



The psychometric properties of the Turkish version of the multidimensional neglectful behavior scale-child report (10–15 years form)

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Abstract

The purpose of the present study was to adopt the Multidimensional Neglectful Behavior Scale – Child Report (10–15 Years) into Turkish and to examine the psychometric properties of the Turkish version. The participants of the study were a total number of 160 children (81 female and 71 male) between the ages of 10 and 15 who were recruited from a primary, a secondary and a high school in Nicosia, north Cyprus which is the Turkish population of the island. In terms of the validity analysis, construct and criterion related validity analysis were both conducted. Confirmatory factor analysis revealed a construct of 6 factors and 35 items for the Mother Form and a construct of 7 factors and 41 items for the Father Form of the scale. In the criterion-related validity analysis, both the Mother and the Father Forms were found to be significantly correlated ($p < 0.05$) with the criteria measures. In terms of the reliability analysis, the internal consistency coefficients were computed by employing the KR-20 method. The reliability coefficient was found to be .832 for the total neglect score of the Mother Form and .908 for the total neglect score of the Father Form. According to these results, the Turkish version of the MNBS-CR (10–15 Years) is a reliable, valid and psychometrically sound instrument that can be used for assessing child neglect in a Turkish sample.

Keywords Child neglect · Neglectful behavior · Psychometric properties

Introduction

Child neglect is amongst the most significant societal problems and has been described as an international problem by the World Health Association (2014). Child neglect, as one of the most common types of child maltreatment (Honor 2014; Jones and Logan-Greene 2016; Straus and Savage 2005), is defined as the situation where adults are deficient in meeting the needs, as well as maintaining the welfare and protection of the children they are responsible for supervising (Glaser 2005; Muela et al. 2012; Weckerle et al. 2008). Due to several reasons, such as increased focus on the concept of abuse as it is easier to diagnose, acknowledgment of child maltreatment as a research topic

specifically by doctors for many years, and the lack of a clear distinction between the concepts of neglect and poverty, child neglect was not studied for many years; it was not studied with the same intensity as physical abuse concepts, and it remained a neglected concept (Gershater-Molko et al. 2003; McSherry 2007; Straus and Kantor 2005). One of the most significant reasons why child neglect has been a neglected subject for such an extended period was the difficulties in identifying the boundaries of an attitude or a behavior that refers to the absence of appropriate care (Stoltenborgh et al. 2013). As abusive actions result in more tangible and visibly injurious forms of child maltreatment, such as physical and sexual abuse, it is relatively easier to reveal and elaborate on these actions, whereas specifying a vague construct of unsatisfied needs or a lack of care present difficulties when attempting to conceptualize neglect (Beyazıt and Bütün Ayhan 2015; Harrington et al. 2002; Straus and Kantor 2005).

The factors mentioned above also lead to difficulties in the measurement of neglect. There are several instruments that assess child maltreatment, such as the Child Abuse Potential Inventory (Milner et al. 1988), Conflict Tactics Scales (Straus 1989), Childhood Experience of Care and Abuse (Bifulco

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et al. 1994), The Neglect Scale (Harrington et al. 2002), Mother-Child Neglect Scale (Lounds et al. 2004), Maltreatment and Abuse Chronology of Exposure (Teicher and Parigger 2015). However, most of the instruments designed to measure child maltreatment rely on adults' retrospective evaluations of their childhood experiences of abuse and neglect rather than relying children's self-report experiences (Kantor et al. 2004). There are only a few instruments used to assess child maltreatment that are based on children's self-report measures, such as the Parental Acceptance-Reject Questionnaire (Rohner et al. 1980) and the Trauma Symptom Checklist for Children (Briere 1996). All these instruments treat neglect as a unipolar dimension of child maltreatment, whereas neglect is actually a multidimensional phenomenon that encompasses emotional, physical, mental facets, in a similar manner to child abuse (Glaser 2011; Stowman and Donohue 2005; Straus 2004). Furthermore, in addition to the vagueness of the concept, it is also suggested that it is difficult to distinguish between the types of neglect and this makes evaluation more challenging as neglect occurs chronically, unlike other concepts of abuse and various types of neglect can be observed simultaneously (Dubowitz et al. 2005; Gershater-Molko et al. 2003).

