PSYCHOMETRIC PROPERTIES OF STUDENT-TEACHER RELATIONSHIP SCALE – SHORT FORM: CROATIAN VALIDATION STUDY FROM PRESCHOOL EDUCATION CONTEXT

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Abstract

Having in mind the importance of the relationship between children and their preschool teachers, the research about the quality of its measurement should present one of the main research focuses in overall early and preschool care and education studies. Previous studies clearly demonstrated that positive and close relationships between children and teachers resulted with higher level of socio-emotional and cognitive development of children in a long run. On the other side, the child-teacher relationship that is full of conflicts and bad feelings very negatively influence on children learning outcomes and developed behavioural patterns. Generally, children mental health is significantly determined by these early relationships with significant others in the educational context. Therefore, it is very important to develop and validate the measures that could contribute to understanding and measurement of children-preschool teachers' relationship. One of that measure is Student-Teacher Relationship Scale, short form (STRS; [1]). It is created with the purposes of measuring overall quality of the relationship between students (aged from 3 to 8) and their teachers. The relationship patterns that are originally should measure within the long form (28 items) are closeness, conflict and dependency. The short form is consisting of 15 items, which are measuring closeness (positive relationship) and conflict (negative relationship).

In this study, after expert translation, STRS-short form has been applied in the sample of 161 preschool teachers who rated their relationship with the vulnerable preschool children, i.e. with the preschool children living in risk life conditions: children who are members of discriminated groups (i.e. Roma minority), children from the social care, children from the violent families, children from low stimulating families, children with developmental disabilities and special needs, and children from families with chronically ill member(s). The sample of preschool teachers was from different kindergartens in Primorsko-Goranska County in Croatia.

The exploratory and confirmatory factor analysis with extraction method Principal Components and Varimax rotation with Kaiser Normalization were run. EFA resulted with four factors, which explained 59.555% of total variance. However, when two factors were specified, CFA results were psychometrically satisfactory. So, CFA confirmed hypothesized two-factor structure of STRS and explained 44.487% of total variance (the first factor Conflict explained after rotation 22.315% and the second factor Closeness explained after rotation 22.172% of the total variance). Rotated component matrix showed the lowest loading of the item four (*"This child is uncomfortable with physical affection or touch from me"*) what should be taken into account in future studies. Determined reliability levels Cronbach alpha were satisfying: for Conflict subscale α = .766 and for Closeness subscale α = .804. The determined findings have discussed within the suggested guidelines for future research studies: applying adjustments in translation; running focus groups with preschool teachers with the aim of creating culturally original STRS-items; and the application of the long form of STRS scale.

Keywords: child-preschool teacher relationship, closeness, conflict, reliability, STRS, validation.

1 INTRODUCTION

Within contemporary early and preschool care and education, the quality of its measurement presents one of the main research focuses, especially in the light of the importance of the relationship between children and their preschool teachers. Robert C. Pianta ([2]) has been provided a comprehensive review of the importance of the relationship between children and adults in the educational context. His pioneering work and many other studies clearly demonstrated the significant role of this relationship regarding children's emotional, social and academic competences at all educational levels ([2], [3], [4], [5], [6], [7]). In general, previous studies clearly demonstrated that positive and close relationships between children and teachers re with higher level of socio-emotional and cognitive development of children in a long run ([3], [8]). Analyzing different developmental aspects of children,

research studies have showed that children's self-regulation and emotional development ([9]), peer relations development ([10]), and various school competences (motivation attention, thinking, problem solving, academic self-esteem) ([11]) have been strongly supported by warm and quality student-teacher relationship. On the other side, the child-teacher relationship that is full of conflicts and bad feelings very negatively influence on children learning outcomes and developed behavioural patterns. Generally, children mental health is significantly determined by these early relationships with significant others in the educational context, especially regarding his or her social development ([12]).

The attachment theory has been the basic theoretical background of studying child-teacher relationship from the beginning ([7]). This theoretical approach has four major contributions in defining, conceptualizing, operationalizing and researching the students-teacher relationship. First, attempting to conceptualize the level of quality on the relationship between student and teacher, the affective quality of that same relationship, the concept that comes from attachment theory, has been emphasized. This was very helpful in creating the items for the pilot version of STRS or Student-Teacher relationship scale ([13]), which has been reviewed by preschool teachers. Furthermore, after several validation studies the first versions of this scale revealed three-factor structure that consisted of: closeness, conflict and dependency ([8]). Again, three factors that could be easily connected with the basic attachment style defined by attachment theory. Secondly, assessing the quality of the students-teacher relationship, the significance of teacher's responsiveness or sensibility to students' needs as the major determinant of their relationship has been put into the focus of related research studies. These characteristics of teachers or adults play the major role in the attachment theory regarding the outcome of the attachment development. Third, the major postulates of the attachment theory helped in defining research hypotheses that were related with consequences of the relationship between student and teacher. Finally, trying to explain these consequences by recognizing the basic intervening mechanisms in the classroom, the interventions that could help in creating and developing the positive child-teacher relationship, have been also recognized within attachment theory.

