Preschool Self-Regulation Assessment (PSRA): Adaptation Study for Turkey [*]

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Abstract

The aim of this study is to conduct the validity and reliability studies of the Preschool Self-Regulation Assessment (PSRA) in Turkey. The study was carried out with 233 children, aging between 48-72 months. First of all, the scale was translated from the source language, and then translated back to the source language by experts and the texts were checked for consistency. The tasks in the scale were then reviewed by domain experts. Scoring was conducted simultaneously by the researcher and an expert to ensure assessor reliability. Analyses showed the scale had a two-factor construct, which explained 52% of the total variance. Overall reliability coefficient (α) was 0.83 while the reliability coefficients for Attention/Impulse Control and Positive Emotion sub-dimensions were 0.88 and 0.80, respectively. Test-retest reliability correlation coefficient was 0.86. These results show that the PSRA is a valid and reliable tool for evaluating the self-regulatory skills of children in Turkey.

Introduction

Self-regulation is one of the frequently studied concepts in the fields of education, psychology and neuroscience. Although these studies have different participants, theoretical contexts and variables; study results demonstrate the importance of self-regulation in the development, learning and social relationships of the individual. Self-regulation is an important building block of not only the individual but also of social life (Polnariev, 2006).

Self-regulation is defined as the capacity of the individual to delay or suppress behavior, tendencies and desires, abide by social rules, control and regulate emotions, focus on goal-directed stimuli and maintain attention (Bauer and Baumeister, 2011; Koole, Van Dillen and Sheppes, 2011; Posner and Rothbart, 2009). Another definition of self-regulation is the ability of the child to control physical functions and emotions, direct and focus attention (Shonkoff and Phillips, 2000; as cited in Gillespie and Seibel, 2006).

Self-regulation develops in early childhood and positively affects positive social behavior, school readiness, academic achievement and the ability to show greater empathy (McClelland and Tominey, 2011; Posner and Rothbart, 2009). Furthermore, individuals with high levels of self-regulation have a lower risk of drug use, antisocial behavior, abnormal eating habits and obesity (Herman and Polivy, 2011; Posner and Rothbart, 2009).

Promoting the development of self-regulation in early childhood is critical as it has a key role in learning, development and socialization. In order to support the development of self-regulation in children in early childhood, these skills should be individually assessed and evaluated. Data obtained from the evaluation will form the basis of the support provided to the child. In studies conducted overseas, self-regulation of children is generally assessed by reports and performance-based tasks prepared by either the family or the teacher regarding their emotion, behavior and attention regulation. There is a need for valid and reliable assessment tools to promote children's self-regulation development and, thus, to ensure that they are socially, emotionally and cognitively ready for elementary school (McClelland and Tominey, 2011).

Sub-dimensions of Self-Regulation: Attention, Emotion and Behavior Regulation

Self-regulation is structurally and functionally a multidimensional process (Boekaerts, Maes and Karoly, 2005; Polnariev, 2006). The sub-dimensions of self-regulation develop and function interdependently. There are many different statements on the sub-dimensions of self-regulation. McCabe, Cunnington and Brooks-Gunn (2004, p.343) identify the sub-dimensions of self-regulation as "inhibition of automatic reactions, motor control, delay of gratification and maintaining attention," while Zimmerman (2000) defines "goal-directed behavior" as a sub-dimension of self-regulation (As cited in Polnariev, 2006). Some researchers study the sub-dimensions of self-regulation in behavioral, cognitive and emotional domains (Calkins and Fox, 2002; Smith-Donald et al., 2007), while Grolnick and Farkas (2002) also include motivation among these dimensions (As cited in Polnariev, 2006). It can be said that the differentiation in the conceptualization of the sub-dimensions of self-regulation result from the differences in theoretical background. These sub-dimensions operate separately but affect each other as a system. In this research, self-regulation was studied under attention, emotion and behavior regulation sub-dimensions within the theoretical framework of the validity and reliability of the Preschool Self-Regulation Assessment (Smith-Donald et al., 2007) and its adaptation for children in Turkey.

Attention regulation is a component of cognitive functions (Bronson, 2000). It refers to processes and abilities such as maintaining attention, ignoring distracting and irrelevant stimuli, staying alert for task goals and coordinating attention during a task (Ruth and Rothbart, 1996; as cited by Harris et al., 2007).