The fact that there are only a limited number of measures for child neglect and there is a significant lack of measures considering children as the main reporters of the neglectful parental acts led to the development of the Multidimensional Neglectful Behavior Scale – Child Report (MNBS-CR) (Straus 2004; Straus 2006). The MNBS consists of six different scales developed during the period between 1995 and 2004 aimed at surveying child neglect and conceptually, it is based on the following definition: “child neglect is when the caretaker cannot meet the developmental needs of the child who is culturally accepted under the caretaker's responsibility” (Straus and Kantor 2005; Straus et al. 2008). According to this definition, neglect towards a child can be examined under four categories: physical, emotional, supervisory and cognitive. Physical neglect is defined as the situation in which a child's needs are not met, such as feeding, protection, clothing and medical care (Berry et al. 2003; Solarino et al. 2012); emotional neglect is defined as the situation where needs such as affection, closeness, and support are not met (Lewin and Herron 2007; Rees 2010). Supervisory neglect is defined as not limiting the child, not being interested in the child's wrongful behavior, not caring where the child is and what he/she is doing (Clark et al. 2005; Straus 2006). Cognitive neglect is defined as not meeting the cognitive needs of the child, such as reading together, playing games and helping them with homework (Kantor et al. 2004; Straus et al. 2008).

MNBS has two different forms for children from different age groups: the 6–9 Years form and the 10–15 Years forms. The original scale for the 10–15 Years form was developed by Kantor et al. in 2004 in the United States of America. The

validity and reliability study of the form was conducted with a total of 102 children, whose ages varied between 10 and 15, including a clinical sample with chronically neglected lives ($n = 78$) and a general sample ($n = 24$) that was assumed to have not been exposed to neglect. The reliability analysis of the scale resulted in internal consistency, with a Cronbach's Alpha Coefficient of .95. In terms of the validity analysis of the scale, correlations between the main neglect areas, namely physical, emotional, supervisory and cognitive neglect and the instruments regarding risk factors such as depression, behavioral problems and familial risk factors were examined. The conducted analysis showed statistically significant correlations between total neglect scores and depression in the child ($r = .56, p < .01$), total neglect scores and social desirability ($r = -.31, p < .01$), supervisory neglect and behavioral problems ($r = .41, p < .05$), alcohol abuse and supervisory neglect ($r = -.34, p < .01$), alcohol abuse and physical neglect ($r = -.35, p < .01$), and psychological problems of parents and cognitive neglect ($r = -0.36, p < .01$) (Kantor et al. 2004).

Recently, various forms of the MNBS have been used in several countries, including the United States of America, Canada, England, Brazil, Portugal, Mexico and Israel in order to investigate the frequency and severity of child neglect in studies attempting to determine the reasons and results of child neglect and to evaluate the efficiency of educational programs on the subject (Straus 2004; Straus 2006). However, no scale has been developed in the Turkish literature that is based on children's self-reporting and that evaluates the concept of neglect from a multidimensional perspective. Taking this as the starting point, the current study aimed to translate the MNBS-CR, 10–15 Years Child Form into Turkish and conduct its validity and reliability study. Initially the translation study of the scale from English to Turkish was planned to be conducted. After the completion of the translation study, specialists were planned to be consulted to assess the convenience of the Turkish version of the scale in terms of Turkish language, the efficiency of the items to assess child neglect, the convenience of the pictures on the cards and their comprehensibility by the children. In terms of the validity of the scale, construct and criterion-related validity analysis and in terms of the reliability study the internal consistency analysis were planned to be conducted.

Method

Participants

The participants of the study were children between the ages of 10 and 15 who were recruited from a primary, a secondary and a high school in Nicosia, north Cyprus which is the Turkish population of the island. Varying opinions on sample

size in scale development adaptation studies are available in the field. According to Kline (1994), sample size should be twice the amount of test items taken into analysis. In this regard, it was planned to implement the 66-item Child Form on a minimum of 132 children in the 10–15 age group, with at least 20 children from each age range. In order to select the schools in which the pilot study was to be implemented, the Ministry of National Education was consulted. Information was obtained in respect to the number of primary, secondary and high schools in north Nicosia, as well as the socio-demographic profiles and the number of students enrolled in these schools. Three schools were chosen – one primary, secondary and high school – by considering how they represented the socio-demographic characteristics of the overall population, such as the socio-economic profiles of the students, the number of Turkish Cypriot students and the number of the students who are originally from Turkey that were enrolled in each school. The scale was administered individually to a total number of 160 children in these three schools. However, eight children who did not complete the administration were excluded and consequently, 152 children were included in the study. A total of 53.3% ($n = 81$) of these children were female and 46.7% ($n = 71$) of them were male. In terms of their place of birth, 69.1% ($n = 105$) were born in the north of Cyprus and 28.9% ($n = 44$) were born in Turkey. Additionally, 2% ($n = 3$) of the children were born in a country other than Cyprus or Turkey. In terms of their grades, 15.1% ($n = 23$) of them were attending fourth grade, 18.4% ($n = 28$) of them were attending fifth grade, 15.1% ($n = 23$) of them were attending sixth grade, 15.1% ($n = 23$) of them were attending seventh grade, 20.4% ($n = 31$) of them were attending eight grade and 15.8% ($n = 24$) of them were attending ninth grade.