Learning, living and playing in the institution of an early and preschool education, children are challenged by numerous factors that could be perceived by them as positive or negative. Within that process, especially if adjustment to kindergarten is taking place at the moment, the relationship with the preschool teachers has the major role and effect on children's adjustment. In the situation of the adjustment of younger, more vulnerable children or children from risk groups, the preschool teachers have the role of the secure base, and it is of a greater importance for them. Establishing close relationship with children, preschool teachers are able to facilitate their adjustment to kindergarten and their overall development ([14]). On the other side, the vulnerability of the children could negatively affect the child-teacher relationship, more or less depending on the vulnerability type ([15]). Regarding the importance of this subject matter, the attempts of the objective measurement of this relationship has the important place within the quality of the preschool teachers' work. Therefore, it is very important to develop and validate the measures that could contribute to understanding and measurement of children-preschool teachers' relationship. One of that measure is previously mentioned the Student-Teacher Relationship Scale, short form (STRS; [1]). It is created with the purposes of measuring overall quality of the relationship between students (aged from 3 to 8) and their preschool teachers. The relationship patterns that are originally should measure within the long form (28 items) are closeness, conflict and dependency. The short form is consisting of 15 items, which are measuring closeness (positive relationship) and conflict (negative relationship). Since, there has not been STRS-application and validation studies in Croatia, it was very important to run this particular research.

2 METHODOLOGY

2.1 Subjects

In this study, adapted STRS-short form ([1]) has been applied on the convenient sample of 161 preschool teachers. They are working in the kindergartens from twelve different cities in the Primorsko-goranska County, which managements agreed to participate in this study. After getting the instructions, they have rated their relationship with the preschool children who were coming from various risk groups and it was the most difficult to work with. The categories of the preschool children who were living in risk life conditions were: children who are members of discriminated groups (i.e. Roma minority), children from the social care, children from violent families, children from low stimulating families, children with developmental disabilities and special needs, and children from families with chronically ill member(s).

2.2 Measure and Procedure

STRS-short form ([1]) has been applied in this study. It consists of fifteen items that measured two dimensions: Closeness (seven items) and Conflict (eight items). It has been back-translated ([16]) by English and Croatian language experts. Preschool teachers were instructed to rate their relationship with the one children from the risk groups that was the most difficult to work with on the 5-point Likert's scale (*1-definitely does not apply; 2-not really; 3-neutral, not sure; 4-applies sometimes; 5-definitely applies*). Previous research studies have demonstrated satisfactory psychometric properties of this scale on the normative sample (N = 1535 children): Cronbach alphas for Closeness α = .86 and Conflict α = .92; and test-retest reliability for Closeness r = .88 and Conflict r = .92 ([8]). Filling the scale was five minutes long, only groups' results were analyzed and the anonymity and confidentiality of gathered data were assured.

3 RESULTS & DISCUSSION

Overall, the exploratory and confirmatory factor analysis with extraction method Principal Components and Varimax rotation with Kaiser Normalization were run.

At the first step, exploratory factor analysis with extraction method Principal Components and Varimax rotation with Kaiser Normalization resulted with four factors, which explained 59.555% of the total variance. However, with the aim of testing the theoretical model of student-teacher relationship ([8]), that has proposed two-factor structure; in the second step two factors were defined.

In the following confirmatory factor analysis with extraction method Principal Components and Varimax rotation with Kaiser Normalization, and with two specified factors, original STRS structure was confirmed. Confirmatory factor analysis results were psychometrically satisfactory. Therefore, at the second research step hypothesized two-factor structure of STRS was confirmed. This two-factor solution has explained 44.487% of the total variance, what was satisfactory solution. The final rotated component matrix from the Principal Component Analysis with Varimax rotation, communalities and descriptive parameters of each item could be observed in the Table 1.

The first factor *Conflict* has explained after rotation 22.315% of the total variance and the second factor *Closeness* has explained after rotation 22.172% of the total variance. Based on content analysis from the Table 1, it could be seen that all items that originally belong to the subscale Conflict are placed in that particular subscale. Same situation could be found for the subscale Closeness. However, even though items were distributed according proposed two-factor structure, their loadings are showing that there is a place for improvement of this scale.

First, this rotated component matrix showed the lowest loading of the items four: *"This child is uncomfortable with physical affection or touch from me"*, which belongs to the subscale Conflict. This should be definitely taken into account in future studies or in the revalidation study, since it is possible that the item wasn't understandable due to translation.