Emotion regulation is controlling the intensity of emotional states such as anger, fear, sadness and happiness (Kopp, 2002). Emotion regulation can be defined as being aware of one's emotions, and controlling one's emotions in response to stimuli and expressive behavior, as well as, the tendency of emotions to be dominant in cognitive processes (Carlson and Wang, 2007). In other words, emotional regulation is a tool that facilitates organizing attention and behavior; showing determination and courage in coping with obstacles; problem solving, planning, establishing cause and effect relationship, and interpersonal communication (Cole et al., 2004).

In order for the children to be able to use emotion regulation strategies when faced with a stressful situation, their attention regulation systems must also be developed. Children can activate their emotion regulation systems to the degree they can shift their attention away from negative situations that create negative influence (Eisenberg, Smith and Spinrad, 2011; Ochsner and Gross, 2007). This relationship is bilateral; attention regulation skills are also affected from their emotion regulation skills.

Behavior regulation is the third component of self-regulation and includes situations such as children's ability to think before acting, plan their actions, not act impulsively, overcome disappointments, control reactions, show patience and wait for their turn (Smith-Donald et al., 2007).

Many studies emphasize the relationship between behavior regulation and effortful control (Eisenberg et al., 2007; Fabes et al., 2003; Hill, 2003; Kochanska and Knaack, 2003; Kochanska, Murray and Harlan, 2000; Myers and Morris, 2009; Phillips, 2003). The ability to willfully inhibit, activate and shift attention and behavior is called effortful control (Eisenberg, Smith and Spinrad, 2011). Children with greater effortful control can manage their behavior, as well as, emotions and attention (Carlson and Wang, 2007). Behavior regulation is interrelated with the attention regulation system and significantly affects socialization, the ability to express emotions and general self-regulatory skills (Eisenberg, Smith and Spinrad, 2011; Eisenberg et al., 2004; Kochanska, Murray and Harlan, 2000).

Early childhood has critical importance for the development and promotion of self-regulation. In order to be able to promote self-regulation of children, their existing situations should be evaluated with objective tools. Although many studies making use of various evaluation tools (Blair and Razza, 2007; Bondurant, 2010; Carlson and Wang, 2007; Denham et al., 2012; Graziano et al., 2007; Jahromi and Shifter, 2008; McClelland et al., 2007; Polnariev, 2006; Raver et al., 1999; Raver et al., 2011) exist in foreign countries, studies on self-regulation development in early childhood are quite limited in our country. This limitation can be stated to be caused by the lack of an assessment tool for the evaluation of self-regulation in early childhood and the fact that self-regulation development in early childhood is not sufficiently studied in Turkey.

There are various evaluation tools used in studies for the evaluation of children's self-regulation in early childhood. Some of these tools are based on the evaluation of children's self-regulation during games or activities through observation.

Through the adaptation of the Preschool Self-Regulation Assessment, an assessment tool to evaluate the self-regulation in early childhood will be brought to the field of early childhood education in our country. So-called assessment tool will allow evaluation of children's self-regulation levels, determination of the requirements regarding, and the promotion of, their self-regulation development; as well as, provide assistance in the evaluation of subjects such as socialization and readiness for elementary school.

Method

In this study, adaptation of Preschool Self-Regulation Assessment (PSRA), which was developed to evaluate the self-regulation of children in early childhood, for children in Turkey, and in this sense conducting reliability and validity studies of the scale are aimed.

Study Group

The study group of the research is comprised of 233 children, aging between 48-72 months attending preschool education in the central districts of Ankara in 2011-2012 academic year. The children comprising the study group were contacted with the stratified sampling method. The number of children determined with respect to the populations of the central districts of Ankara was selected to achieve an age distribution. The children in the study group attended independent kindergardens affiliated to the Ministry of National Education, preschools under the elementary school system and private preschool educational institutions. Age and gender distribution of the study group is given in Table 1.

Table 1. Age and Gender Distribution of the Study Group

	Girl		Boy		Total	
Age Group	f	%	f	%	f	%
48-60 Months	52	45.6	59	49,5	111	100
61-72 Months	62	54.4	60	50,5	122	100
Total	114	100	119	100	233	100

School type and gender distribution of the study group is given in Table 2.