Instruments

Multidimensional Neglectful Behavior Scale-Child Report (MNBS-CR) 10–15 Years Form

The MNBS-CR 10–15 Years Form was originally developed by Kantor et al. in 2004 in the United States of America. The scale consists of two sets with 66 picture cards in each and is implemented on children between the ages of 10 and 15. In the first set of cards, the children report on their experiences with their mothers, while in the second set of cards, they report on their experiences of their fathers' parenting. MNBS-CR involves 10 sub-scales, including physical, emotional, cognitive and supervisory neglect; depression, failure to protect the child, alcohol use, inclination for socially acceptable responses and general neglect. Each administration lasts approximately 30 min. During administration, the cards in the scale are shown to the children individually. Each card includes drawings that are designed to evaluate the neglect experiences of children. On each card, there are two pictures regarding the

same aspect of neglect, which are displayed on the card side by side. One of the two pictures portrays a child who is neglected. For example, on the first card that assesses physical neglect, the picture on the right side of the card shows a child whose mother is nurturing, whereas the picture on the left side depicts a child whose mother is neglectful. Under the picture on the right side, "This child's mother makes sure that her child takes a bath or shower" and under the picture on the left side "This child's mother doesn't make sure that her child takes a bath or shower" statements are written. In this process, children are shown the cards and asked which child in the drawings they resemble. The responses of the children are recorded in two separate forms, one for the mother and one for the father, and each response that identifies their neglect experiences is assigned one point. In each card, the picture that depicts neglect varies. For example, in the first card of the mother form, the picture on the left side depicts neglect and is scored as one, whereas in the second card, the picture on the right side portrays neglectful behavior and is scored as one. The responses are scored according to a chart that indicates which sub-dimension each card is related to and the responses that will be scored as one in each card. While the scores from the sub-dimensions regarding physical, emotional, cognitive and supervisory neglect can be calculated separately, all sub-scale points can also be totaled to achieve a general neglect score. The minimum neglect score in the original scale is 0 and the maximum neglect score is 49. The points from the scale indicate whether children have neglect experiences or not (Kantor et al. 2004).

Parental Acceptance-Rejection Questionnaire (PARQ)

PARQ is developed by Rohner et al. in order to assess perceived parental acceptance or rejection. It has difference forms for parents and children/adolescents. The child/adolescent form of the scale demonstrates to what extent children between the ages of 9 and 17 perceive parental acceptance or rejection. The child/adolescent form requires two separate forms, one for the mother and one for the father (Rohner et al. 1980; Khaleque and Rohner 2013). In the present study, the Turkish version of Child/Adolescent Form of PARQ was used as a criterion measure in the reliability analysis, as it measures a similar construct with MNBS-CR.

The original PARQ form consists of 60 items. The short version of the scale was based on the longer version and includes 24 items with 4-point Likert Type responses, ranging from "almost never true" (1) to "almost always true" (4). The scale consists of a total of four sub-dimensions, namely Hostility/Aggression, Warmth/Affection, Apathy/Neglect and Differentiated Rejection. The scale is scored as "almost always true" (4), "sometimes true" (3), "rarely true" (2) and "almost never true" (1). The 13th item in the scale is scored reversely. In order to find

the total score, the scores of the Apathy/Neglect, Hostility/Aggression and Differentiated Rejection subscales are added to the transformed raw Warmth/Affection sub-scale score. The maximum score of the scale is 24 and the lowest is 96. Lower scores represent acceptance, while higher scores express rejection. It was determined that the validity and reliability Cronbach's Alpha coefficients of the longer version ranged between .72 and .90. (Khaleque and Rohner 2013). The Child/Adolescent Form of PARQ was adopted into Turkish by Varan (2003). In the adaptation study, the Cronbach's Alpha coefficients of the Mother and the Father Forms were found to range between .82 and .96.

Procedure

As the first step in the study, a letter of application detailing the aims and content of the research was prepared and approval was subsequently obtained from the Ethics Board and Ministry of Education. Data collection started after acquiring the necessary permissions from Murray A. Straus, the developer of the MNBS-CR and Ronald Rohner, the developer of the PARQ. Additionally, the school administrations and the classroom teachers were given information about the study and their permission was also obtained. In each classroom, the children were given information about the study and it was explained that their participation was purely voluntary, and there would be no consequences. The ethical guidelines of the 1964 Declaration of Helsinki were followed during the course of the study and participant anonymity was ensured through the use of coded responses. After completing the implementation, children were given information forms on the content of the study and they were directed to deliver them to their parents.

Prior to the implementation of the pilot study, the scale was translated from English to Turkish by two professional translators. Afterwards, these translations were back translated into English by two independent professional translators. These forward and backward translations were compared to examine the compatibility of the items and the differences among the translations. Finally, four professionals from the fields of child development, psychology and forensic sciences, were consulted to examine the preliminary Turkish version of the scale.

