1992). The SDQP targets self-concepts in six domains: two academic (Verbal and Math) and four nonacademic (Physical, Appearance, Peers, and Parents). The measusre employes an individual-interview style where items were structured in question format and a double binary response format was used to record children's responses (Marsh, Ellis, & Craven, 2002; Marsh, Craven, & Debus, 1991; Marsh, Craven, & Debus, 1998).

There are limited numbers of self-concept measures available to researchers in Turkey (Cevher, 2004; Önder, 1997; Özcan, 2010; Sarıca, 2010; Turaşlı, 2006, 2014; Zincirkıran, 2008). Available measures, however, target older children, via either one-dimension or a few dimensions, and do not have factorial validity. Lack of suitable instrument to measure young children's self-concept appears to be a major barrier in advancing self-concept studies on young children in Turkey. Therefore, the current study aimed to adapt the Self Description Questionnaire for Preschoolers (SDQP) into Turkish and to examine the self concept of Turkish preschoolers based on their age and sex.

METHOD

Participants

The sample of this study consisted of 420 preschoolers (3- to 5-year-olds) enrolled in preschool institutions in the city of Ankara and Balıkesir in Turkey. Convenience sampling method was used to select the study sample. There were 206 girls (49 %) and 214 boys (51 %) in the sample. 110 (26.2 %) children were three-year-old (56 girls, 54 boys), 147 children (35 %) were four-year-old (74 girls, 73 boys) and 163 children (38.8 %) were five-year-old (76 girls, 87 boys). Slightly more than half of the children (51.7 %) were enrolled in public preschools, 33.6 % of the children were enrolled in private preschools, and 14.8 % of the children were enrolled in preschools managed by public organizations. More than half of the children were in Balıkesir (59.8 %), while the rest were in Ankara (40.2 %).

Pertaining to the mothers of children, almost half of the mothers had higher education degree (8.3% had an associate's degree and 41.6% had a bachelor's or a graduate level degree), 31.2% had high school, and 19.9% had an elementary and middle diploma. Among all fathers of children, 59.2% had higher education degree (5.7% had an associate's degree and 53.5% had a bachelor's or a graduate level degree), 31.9% had high school, and 8.9% had an elementary and middle diploma.

Measures

The Self Description Questionnaire for Preschoolers (SDQP) measures young children's assessment of their self-concept in six-domains: Physical, Appearance, Peers, Parents, Verbal, and Mathematics. SDQP compromises a total of 38 items with each subscale including 6 items, except the Parents subscale, which has a total of 8 items.The Self Description Questionnaire for Preschoolerswas developed by Marsh, Ellis and Craven (2002) who reported strong psychometric properties for the scale. The subscales had moderate to high internal consistency (.75–.89). Factorial validity was supported with first- and second order confirmatory factor analytic approach. The correlations among the factors (subscales) were mostly moderate and the scores obtained from the subscales that target the academic self-concepts were moderately related to achievement test scores.

Adaptation Process

For the adaption study of the Self Description Questionnaire for Preschoolers scale, the instrument was translated into Turkish by the researcher and three experts in child development independently. The four translations were compared and the translation was finalized. The second step was the translation of the Turkish version of the instrument back to English by a different expert in English language. The original and back-translated items were compared and the researcher concluded that the linguistic equivalence was established. Afterwards, the draft version of the instrument was constructed. The draft version was piloted with 50 preschoolers to examine whether the items were clear and understandable for the targeted sample. No further revisions were made on the draft version.

Procedure

The Turkish version of the SDQP was individually administered to a total of 420 preschool children in a quiet room at preschools where children were enrolled. The scale administrator provided instructions and practice items to ensure that the preschooler comprehend the procedure. In this scale a double binary response format was employed to record preschoolers' responses. Thus, the preschoolers were initially requested to respond "yes" or "no" to each item. Afterwards, depending on the child's response, the administrator further probed the child's preference by asking whether the child meant "yes/no always" or "yes/no sometimes.".In cases where a child demonstrated an understanding of the item, but had difficulty deciding whether to answer "yes" or "no," a 3 was recorded. Fifteen minutes were required to complete the procedure. Children provided further clarifications when requested and a short break was taken upon completing half of the items (Marsh, Ellis, & Craven, 2002).