Table 2. School Type and Gender Distribution of the Study Group

	Girl		Boy		Total	
Age Group	f	%	f	%	f	%
Independent Kindergarden	47	41,23	45	37,92	92	100
Private Kindergarden	45	39,47	55	46,21	100	100
Preschool	22	19,30	19	15,97	41	100
Total	114	100	119	100	233	100

Data Collection Tool

In the research, data on children's self-regulation was collected with the Preschool Self-Regulation Assessment, whose validity and reliability studies are aimed to be conducted in this study. PSRA developed by Smith-Donald et al. (2007) is an assessment tool which allows a performance-based evaluation, and is composed of two main parts; assessor guide for the tasks the child is expected to perform and PSRA Assessor Report Examiner Rating Scale. The first part of the scale is comprised of 10 tasks developed to evaluate self-regulation performance of children. "Toy Wrap," "Snack Delay", "Toy Wait" and "Tongue Task" tasks are used to determine children's delay of gratification levels. "Balance Beam," "Tower Task" and "Pencil Tap" tasks are carried out to assess executive control designating children's ability to follow instructions (Murray and Kochanska, 2002; Smith-Donald et al., 2007). "Tower Cleanup," "Toy Sorting" and "Toy Return" tasks evaluate children's socialization skills. During the development of the original scale, two related tasks were combined after validity and reliability studies, and the number of tasks was reduced to nine.

The PSRA Assessor Report Examiner Rating Scale constituting the second part of the scale was adapted from the Leiter-R Social-Emotional Rating Scale and the Disruptive Behavior-Diagnostic Observation Schedule (DB-DOS) coding system. This part allows the assessor to evaluate the child's emotion, attention level and behavior based on assessor-child interaction. 15 of the 28 items in the PSRA Assessor Report Examiner Rating Scale were taken from attention, impulse control, activity level, sociability level, emotion and energy sub-scales of Leiter-R Social Emotional Rating Scale. Additionally two items that do not map on the original items were adapted from Leiter-R Social Emotional Rating Scale. The remaining nine items were selected from the Disruptive Behavior-Diagnostic Observation Schedule coding system items that allow the evaluation of compliance-noncompliance, intensity and frequency of negative and positive affect, and presence or absence of physical or verbal aggression. Finally two more items were included for assessment of anxiety levels of children during the assessment. The PSRA Assessor Report Examiner Rating Scale is a rubric-type assessment tool consisting of items coded between zero and three. The items include behavioral indicators; zero denoting the lowest score and three denoting the highest score. However, some items were reverse-coded to reduce automatic responses and ensure assessor reliability.

Smith-Donald et al. (2007) conducted the validity and reliability studies of the scale with 64 children, aging between 41-70 months. Assessors received training on the scale. The test was administered to children in a quiet and suitable location. Immediately after the administration of the test, the assessors filled out the PSRA Assessor Report Examiner Rating Scale according to the child's task performance.

As a result of the factor analysis of the PSRA Assessor Report Examiner Rating Scale, a two-factor construct was obtained with Impulse/Attention Control and Positive Emotion factors. The final form of the PSRA Assessor Report Examiner Rating Scale explained 53.4% of the variance (Smith-Donald et al., 2007). Cronbach's Alpha coefficients for the two factors were α=0.89 for Impulse/Attention Control and α=0.87 for Positive Emotion. These coefficients showed that the PSRA Assessor Report Examiner Rating Scale was reliable for the evaluation of self-regulation (Smith-Donald et al., 2007).

Data Collection Process

Video footage recorded during the administration of the scale in foreign countries was viewed prior to data collection. The footage was perused and administration process was adjusted accordingly. The scale was administered at the institutions the children attended in locations as quiet as possible and separate from other children. The administration environment was arranged in accordance with the instructions of the scale prior to its administration. Material acquired according to the material list included in the scale was placed out of children's sight but within easy reach of the assessor during administration.

The PSRA was administered to the 233 children in the study group in one-on-one sessions. The researcher provided the child with the instructions for the tasks the child is expected to perform. The child's performance during administration was recorded in the respective section of the coding page of the scale. The assessment took 20 minutes in average for each child. Throughout the administration, the researcher did not encourage or initiate a conversation with the child, but responded if the child started a conversation. The researcher communicated with the child in a gentle and warm tone of voice.

After administration was completed and the child left the assessment setting, the researcher assessed the child's general performance in attention, emotion and behavior regulation throughout the administration based on the data recorded in the coding page using the PSRA Assessor Report Examiner Rating Scale.

Results

Implementer Evaluation Form, which Smith-Donald et al determined to have a two factor structure as Impulse/Attention Control and Positive Emotion, is originally composed of 28 items. As a result of the conducted reliability and validity study, the form consists 17 items and explains 53.4% of the variance. Reducing the effects of possible cultural differences was aimed in the adaptation of the scale for Turkey. Therefore, also in accordance with the recommendations of the researchers who developed the scale, validity study was started with 28 items of the original scale, which were determined before conducting the reliability and validity study (Smith-Donald et al, 2007).