Furthermore, three items have loadings on both factors: *"This child's feelings toward me can be unpredictable or can change suddenly"* (Conflict item); *"When I praise this child, he/she beams with pride"* and *"This child openly shares his/her feelings and experiences with me"* (both Closeness items). Therefore, the main conclusion would be that even though confirmatory factor analysis showed proposed two-factor structure of applied STRS, its translations should be checked again, and it should be applied in the greater and random sample of preschool teachers.

Table 1. *The final Rotated Component Matrix from Principal Component Analysis (1-Conflict; 2-Closeness) with Varimax rotation, communalities and descriptives (Means and Standard Deviations)*

STRS-items	M	SD	Communalities	Principal Components 1	Principal Components 2
Dealing with this child drains my energy.	3.63	1.00	.485	.815	
This child easily becomes angry with me.	2.84	1.28	.670	.693	
When this child is in a bad mood, I know we're in for a long and difficult day.	3.92	1.06	.562	.672	
This child's feelings toward me can be unpredictable or can change suddenly.	2.66	1.22	.519	.642	-.244
This child remains angry or is resistant after being disciplined.	4.32	.96	.481	.625	
This child and I always seem to be struggling with each other.	2.79	1.25	.472	.618	
This child is sneaky or manipulative with me.	3.66	1.21	.430	.482	
This child is uncomfortable with physical affection or touch from me.	2.34	1.40	.098	.296	
I share an affectionate, warm relationship with this child.	3.98	.99	.463		.731
This child values his/her relationship with me.	4.34	.94	.543		.727
If upset, this child will seek comfort from me.	4.17	1.00	.478		.684
It is easy to be in tune with what this child is feeling.	3.27	1.30	.453		.660
This child spontaneously shares information about himself/herself.	2.14	1.14	.390		.653
When I praise this child, he/she beams with pride.	2.31	1.23	.393	-.254	.645
This child openly shares his/her feelings and experiences with me.	1.98	1.13	.237	-.319	.619
Eigenvalues				3.347	3.326
% of Variance				22.315%	22.172%

Table 2 shows basic descriptive parameters (Mean, Standard Deviation, Range, Skewness and Kurtosis) of results on Closeness and Conflict subscales. In addition, Figure 1 presents the means of Conflict and Closeness. Comparing determined descriptive parameters with those from Pianta's ([8]) normative study, it could be seen that preschool teachers in this study reported the same level of closeness with the children from risk groups. However, they have rated higher level of conflict, than did the preschool teachers from normative study ([8]). This could be explained by different methodology used in these two studies. In this study preschool teachers have rated their relationship with the child from the risk group with whom they had the hardest work, while in the normative study preschool teachers have rated all children from their kindergarten group under age five ([8], p. 19).

Furthermore, the same table demonstrates the determined reliability levels Cronbach alphas for each subscale and their intercorrelation (Pearson coefficient). Even though reliabilities determined in this study are smaller than in the original validation study, they were still satisfying: for Conflict subscale α = .766 and for Closeness subscale α = .804. Again, as it was concluded after applied factor analysis, it is possible that lower reliability is the result of some translation characteristics, what should be corrected in the future studies. The intercorrelation between Conflict and Closeness is r = -.170 (p > 0.05). In comparison to normative study, this is expected negative correlation between closeness and conflict. As theoretical model presumes, as closeness arises between a child and preschool teachers, at the same time the possible conflict among them is reduced. However, its significance is rather small in comparison to the one determined in normative study ([8]), what could be explained by relatively small sample used in this study.

Table 2. *Descriptives: Means (M), Standard Deviations (SD), Cronbach alpha reliability coefficients and intercorrelations for all SDQ-subscales*

