



A Study on Developing the Revised Version of the “Conflict Resolution Behavior Determination” Scale (CRBDS)

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Abstract

Conflict resolution is the process where parties come together and exert efforts for a solution with the aim of ending an existing conflict. In the current study, the aim was to test the reliability and validity of the revised version of the Conflict Resolution Behavior Determination Scale (CRBDS) designed to determine the conflict resolution behavior of the middle school students. The sample of the research consisted of 997 6th grade students studying at 3 different middle schools. Analysis results indicated that CRBDS consisted of two-dimensional and 17 items. Two-factor model developed at the end of the CFA was tested and it was detected that the obtained fit indices were considerably better. In addition, concurrent validity results showed that the relationships between CRBDS and similar scales was significant. Cronbach Alpha analysis was done for reliability test. As a result of the reliability and validity tests, it was seen that CRBDS consisted of two subscales and 17 items and it was suitable for application.

Keywords: Conflict, conflict resolution, scale, aggression, problem solving.

Introduction

Conflict resolution is defined as the conflicting parties' intention or effort in doing their best to resolve the conflict by coming together (Jandt & Pedersen, 1996; Van De Vliert, 1997). In the literature, when we examined the conflict resolution theories, we can see mostly; the Dual Concern Theory (Pruitt & Rubin, 1986; Rahim, 1983) and the Social Interdependence Theory (Johnson & Johnson, 1989; Johnson & Johnson, 2005). The roots of the Dual Concern Theory based on the Blake and Mouton's model and Deutsch's the Cooperation and Competition Theory. In this theory, conflict resolution is determined according to giving importance to aim or relationship. Each orientation consists of independent and different combinations of how to high or low degree of self or others. These are described as; forcing, avoiding, obliging, compromising, and problem solving (Deutsch, 1994; Johnson, & Johnson, 1996; Rahim, 1983). The Social Interdependence Theory based on, Gestalt Psychology, Kurt Lewin's the Field Theory and Morton Deutsch's the Cooperative and Competitive Theory (cited in Johnson & Johnson, 2007). In the Social Interdependence Theory, conflicting parties' reaching their goals relies on the acts of the other parties (Deutsch, 1994, Deutsch, 2000; Johnson & Johnson, 1989; Johnson & Johnson, 2005). Interdependence comes out in two different ways. In positive interdependence, parties share the conviction that they have to cooperate with the other parties in order to reach their goals. They strive in finding a solution in which both parties will win. In negative interdependence, the parties believe that their success relies on the failure of the others. Therefore, they prevent the others from reaching their goals in order to achieve their own goals. We can mention a third type, in which there is no interdependence. The dominant perception is that there is no link between an individual's reaching his own goal and the acts of the other party. While a supportive interaction is experienced as a result of positive interdependence, an adverse interaction is experienced in negative interdependence. There is no interaction when there is no interdependence. Research results showed that if the strategies based on cooperativeness such as problem solving, compromising, and obliging, related to positive outcomes on the other hand, competitive strategies such as, forcing and avoiding, related to negative outcomes (Rahim, Magner, & Shapiro, 2000). Positive interpersonal relationships effects psychological health, life satisfaction (Reis & Collins, 2004), and well being (Lansford, 2000). Moreover, in schools, cooperativeness with school mate effects positively to self esteem (Harter, 1994), school competence (Cauce, 1986) and prosocial behaviors of person. On

the contrary, negative behavior like aggression decreases when the cooperative relation was being accepted (Buhrmester, 1990). In addition to these, increasing in the problem solving skill effect decreasing the aggressive behaviors of the students (Arslan, Hamarta, Arslan, & Saygın 2010). When there was a competitiveness in interpersonal relationship, there were aggression, isolation, distrust and antagonism (Johnson & Johnson, 2007). Some research results showed that, when students experience conflict with their peers, some of them prefer to use either power related strategies or withdrawing (Collins & Laursen, 1992). If the bully behavior exhibited by some counterparts that ignore or endure that (Cowie, 2000). And the male students behave more aggressive than the female students (Yavuzer, Karataş & Gündoğdu, 2013). According to cognitive developmental theories, while ones' get older he/she become more competent to understand the other person's view of reference and improve the conflict resolution ability (Selman, 1980). Cognitive development theories claimed that the cognitive development continues at the end of the adolescent (Leyva & Furth, 1986).