In the first stage, the scale was translated from English to Turkish independently by the researcher and two domain experts. Following the completion of translation to Turkish, translations were checked for consistency and an agreement on the translation was reached. The scale agreed upon was reviewed by two professors studying in the field of preschool education in order to avoid conceptual fallacies arising from translation.

In the second stage, the re-translation method was used and the scale was translated back to the source language by a professional translator who is studying in the field of early childhood education in the USA, has an understanding of both cultures and is a native speaker of Turkish. Following re-translation, necessary amendments and editing on the translation were made. Thus, the researcher tried to avoid issues resulting from intercultural differences that could cause problems during administration and negatively affect the validity and reliability of the scale

In the last stage, the final form of the scale was administered to 13 children by the researcher. A problematic phrase causing confusion to the researcher or flaw in the implementation was reformulated. This phrase was included in an indicator of 16th item of the scale. "The child has greater self-regulatory skills" phrase was not included in other indicators and conflicted with the essence of the item and, therefore, was excluded from the item. No amendments were made to the instructions.

In order to test the content validity of the PSRA, experts specialized in the field of early childhood education were consulted. Expert opinion forms were prepared for both the instructions and the PSRA Assessor Report Examiner Rating Scale parts of the scale and expert suggestions and opinions on each task and item were received.

Initially, four experts were independently consulted regarding the instructions part comprised of the tasks used to evaluate children's self-regulation and administration suggestions. In line with the suggestions of the experts, "By showing the fingers and tapping…" phrase in the Pencil Tap task was replaced with "By holding the pencil and showing the tapping…" Furthermore, expressions such as "put" and "pick up" written in the imperative mood and used with the word "please" in the original scale were replaced with expressions such as "can you put" and "can you pick up." Additionally, tasks were evaluated by the experts for their suitability for preschool children. The suitability of the tasks for the preschool period was agreed upon in accordance with expert opinions.

Finally, seven experts were consulted regarding the PSRA Report Examiner Rating Scale. One of the experts studied measurement and evaluation in education and the other six were specialized in early childhood education. Following independent expert evaluations, the scale was given its final form by making the necessary amendments in accordance with the opinions of and the points agreed upon by the experts. Amendments were as follows: *(i)* "evaluation" phrase in the items of the scale was changed to "evaluation process". Additionally, the word "test" used for evaluation in some items was also changed to "evaluation process". *(ii)* Behavioral indicators written in brackets were added for ambiguous phrases such as "to be pleased" and "hesitant behaviors". Furthermore, these phrases were removed from inside each sentence and relocated to the end of the sentence. Kaiser-Meyer-Olkin (KMO) and Barlett tests were used to test the construct validity of the PSRA. KMO and Barlett tests are used to examine the suitability of the scale for factor analysis. Based on the analyses performed for this purpose, KMO coefficient of the scale was found to be 0.82. A KMO coefficient value greater than

0.60 indicates the sample size is sufficient for factor analysis (Buyukozturk, 2011). Based on Barlett test results, x^2 had a value of 1940.468 and the test showed the data met the normality assumption ($p<.05$).

Item frequency was calculated before exploratory factor analysis and two items with a variance of 0 (20th, 21st, 26th, 27th and 28th items) were not included in factor analysis. A factor load value of 0.30 was taken as a criterion to evaluate the suitability of items in the scale. Accordingly, the Varimax rotation method was applied to the remaining 23 items and, respectively, 6th, 19th, 2nd, 22nd, 5th, 23rd and 13th items with low factor load values were excluded.

There were two factors with eigenvalues greater than 1 (5.082 and 3.243) in the construct, obtained by the principal component analysis of the scale with the Varimax rotation method. The two-factor construct explained 52% of the total variance. The first factor explained 31.765% of the variance, whereas the second factor explained 20.271% of the variance.

Distribution of items by factors is given in Table 3, which represents factor rotation results. Considering the item contents, the first factor was termed Attention/Impulse Control and the second factor was termed Positive Emotion. These two factors were identical with the factor analysis results of Smith-Donald et al. (2007). However, 10th factor termed "Waiting," which did not load onto any factor in the group in which the scale was developed, explained the performance of children in Turkey and loaded on to Attention/Impulse Control sub-dimension. Similarly, 18th item indicating passive non-compliance in children that was excluded from the original study due to its low factor load value was included in the Attention/Impulse Control sub-dimension within the scope of this study. On the other hand, in Positive Emotion sub-dimension, 13th item that is named "positive across tasks" explained the performance of children who were in the group the scale was developed; but it didn't state the performance of children in Turkey.