Analysis

The viability of the six-factor solution for the Turkish sample was examined using confirmatory factor analysis. LISREL version 8.80 was used to test the factorial structure of the measure (Jöreskog & Sörbom 2006). Two items (item 2 and 4) in the verbal subscale were hypothesized not to work in the Turkish sample as reading and teaching of alphabet letters are not introduced until the first grade in the Turkish Educational System. A confirmatory factor analysis was performed on the polychoric correlation matrices and using the Robust Diagonally Weighted Least Squares (DWLS) method of estimation (Beauducel & Herzberg 2006; Flora & Curran 2004).

RESULTS

Factorial Structure

Prior to confirmatory factor analysis, the data set was screened for missing data and outliers and no missing data and outlying observation were detected. Initially, the fit of the first-order model to the study data was examined. Then, the viability of the second-order model was considered.

First-Order Model

The results of the confirmatory factor analysis demonstrated that the six-factor model of SDQP scale fitted the data well ($\chi^2 = 1151.91$, df = 650, $p < 0.001$). The adjusted goodness of fit index (AGFI=0.96), the non-normed fit index (NNFI=0.99), and the comparative fit index (CFI=0.99) all were above the recommended value of 0.95. Also, the root mean square error of approximation (RMSEA=0.043, %90 CI = 0.039-0.047) was lower than the recommended value of 0.06. However, as expected, the two items in the verbal subscale did not have a reasonable loading (0.2 and 0.12). Therefore, these two items were removed from the scale and the analysis rerun with the remaining 36 items. The results indicated that the chi-square value ($\chi^2 = 978.69$, df = 579, $p < 0.001$) and the root mean square error of approximation (RMSEA=0.041, %90 CI = 0.036-0.045) decreased. The non-normed fit index (NNFI=0.99) and the comparative fit index (CFI=0.99) stayed the same while the adjusted goodness of fit index (AGFI=0.98) increased. These results suggested that the 36-item and six-factor model of SDQP scale also fit the data reasonably well.

On the second run, all items had a satisfactory loading on their corresponding subscale. Standardized factor loadings ranged from 0.56 to 0.79 for the physical, 0.76 to 0.82 for the appearance, 0.65 to 0.77 for the peers, 0.63 to 0.81 for the parents, 0.63 to 0.70 for the verbal, and 0.54 to 0.79 for the mathematics subscale. The Cronbach's Alpha values calculated for the subscales were adequate: physical $\alpha = 0.72$, appearance $\alpha = 0.83$, peers $\alpha = 0.75$, parents $\alpha = 0.69$, verbal $\alpha = 0.55$,

and mathematics α = 0.68. The results suggested that the six-factor solution with 36 items is a well fit to the Turkish sample data and the observed scores obtained from the six sub-scales in general have acceptable alpha values except the verbal subscale.

Second-Order Model

A second-order factor model was tested using 36-item and six-factor model of SDQP scale data. The results demonstrated that the second-order factor model of SDQP scale fit the data well (χ^2 = 995.27, df = 588, p < 0.001). The non-normed fit index (NNFI=0.99), the comparative fit index (CFI=0.99), and the adjusted goodness of fit index (AGFI=0.97) all demonstrated fit values that were exceeding the recommended threshold of 0.95. Also, the root mean square error of approximation (RMSEA=0.041, %90 CI = 0.036-0.045) was lower than the recommended value of 0.06. The standardized factor loadings for the six subscales and the second-order General Self-Concept factor ranged from 0.87 to 0.98. These results suggested that the second-order model with six subscales and a General Self-Concept factor is a well fit to the Turkish sample data. Figure 1 illustrates the second-order factor model of SDQP.