Conflict Resolution Behavior Determination Scale (CRBDS) was designed to have two subdimensions as "aggression" and "problem solving" on the basis of positive and negative interdependence in the conflicts encountered in interpersonal relationships. It was thought that students exhibiting aggressive behavior in the conflicts encountered in the school had negative interdependence while students attempting to find a solution serving the desires of both parties had positive interdependence. In this scope, CRBDS which is scale directed at the middle school students, was prepared by assuming that students can react positively (problem solving) and negatively (aggression) in the conflicts that they encounter in their interpersonal relations.

When literature is examined, it is seen that some conflict resolution scales have been developed for determining students' behavior at school. The scale developed by Johnson, Johnson & Dudley (1992) is "Conflict Scenario Written Measures". In this scale conflict scenarios are given to students and ask them to write how they behave if they face with these conflict situations. Another scale developed by Johnson and Johnson (1995) is "What Does Conflict Mean to me?" and its objective is to determine the attitudes of the individuals towards conflict. In this scale, the students are asked to write the first words coming to their minds when "conflict" is mentioned. Afterwards, the words are categorized as positive (positive conflict resolution), negative (unresolved or negative conflict resolution) and neutral (neither positive nor negative).

"Conflict Resolution Scale" is that the other scale was developed in this field (Smith, Daunic, Miller, & Robinson (2002). This scale consists of two sections. In the first section, the need for solving the conflict is assessed while the second section is related to the management of conflict situations. The originally named as "How Do You Deal with Conflict? Conflict Resolution Questionnaire" was adapted into Turkish by Taştan (2004) with the name of "Conflict Resolution Scale". While there are 10 subscales in the original version, there are only two subscales as positive and negative in the Turkish version. When the scales developed by the Turkish researchers are examined, "Conflict Resolution Skills Scale" was developed by Sarı (2005) for the fifth grade students. The scale consists of the subscales of integration, abstention, domination and submission. When the scales developed for the adults are examined, "Conflict Tendency Scale" developed by Dökmen (1986) and "Conflict Resolution Scale" developed by Akbalık (2001) come into prominence. Other scales developed for adult and adolescent were, Interpersonal Problem Solving Inventory (Çam & Tümkaya, 2008) and Interpersonal Conflict Resolution Approach Scale developed by Goldstein and adopted to Turkish form by Aslan (2005).

As it is seen in the literature review, there is not a sufficient scale developed for determining the conflict resolution behaviors of the middle school students. However, it is of great importance to determine how students resolve their conflicts within the scope of the guidance activities aimed at preventing the acts of violence in the schools. Furthermore, it is assumed that it will contribute to testing whether the programs to be prepared will help the students acquire the positive conflict resolution skills. The aim of this study is to conduct the reliability and validity tests of the revised version of the “Conflict Resolution Behavior Determination Scale” designed to determine the conflict resolution behaviors of the individuals in the interpersonal relations. To this end, four different sample groups were studied.

Methods

Study Group

A sample of the research consisted of 997 students studying in the 6th grades of three different middle schools in the city center of Aydın. The first group, 265 (53.8%) of the participants were female, 228 (46.2%) were male, total 493 participants. The age range of participants was 10 to 13 and the mean was 12.06 (SD= .41). The first group was used for exploratory factor analysis and parallel analysis. The second group, 232 (48.9%) of the participants were female and 240 (50.6%) were male and 2 students did not specify the gender, total 474 participants. The age range was 11 to 14, the mean was 12 (SD= .45). Data which was getting from second group was used for confirmatory factor analysis. The last group, 17 (56.7%) of the participants were female and 13 (43.3%) were male, total 30 participants. The age range was 11 to 14, the mean was 12.17 (SD=.53). The last group was used for concurrent validity. For analyzing Cronbach Alpha, both first and second group data were used.

Data Collection Tools

Concurrent validity analysis was carried out in developing the Conflict Resolution Behavior Determination Scale (CRBDS). The correlation coefficients between the subscales of CRBDS and Aggression Scale and Conflict Resolution Scale were used.