Table 3. Factor Rotation Results (Rotated Component Matrix)

Items	1st Factor Attention/Impulse Control	2nd Factor Positive Emotion
Child has difficulty waiting between tasks	**,785**	-,115
Sustains concentration; willing to try repetitive tasks	**,775**	,282
Thinks and plans before beginning each task	**,757**	,133
Daydreams, has trouble focusing on assessment	**,746**	,274
Lets examiner finish before starting task; does not interrupt	**,722**	-,177
Pays attention during instructions and demonstrations	**,696**	,247
Refrains from indiscriminately touching test materials	**,657**	-,164
Defiant	**,654**	,074
Passively noncompliant	**,632**	,196
Remains in seat appropriately during test	**,479**	-,202
Child shows intense positive emotions and behaviors	-,163	**,812**
Actively attempts to engage interviewer	-,098	**,797**
Alert and interactive; is not withdrawn	,127	**,740**
Shows pleasure in accomplishment and active task mastery	,016	**,695**
Child shows frequent positive emotions and behaviors	,097	**,671**
Confident	,187	**0,46**

As seen in Table 3, the attention/impulse control factor has 10 items, whereas the positive emotion factor has 6 items. The final form of the scale is comprised of 16 items. There are no items that do not load onto a factor among the 16 items included in the factor analysis. As for the original scale, which was developed in America, includes 17 items with 2 items different from the factor structure that appeared in Turkey (Smith-Donald et al., 2007).

In order to confirm the construct obtained by the exploratory factor analysis, a confirmatory factor analysis was performed with the same data group and a chi-square value of 255.98 was found. Chi-square value per degree of freedom was 2.51 and the root mean square error of approximation (RMSEA) was 0.11. The values regarding the suitability of the obtained construct of the scale were at acceptable levels (Schermelleh-Engel et. al., 2003). The Non-normed Fit Index (NNFI) was 0.88; the Comparative Fit Index (CFI) and the Incremental Fit Index (IFI) were 0.90. NNFI, CFI and IFI values greater than 0.90 indicate construct's goodness of fit (Schermelleh-Engel et. al., 2003). The Normed Fit Index (NFI) was 0.84. NFI values of 0.90 and above indicate goodness of fit. Accordingly, it can be said that the PSRA is close to a good-fit. The Goodness of Fit index (GFI) was 0.79 and the Adjusted Goodness of Fit Index (AGFI) was 0.72. As in other indexes, GFI and AGFI values of 0.90 and above are considered to indicate goodness of fit (Schermelleh-Engel et al., 2003). Hence, it can be said that GFI and AGFI values obtained by the analyses indicate a poor fit.

Results on the Reliability of the Scale

The PSRA was administered to each child in the study group. In order to ensure assessor reliability, the first 40 administrations were conducted together by the researcher and an expert studying self-regulation. Following the completion of the administration, the PSRA Assessor Report Examiner Rating Scale was independently scored by the researcher and the expert based on their observations on the process. The scoring was checked for consistency and a final score was agreed upon.

Reliability represents the extent to which the test measures the desired characteristic and the consistency of item responses. In order to determine the reliability of the scale, Cronbach's alpha (α) and test-retest reliability methods were used.

The reliability coefficient (α) for the 16 items comprising the overall scale was 0.83. The reliability coefficient for the 10 items of the Attention/Impulse Control factor was 0.88. Total item correlation ranged from 0.375 to 0.745. The reliability coefficient for the Positive Emotion factor was 0.80; total item correlation ranged from 0.343 to 0.702.

In order to determine test-retest reliability, the scale was administered to 27 children in addition to the study group. Three weeks after the initial administrations, the scale was administered once more to the same group. Spearman Brown correlation coefficient was used to determine the test-retest reliability of the scale. The analyses showed a significant correlation and the correlation coefficient value was .86. The results demonstrated that the PSRA was reliable with respect to consistency between the two administrations.