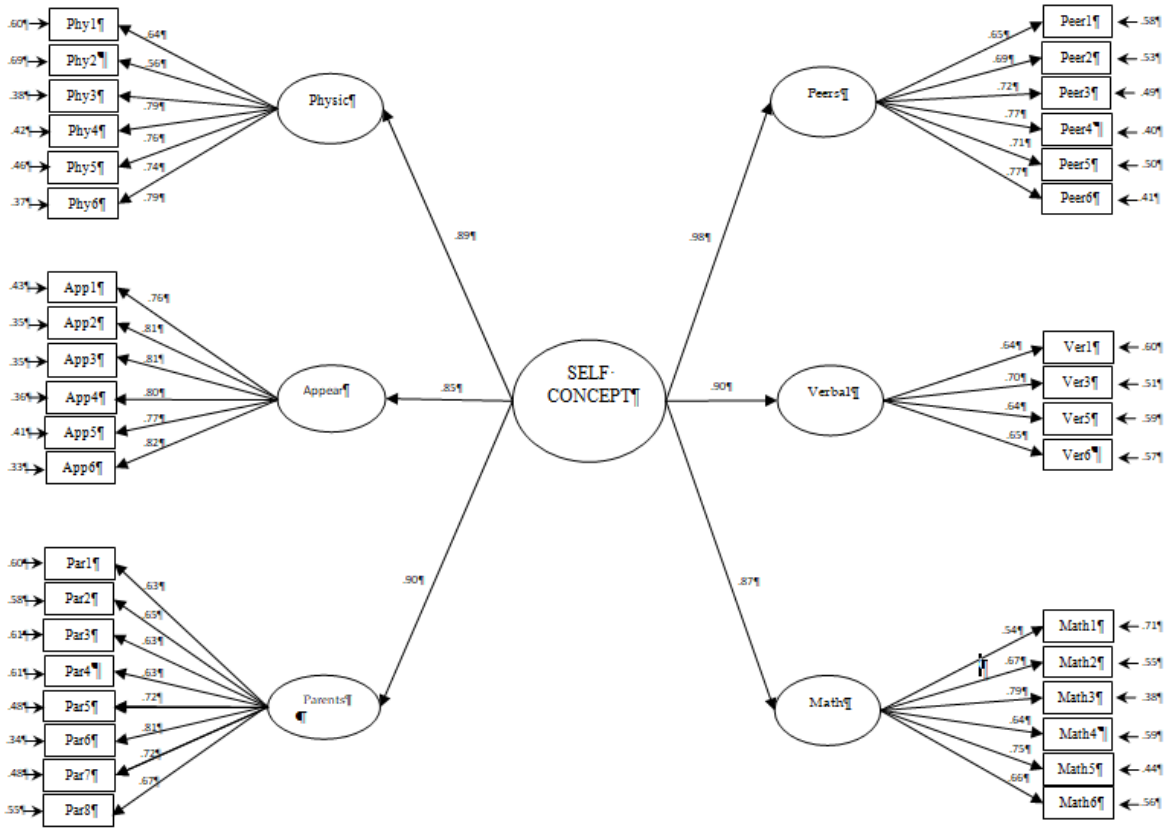

Figure 1. Second-order confirmatory factor analytic model

Age and Sex Differences in Self-Concept

Table 1 presents data for the overall sample of children with subgroups based on age and sex of child. A factorial 2 by 3 Multivariate Analysis of Variance was performed using child's sex and age (3-, 4-, and 5-year-olds) to examine differences on six self-concept constructs. The multivariate main effect of age was statistically significant (Pillai's T=.06, $F_{12,820}$=2.03, p=.019, η^2=.03), but the multivariate main effect of sex was not significant. The sex and age interaction also was not significant. A series of Analysis of Variance test with Bonferroni adjustment revealed a statistically significant age difference in mathematics scores ($F_{2,414}$= 4.98, p=.007, η^2=.02). Post-hoc tests revealed

that five-year-old preschoolers and four-year-old preschoolers had statistically significantly higher mathematics scores than their younger peers of three-year-olds (p<0.05). There was no significant difference between five- and four-year-old preschoolers (p>0.05).

Table 1. Means and standard deviations of self-concept constructs by age and gender

	Physical	Appearance	Peers	Parents	Verbal	Mathematics
Age						
3-year-olds	27.4 (3.5)	28.5 (2.0)	27.8 (3.1)	38.3 (2.4)	18.6 (1.7)	26.7 (3.6)
4-year-olds	27.4 (3.7)	28.0 (3.4)	28.0 (3.0)	38.0 (2.7)	18.5 (2.2)	27.5 (2.9)
5-year-olds	27.8 (2.9)	28.7 (2.2)	28.5 (2.0)	38.4 (2.1)	18.8 (1.7)	27.9 (2.5)
Gender						
Girls	27.1 (3.4)	28.4 (2.5)	28.2 (2.9)	38.2 (2.5)	18.5 (1.9)	27.4 (2.8)
Boys	28.0 (3.2)	28.4 (2.9)	28.2 (2.5)	38.3 (2.4)	18.8 (1.9)	27.5 (3.2)
All	27.6 (3.4)	28.4 (2.7)	28.2 (2.7)	38.2 (2.4)	18.7 (1.9)	27.5 (3.0)

Table 2 presents the bivariate correlation results for the six self-concepts domains. There were moderate to high and statistically significant relationships among all domains. The lowest correlation was between verbal and appearance subscales whereas the highest correlation was between peers and appearance subscales.