Aggression Scale

In order to determine the aggressive behaviors of the adolescents, Aggression Scale was developed. It was adapted into Turkish by Kuzucu and Özdemir (2013). The explanatory factor analysis revealed that the scale had two subscales. 9 items of the scale consisting of 11 items in total constitute the subscales of “physical and verbal violence” and explain 40.6% of total variance. The remaining 3 items constitute the subscales of “anger” and explain 5% of total variance. The Cronbach Alpha coefficient was found at .87 and .88, respectively.

Conflict Resolution Scale

The originally named as “How Do You Deal with Conflict? Conflict Resolution Questionnaire” was adapted into Turkish by Taştan (2004) with the name of “Conflict Resolution Scale”. While the scale originally consisted of 10 subscales, the Turkish version included only two subscales as positive and negative. Internal consistency coefficients of the first and the second subscale of the scale were found as $r=.82$ and $r=.73$, respectively. The internal consistency coefficient of the whole scale was found to be $r=.73$.

Process

First developmental process of CRBDS

In order to determine the conflict situation, a group of students who were in 6th, 7th, and 8th grades, were asked to write their conflict and conflict resolution behavior with their peer, teacher and the other stuff in the classroom, in the garden or in the canteen. And then based on literature and students' response, 64 items were written. Conflict resolution behaviors, such as; violence, aggression and withdrawing which were taken as negative subdimensions, and problem solving which were taken as positive subdimension. For the content validity, opinions of the experts working in the field of Psychological Counselling and Guidance in the Department of Psychological Services in Education in Ankara University were received. They were asked to evaluate each item according to content and expression form of the items and also they can add if it was necessary. After correcting the items according to experts suggestions, the scale was applied to a group of students in the 6th, 7th, and 8th grades.

For construct validity, principal component analysis and exploratory factor analysis with varimax rotation were used. The analysis showed that the scale has two basic subdimensions which were aggression and problem solving. The results illustrated that each item had a load value above .40. Item analysis was carried out in order to determine the distinctiveness levels of the items in terms of conflict resolution behaviors, which revealed that total item correlations were above .30. Reliability of CRBDS was tested with test-retest reliability analysis and the reliability values of the subdimensions of aggressiveness and problem solving were found as $r = .64$ and $r = .66$, respectively. Internal consistency of CRBDS was analyzed through Cronbach Alpha and the internal consistency coefficients of the scale were found to be $r = .85$ and $r = .83$ for the subdimensions of aggressiveness and problem solving, respectively. First developmental study's results showed that, CRBDS has two factors which were aggression (swearing, fighting, threats, silence attack) and problem solving (compromise, cooperation). It was Likert type scale (Koruklu, 1998).

A process of developing the revised version of the scale

A sample, who were used to the reliability and validity of the revised version, consisted of 997 students studying in the 6th grades of three different middle schools in the city center of Aydın. Researcher gets research permission from Education Minister of Aydın. Data which was getting first group (493 participants) were used exploratory factor analysis and parallel analysis, a second group (474 participants) was used to confirm the model (Confirmatory factor analysis). The last group (30 participants) was used for concurrent validity analysis. Scales were given as a group of students in their school time. While getting the data the school counselor helped the researcher.

Data Analysis

In the analysis of the data, Lisrel 8.54 (Jöreskog, & Sborn, 2001) and SPSS programs were employed. Exploratory factor analysis (EFA), parallel analysis (PA), the confirmatory factor analysis (CFA) was examined. Besides, concurrent validity test was conducted. Cronbach Alpha was examined for the internal consistency within the scope of reliability study of the revised version of CRBDS.

Findings

Results of the Exploratory Factor Analysis and Parallel Analysis

In order to determine the plenary ratings of the correlation between variables and the suitability of the sample, Kaiser- Meyer-Olkin (KMO) was used (Alpar, 2013; Tabachnick & Fidell, 2007). It was used to compare observed partial correlation coefficients with the size of the magnitude of the correlation coefficients (Kalaycı, 2006). KMO value varies between 0 and 1. If the partial correlation comes close to 0, KMO value converges to the 1. The meaning of the value of 1 for KMO, each variable in the scale can be estimated perfectly by the other variables (Alpar, 2013). While KMO value smaller than .50, factor analysis can not use (Çokluk, Şekercioğlu, & Büyüköztürk, 2012). The current study analysis results showed that the value of KMO was .87. If the KMO value is between .80 and .90, it is accepted as “good”(Alpar, 2013; Çokluk, Şekercioğlu, & Büyüköztürk, 2012). Bartlett Test shows that the data has a multivariate normal distribution (Tavşancıl, 2005). When the significance value smaller than .50, *R* correlation or covariance matrix is different from the unit matrix (Şencan, 2005). The current study, Bartlett’s Test of Sphericity value was 2609.99 ($p < .000$).