Results on the Descriptive Analyses of the Scale

The normality test was conducted using the total scores for the 16 items in the final form of the scale. The Kolmogrov-Smirnov test indicated a non-normal distribution ($p<.05$). Additionally, the investigation of kurtosis and skewness coefficients revealed that the distribution was not in the acceptable range for normal distribution (skewness=-1.855; kurtosis=6.039). Due to the non-normal distribution, Mann-Whitney U Test was used for the comparison of the total scores with respect to independent variables. Mann-Whitney U Test is used instead of the *t*-test if the data set does not meet the normality assumption (Buyukozturk, 2011). In addition, the Kruskal Wallis method was also used as an alternative to the one-way variance analysis if the data set did not meet the normality assumption. Descriptive analyses of the overall scale and the sub-dimensions are given in Table 4.

Table 4. Descriptive Analysis of Preschool Self-Regulation Assessment (PSRA)

	N	($\bar{x}$)	Lowest Score	Highest Score	ss
PSRA	233	38.72	8.00	48.00	5.48
Attention/Impulse Control	233	26.50	4	30	4.42
Positive Emotion	233	12.22	2	18	2.78

The highest possible score for the overall PSRA is 48. As seen in Table 4, the average of the children's total self-regulation scores was 38.72. The children scored an average of 26.50 for the 10 items of the Attention/Impulse Control sub-dimension of the PSRA out of a highest possible score of 30. In the Positive Emotion sub-dimension, the average self-regulation score of the children was 12.22.

Discussion and Conclusion

Content validity results demonstrated that the PSRA was a valid scale for assessing self-regulation in the preschool period. Content validity of the scale was confirmed with expert opinions and the final form of the scale was prepared and administered. Data collected from the administrations were analyzed to determine the construct validity of the scale. The results showed that the scale had a structure with two sub-dimensions, which were identical to the sub-dimensions in the original study (Smith-Donald et al., 2007). Additionally, in the validity and reliability study conducted in the USA, while the 10th item with the sequence number in the scale did not explain the children's performance, 18th item was not included in the factor analysis due to its low factor load value. However, as a result of the validity and reliability study in Turkey, these two items (10th and 18th) explained the performance of children in Turkey. Additionally the 13th item that explained the emotion regulation performance of the children in America did not explain the performance of children in Turkey.

16 items of the original scale, which included 17 items, that were valid and reliable in Turkey, explained the positive emotions and attention regulation performances of children. This shows that the PSRA is a valid and reliable assessment tool in both sub-dimensions. The results obtained from the calculation of total item correlations of these items showed the scale was suitable for assessing the self-regulation of children in Turkey. This difference in original scale and the adapted scale in Turkey may be due to cultural differences.

The Cronbach alpha (α) coefficient calculated to determine the reliability of the scale was 0.83. Tests with a reliability coefficient of 0.70 and above are considered to be sufficient for the reliability of the test scores (Buyukozturk, 2011). Therefore, the PSRA can be considered to be a reliable assessment tool for evaluating the self-regulation of children in Turkey. The Cronbach alpha reliability coefficient (α) for the sub-dimensions of the scale was 0.88 for Attention/Impulse Control and 0.80 for Positive Emotion. The reliability coefficient of the overall scale and the reliability coefficients of both factors were found to be sufficient. The Spearman Brown correlation coefficient for test-retest reliability was 0.86. This showed that the scale performed consistent evaluation. The Preschool Self-Regulation Assessment is a reliable test for assessing children's attention, emotions and impulses. As impulsivity level is associated with behavior regulation, the PSRA can yield an evaluation encompassing all three sub-dimensions of self-regulation. In another study in which the PSRA was used, Raver et al. (2011) determined that it had a two-factor construct. In their study, the Cronbach alpha reliability coefficient for the Attention/Impulse Control sub-dimension of the scale was determined to be 0.92.

Descriptive analysis results of the scale showed that the children scored an average of 38.72 in the overall scale. Considering that the highest possible score for the overall scale was 48, it can be said that the 233 children participating in the study had high levels of self-regulation. In the Attention/Impulse Control sub-dimension, the average score of the children participating in the study was identified as 26.50. Also in the sub-dimension, in which the highest score 30, it is possible to state that the children exhibited high levels of self-regulation as they did in the overall scale. In the Emotion Control sub-dimension, the average score of the children was 12.22. Considering that the highest possible score of the dimension was 18, it can be expressed that, in consistency with the overall scale and the Attention/Impulse sub-dimension, the children showed high performance levels.

Based on the results of the study, the PSRA can be considered to be a valid and reliable tool for evaluating the self-regulation skills of preschool children in Turkey. Administering the scale to and conducting criterion-based validity studies and factor analysis with larger sample groups will contribute to the validity and reliability levels of the scale positively.

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