Table 2. Correlation coefficients for the self-concept constructs

Measures	1	2	3	4	5	6
1. Physical	-					
2. Appearance	.48*	-				
3. Peers	.53*	.61*	-			
4. Parents	.52*	.56*	.58*	-		
5. Verbal	.48*	.44*	.51*	.52*	-	
6. Mathematics	.53*	.48*	.56*	.51*	.49*	-

DISCUSSION AND SUGGESTIONS

The present study examined the psychometric properties of the Self Description Questionnaire for Preschoolers (SDQP), which was developed by Marsh, Ellis, and Craven (2002), using a sample of Turkish preschool children. The confirmatory factor analysis results demonstrated that the six-factor model of SDQP scale fitted the data reasonably well. However, results demonstrated that the two items (item 2 and 4) in the verbal subscale did not have satisfactory factor loadings. These two items targeted children's beliefs about their competence in recognizing and producing alphabet letters. These skills are not targeted in Turkish Preschool Education Curriculum (Ministry of National Education, 2013). In fact, teachers are strongly discouraged to introduce alphabet letters in the curriculum documents. Therefore, these two items were removed from the scale and the analysis was rerun with the remaining 36 items. The results indicated that the six-factor solution with 36 items was a well fit to the Turkish sample data. The observed scores obtained from the six sub-scales have acceptable alpha values, except for the verbal subscale -- possibly due to the reduced item number. A second-order factor model was tested using 36-item and six-factor model of SDQP scale data. The results demonstrated that the second-order model with six subscales and a General Self-Concept factor was a well fit to the Turkish sample data.

In the current study Turkish preschoolers' self-concept scale scores found to be high. This finding is congruent with self-concept literature. Studies suggest that preschoolers' feelings about themselves tend to be very optimistic (Harter, 1990, 1999; Harter & Pike, 1984; Mantzicopoulos, 2004; Marsh & Craven,1997). In the present study age and sex differences in preschoolers' self-concept scores were also examined. The results suggested a significant multivariate main effect of age, but not for sex. The interaction between sex of child and age was not statistically significant. Contrary to the findings of the present study, several studies reported substantial sex differences in mean levels of academic self-concept constructs (Köller, Baumert, & Schnabel, 2001; Marsh, Trautwein, Lüdtke, Köller & Baumert, 2005; Marsh & Yeung, 1998). For instance, Marsh and Yeung

(1998) found that although girls had higher mathematics grades than boys, girls had lower mathematics self-concepts scores. Results also indicated a statistically significant age difference on mathematics scores. Five-year-old preschoolers and four-year-old preschooler obtained significantly higher mathematics scores than their younger peers. On the other hand, there was no difference between five- and four-year-old preschoolers. The observed age trend in mathematics self-concept scores appears to be reasonable and not suprising for the sample data as older preschoolers are provided more opportunities to develop their mathematics skills and knowledge in Turkish Preschool classrooms than their younger peers. The most striking result to emerge from the data was that the high correlation coefficient observed between peers and appearance subscales. This finding suggests that Turkish preschoolers' perceptions of their appearance may influence their relations with their peers. Preschoolers with optimistic views about their appearances tend to have a higher self-beliefs about their peer relations.

There are several limitations of the present study. For instance, the sample was not a random sample and the participants were recruited from only two cities. Moreover, all of the children were attending the preschool program. Thus, future validation studies should be conducted with samples from diverse populations to provide further evidence for the psychometric properties of the Turkish version of SDQP scores. Further research with larger and more demographically diverse populations, such as children with low SES families, children who are not enrolled in the preschool education program, and children from different regions of Turkey, would no doubt strengthen the findings. The present study has provided a single type of validity evidence for the observed scores. Further studies should provide additional evidence of validity. The current study was the first attempt to examine the factor structure of the Self Description Questionnaire for Preschoolers (SDQP) with a sample of Turkish preschool children, and the results could be considered preliminary for establishing cross-cultural equivalence of the SDQP. The findings of this study suggested possible cultural differences due to dissimilarities between U.S. and Turkish Preschool Education Programs in terms of their emphasis on early literacy skills. As predicted, two items in the verbal subscale did not load on its respective factor in CFA in the Turkish sample of preschoolers. Further studies should generate substitute items reflecting early literacy skills targeted in the Turkish Preschool Education Program.

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