In order to determine the components or factors of the variables, Eigenvalue, scree plot and Horn’s parallel analysis technique can be used (Erkuş, 2012; Çolakoğlu & Büyükekşi, 2014). In the present study, the analysis results of Eigenvalue showed that the scale has six factors and their Eigenvalue was bigger than 1. While, first factor has 23%, second factor has 10% variance and their total variance were 33%, the other four factors have 6% third factor, 6% fourth factor, 5% fifth factor and 4% sixth factor, respectively. While considering the number of factors, it is important that the factor’s contribution of the total variance (Çokluk, Şekercioğlu, & Büyüköztürk, 2012). The other way of determining the number of factors is scree plot. The scree plot results illustrate that the scale has two clear factors (Figure 1)

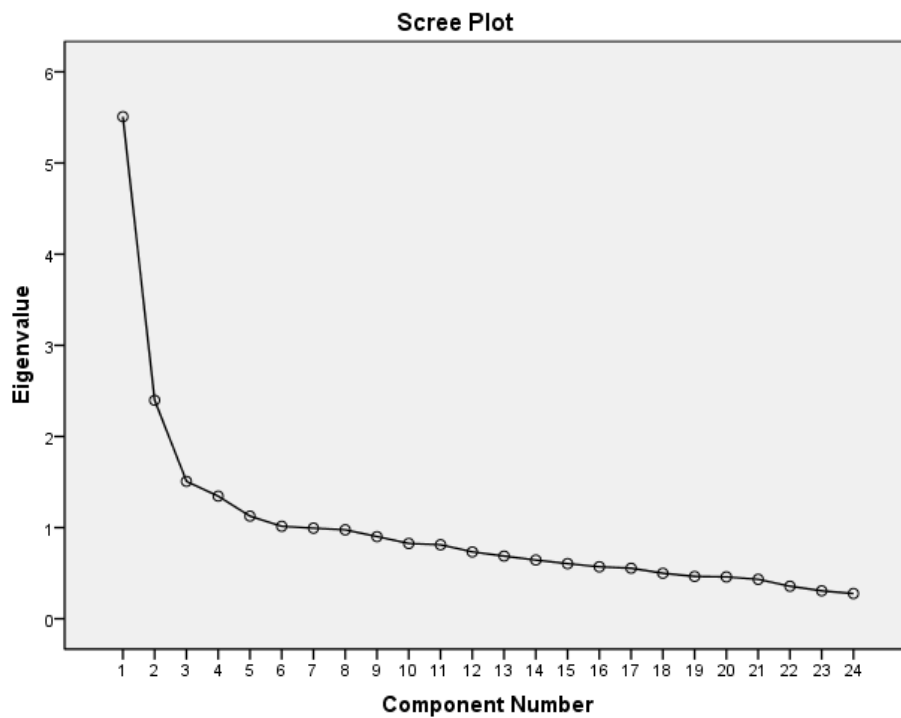


Figure 1. *Scree Plot*

The other technique for determining the factor number of the scale was PA. The comparison between Eigenvalues of EFA and Eigenvalues of PA results was seen in the table 1. It was seen in table 1 that, the Eigenvalues of EFA in the two factors higher than Eigenvalues of PA results. If the Eigenvalue of EFA is higher than the Eigenvalue of PA, the factor structure is proper and if it is lower, the factor structure is improper (Ledesma & Valero-Mora, 2007). In the first two dimensions showed a strong efficacy at the .05 significance level but the third one didn't reach competence. By reaching this conclusion that the EFA process has been initiated.