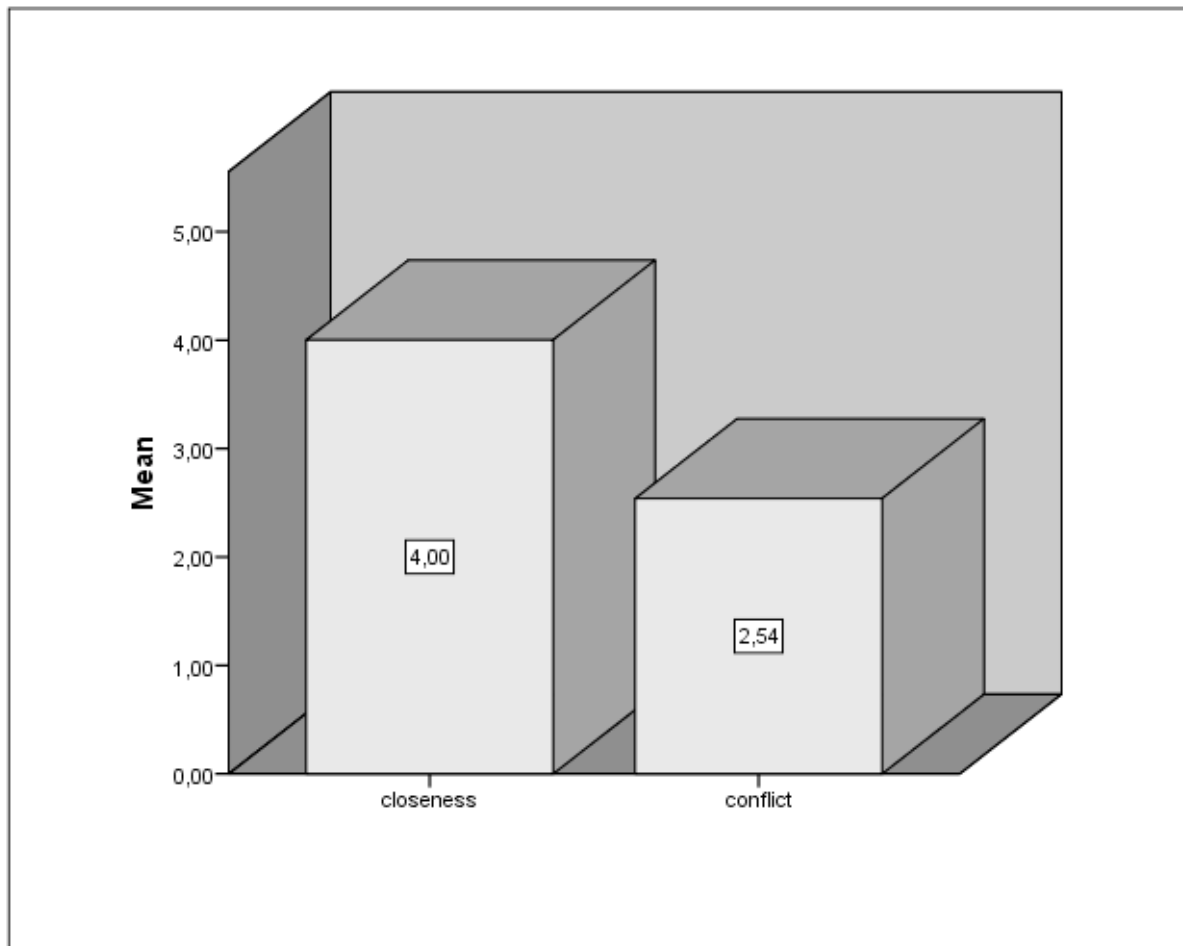| STRS-subscales	Descripitve parameters					Cronbach alpha	STRS-subscales intercorrelations
	M	SD	Range	Skew	Kurt		
Conflict	2.54	.77	1-4.50	-.11	-.43	.766	**-.170***
Closeness	4.00	.70	1.57-5.00	-.70	.49	.804	

*p < 0.05; **p < 0.01

Figure 1. Means of Closeness and Conflict

4   CONCLUSIONS

As it was supposed, the two-factor structure of the STRS-short form ([1]) has been confirmed. Confirmatory factor analysis that was applied resulted with the factors that explained 44.487% of total variance. Factor structure of the STRS-short version translated to Croatian language is not an ideal one, what was explained by the factors such as: small and convenient sample, possible translations specificities, and the fact that preschool teachers have rate their relationship with the child from one of the risk groups described above with whom they had the hardest work experience. Therefore, besides the main contribution of this study as the pioneer one in Croatia, other contributions are laying in concrete guidelines for future research in the field of the relationship between preschool teachers and preschool children. Also, the suggestions for running focus groups with preschool teachers with the aim of creating culturally original STRS-items and the application of the long form of STRS scale could be useful to apply and test.

Empirical research about analyzing the relationship between children and their preschool teachers is the basic prerequisite for creating the possibilities for its enhancement. If a preschool teacher has the objective and valid measure of her(his) relationship with the child(ren), (s)he has the possibility of detecting strong and weak sides of that relationship. If higher level of conflict is present, preschool teacher could use a set of techniques (i.e. Banking Time) that are designed to strengthen her/his relationship with the child(ren) and consequently promote child(ren) preschool success ([17]). Having positive emotional connection is important equally to the child(ren) and the preschool teachers. Therefore, it is very important to direct future studies in enhancing valid measures for studying child-teacher relationship, and strengthen preschool teachers to create the pedagogical methods and environment for improving their relationship with the child(ren).

ACKNOWLEDGEMENTS

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