Table 1. *The comparison of EFA Eigenvalues and PA Eigenvalues results*

	EFA Eigenvalues	PA Eigenvalues	Decision
I.Factor	5.22	1.53	Accept
II.Factor	2.34	1.44	Accept
III.Factor	1.11	1.25	Reject

The Eigenvalues variance, scree plot and PA results showed that the scale has two factors. Since the scale was designed in a two-dimensional structure, it was analyzed as two factors in the EFA. As it is more appropriate to select the items with factor loads higher than .45 in EFA (Büyüköztürk, 2005), the items (2, 3, 4, 5, 6, 9 and 11) having load values lower than .45 and taking the load value in the two factors and the difference in the two is greater than .10, were taken out of aggression and problem solving subscales of the scale. The analysis was repeated with the remaining 17 items. The item factor load values of the subscales and item total correlation of the scale are given in Table 2.

Table 2. *Factor structure of CBRS and item analysis*

Items	Aggression	Problem Solving	Item Total Correlation
	Factor Load	Factor Load	
Item 17	.81	.13	.74
Item 13	.79	.10	.71
Item 19	.77	.14	.70
Item 15	.73	.10	.64
Item 23	.72	.19	.65
Item 7	.69	.12	.61
Item 21	.67	.18	.60
Item 1	.61	.06	.51
Item 20	.09	.60	.45
Item 24	.08	.59	.45
Item 8	.02	.59	.42
Item 12	.03	.58	.42
Item 18	.08	.58	.43
Item 22	.20	.56	.44
Item 14	.14	.56	.43
Item 16	.11	.53	.40
Item 10	.21	.51	.40

Table 2 shows that, item 17, 19, 13, 23, 15, 21, 1, and 7th the items referred to “Aggression” which was accepted as first factor; item 24, 20, 8, 14, 12, 22, 18, 10, and

16th. the items referred to “Problem Solving” which was accepted as the second factor. The item-total correlations for all items were above .40. As for the variance explained by the scale, the total variance explained by the scale was found to be 43.55%, which comes from 30.18% for the first factor or “Aggression” and 13.37% for the second factor or “Problem Solving”.

Findings related to the Validity Tests of CBRS: Results of the Confirmatory Factor Analysis

CFA of the scale was carried out with Lisrel 8.3 program (Jöreskog & Sörborn, 1993). CFA assesses the conformity degree between the actual variables and the theoretical variables (Sümer, 2000). In line with the model, the hypothesis that the items would be explained by two factors and 8 items would be under the factor of aggression while the remaining 9 items would be under the factor of problem solving was tested. The CFA confirmed the two-factor structure of the scale in terms of the Chi-square value ($\chi^2=314.64$, $n=474$, $df=118$, $\chi^2/df=2.67$, $p=.000$) and the values of fit index (RMSEA=.059, GFI=.93, CFI=.96, AGFI=.93, NFI=.93, NNFI=.95, SRMR=.051). The values of fit index given by the analysis demonstrated a good fit between the model and the observed data (Şimşek, 2007). In the table 3, standard Lambda, t , standard error, and R^2 values were given.

Table 3. Items, Standard Lambda (λ), t , se and R^2 values

Factor	Items	λ	t	s.e.	R^2
Aggression	Item 17	.81	20.54	.58	.66
	Item 13	.74	17.99	.86	.55
	Item 19	.71	16.98	1.11	.51
	Item 15	.71	16.92	.75	.50
	Item 23	.61	13.90	1.10	.37
	Item 7	.62	14.21	1.08	.38
	Item 21	.66	15.41	.81	.44
	Item 1	.48	10.44	.99	.23
Problem Solving	Item 20	.49	10.02	1.47	.24
	Item 24	.53	10.83	1.21	.28
	Item 8	.40	8.06	.92	.16
	Item 12	.49	9.97	.82	.24
	Item 18	.58	12.22	1.11	.34
	Item 22	.56	11.66	1.00	.31
	Item 14	.52	10.71	.86	.27
	Item 16	.51	10.55	1.09	.26
	Item 10	.51	10.40	.96	.26

When table 3 considering, standardized parameter values were between .48 - .81 for aggression, and between .40 - .58 for problem solving. And also, it was seen that R^2 values changed between .23 - .66 in aggression and .16 - .34 in problem solving dimension. In addition, t values were between 8.06 and 20.54 and statistically significant ($p < .05$). As a sum, results of CFA showed that the adequate fit between hypothesis model is reached as a result of exploratory factor analysis and data support the validity of CRBDS.

The relationship between the scores of the subscales of the CRBDS and the scores of the similar scales was analyzed for concurrent validity. Aggression and Conflict Resolution Scales were used for the concurrent validity of CRBDS. Relation coefficient is calculated as .57 between aggression subscale of CRBDS and problem solving; .45 between problem solving subscale and CRS/P ($p < .05$).

Results related to Reliability Tests of CRBDS

Cronbach Alpha internal consistency coefficient was calculated within the scope of the reliability test of the scale. Cronbach Alpha internal consistency coefficient was calculated two times with the data obtained from both the first group (474) and the second group (493). Results are given in Table 4.

Table 4. *Internal Consistency Coefficients*

CRBDS	Internal Consistency <i>n</i> = 474	Internal Consistency <i>n</i> = 493
Aggression	.87	.84
Problem Solving	.75	.75

* $p < .01$

As is seen in Table 4, internal consistency values were higher than .75 for two groups of CRBDS are statistically significant ($p < .01$).

Discussion and Conclusion

In this study, reliability and validity tests of the revised version of CRBDS were carried out. Item factor loads and common factor variance values were adequate load for measuring the conflict resolution (Hair, Black, Babin, Anderson, & Tatham, 2006). In order to consider the number of components eigen values, scree plot and parallel analysis, which is an important technique for determining the number of factors (Thompson & Daniel, 1996), were used (Erkuş, 2012; Çolakoğlu & Büyükeksi, 2014). Results showed that the scale has two factors. Also, PA results, values for two components were lower than the EFA results values. That means, two components of the scale were adequate (O'Connor, 2000). It was seen that fit index values of CRBDS obtained at the end of the CFA analyses were at the desired level. The studies conducted so far report that GFI, AGFI, NFI, NNFI and CFI values should be above .90 and additionally, RMSEA and RMR values' being lower than .10 is indicative of model's compliance with the actual data (Marsh, Balla, & McDonald, 1988; Tabachnick & Fidel, 2007). The fact that GFI, AGFI, NFI, NNFI and CFI values found in this study were above .90 and RMSEA and RMR values were rather below .10 may indicate that the two-dimensional structure of CRBDS has a good fit for this group. Accordingly, CRBDS was confirmed by the subscales of aggression and problem solving where positive and negative approaches theoretically put forward in problem solving were represented and was compatible with the results of EFA. Lester and Bishop (2000) reported that the result of the structure validity analysis should reflect the original-set conceptual framework and this study met the desired criterion. According to the obtained findings, CRBDS was confirmed to be a 17-item scale consisting of the subdimension of aggression and problem solving.

It is seen that item-load values of CRBDS vary between .81 and .61 for the first factor of the revised version and between .60 and .56 for the second factor of the revised version. It is reported in the literature that the factor load values of the items' being above .40 shows that these items are "very good" (Tabachnick & Fidel, 2007) and accordingly, we can state that the items of CRBDS are very good. In addition to the structure validity

test of the scale, the concurrent validity test was carried out as well. Two different scales (CRS and AS) were used in relation to two subscales of the scale. When the obtained results were evaluated, it was detected that there was a significant relationship between the subscales of CRBDS and similar scales. Considering the coefficients of relations, it was seen that a relation existed between the AS and the “subscales of aggression” at the level of .57 and between CRS/positive factor and the “subscale of problem solving” at the level of .45. As a conclusion, CRBDS has a good level of relation with similar scales (Tabachnick & Fidel, 2007).

Within the scope of the reliability test, internal consistency analyses were carried out. It was seen that Cronbach Alpha coefficients calculated with two different data sets were sufficient (Aggression; .87; .84; Problem Solving; .75; .75 $n=474$ and $n=493$). A high internal consistency in the scale demonstrates that the items of CRBDS are completely consistent and it is evaluated as an indicator of structural validity (Şencan, 2005). These values are deemed sufficient for the reliability (Büyüköztürk, 2005).

As sum, when the results of the current study were evaluated, CRBDS has 17 items and two factors (aggression and problem solving) and has appropriate psychometric properties for using to determine the conflict resolution behavior exhibited in the interpersonal conflicts. Also, it was Likert style scale (EK 2). CRBDS, expected to fill an important gap in the literature, can be used for the violence prevention program to determine students' behaviors. Particularly, school counselor and teacher make use of the scale for determining aggressive students and in order to test the effectiveness of prevention programs. The scale has 17 items which provide ones' to apply it easily, increases usefulness.

The limitations of this study may result from the fact that the sample consisted of only the 6th grade students studying in a school located in a city in the west of Turkey. Reliability and validity studies can be repeated with different samples and different culture.

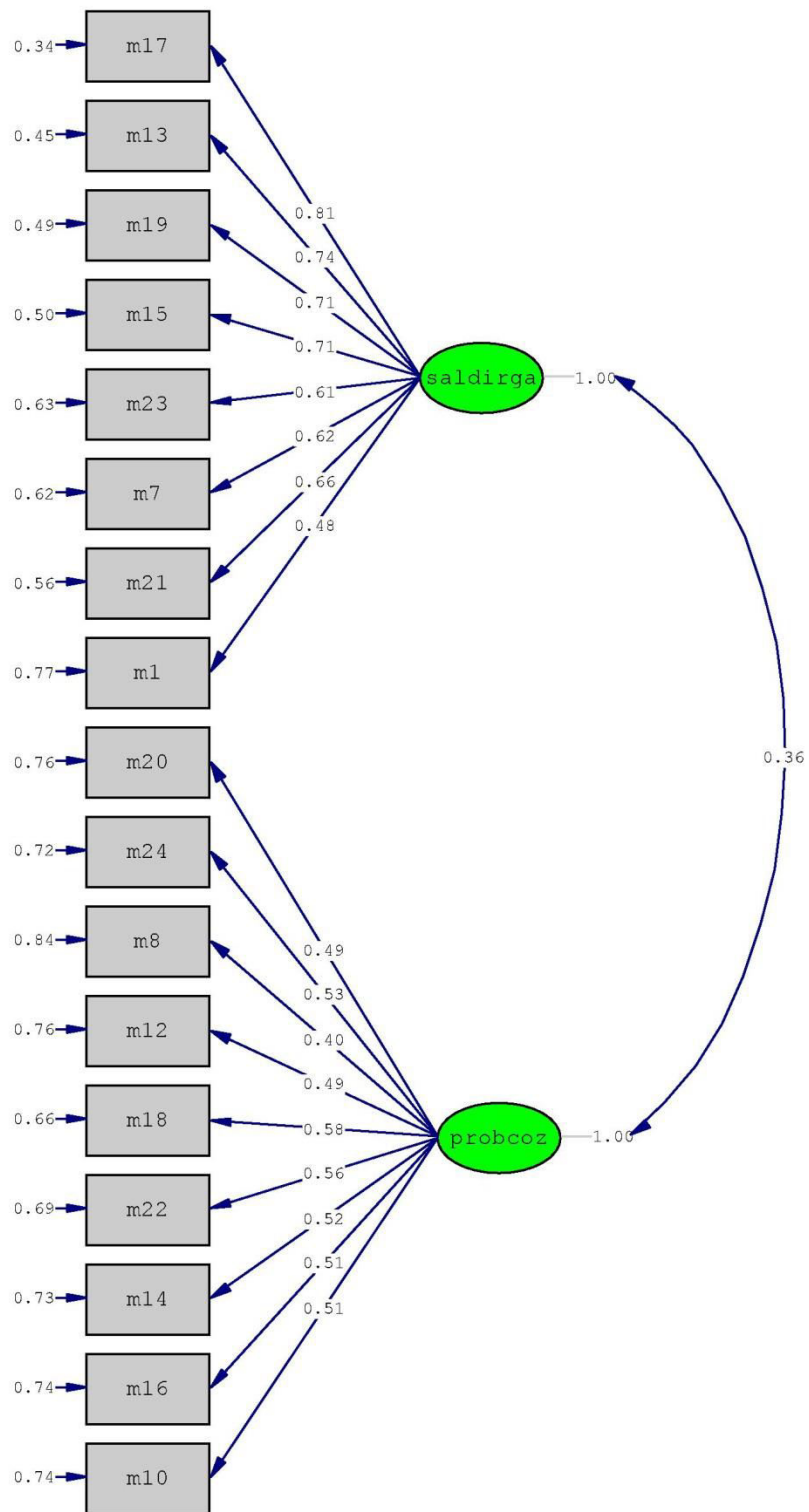
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Chi-Square=314.64, df=118, P-value=0.00000, RMSEA=0.059