After the completion of the translation study, eight specialists (from the fields of child development, psychology, psychological counselling, social service and psychometrics) were consulted to assess the pictures and the written statements on the cards individually according to the convenience of the Turkish version of the scale in terms of Turkish language, the efficiency of the items to assess child neglect, the convenience of the pictures on the cards and

their comprehensibility by the children. The items upon which the specialists agreed with a rate of at least 90% percent were included in the Turkish version of the scale without any revision. The items that the specialists agreed upon with a rate of 70–80% were revised according to their suggestions. As a result of the assessment conducted by the specialists, the 14th card (This boy's/girl's mother uses drugs and cannot take care of him/her) was eliminated as it was found to be problematic in terms of ethical principles. According to the specialists consulted, asking children questions about an illegal act such as drug use may be harmful and have unfavorable effect on the study as children may feel uncomfortable with the question. Also the parents may regard such inquiry as a violation of their privacy. In terms of the pictures on the cards, the pictures on five cards (3, 5, 12, 29, 42) were revised in order to adopt them to Turkish culture.

The Turkish forms of the scale were initially tested in a pre-pilot study. At this stage, the scale was planned to be administered to at least two children from each age group between 10 and 15. Ultimately, the test was administered to a total of 13 children individually. The children were asked to identify the items that they could not understand or that presented difficulties when responding. By considering the feedback taken from the children, some items were revised to ensure their compatibility with Turkish culture. After the correction of various detected printing and spelling errors, the next step in the procedure was the pilot study. In the pilot study, the scales were administered face-to-face with 160 children from three schools in Nicosia, which had been determined based on the opinions of the Ministry of Education, in March and April 2015. The administrations lasted for approximately 30 min each. The LISREL (ver, 8.80) program was used for the statistical analysis of the collected data.

Results

In order to examine the validity of the scale, construct and criterion-related validity models were performed. In terms of the construct validity a confirmatory factor analysis was conducted for both the Mother and the Father Forms. The correlations between the sub-dimensions of MNBS-CR in both forms were analysed to examine whether the scores of the sub-dimensions can be totaled to compute a total neglect score. In order to examine the criterion related validity, the correlations between MNBS-CR sub-dimension scores and depression and social desirability sub-dimension scores of MNBS-CR. Another criterion related measure used in the analysis was Child/Adolescent Form of PARQ which was previously adopted into Turkish. Furthermore, to examine the reliability, the internal consistency coefficients were computed by employing the KR-20 method. In analysis, the scores

of the sub-dimensions of depression and social desirability are not included in the total neglect score of the scale. Hence, the data related to these two sub-dimensions were not included in the analysis, but were only used as the criterion related measures in the reliability study.

Validity

Construct Validity Structure of the Mother Form of The findings of the confirmatory factor analysis for the Mother and Father Forms of the scale are given below.

Factor Structure of the Mother Form of MNBS-CR

In terms of the Mother Form, confirmatory factor analysis was performed for the abandonment, alcohol use, cognitive neglect, emotional neglect, failure to protect, general neglect, physical neglect and supervisory neglect sub-dimensions of the original version.

The response format of the scale is sequentially categorized as the items are scored as 1–0. Hence, the analysis was performed by employing asymptotic covariance matrix model. However, this model failed to provide meaningful results in the analysis due to the low variances of the items. A consecutive analysis by employing a covariance matrix model also failed. Therefore, eight items (2, 4, 10, 13, 14, 17, 40, 49) which had low variances were excluded from the form. When the 4th item was excluded, only one item (48) remained in the alcohol sub-dimension. The alcohol sub-dimension was entirely excluded as a consequence, as a sub-dimension cannot consist of only a single item. After exclusion of these items, confirmatory factor analysis was re-performed by employing the covariance matrix model. Resultantly, four items (5, 23, 31, 43) that had low factor loadings and insignificant *t* scores were excluded from the Turkish version of the form. When the 5th and 23th items were excluded, the abandonment sub-dimension was excluded entirely.

Eventually, the factor analysis was re-performed after the exclusion of the 27th item, which had an insignificant *t* score. According to the results, all the remaining items had significant *t* scores. This final factor analysis revealed a construct of 35 items and 6 sub-dimensions, which were cognitive neglect, emotional neglect, failure to protect, general neglect, physical neglect and supervisory neglect. According to the findings, the lowest factor loading is 0.24 (item 36). A total of 14 items are excluded in the analysis.

The Goodness of Fit Indexes related to the confirmatory factor analysis model of MNBS-CR 10–15 Years (Mother Form) are reported in Table 1.

According to the results shown in Table 1, the *p* value, which shows the difference between the expected and the observed covariance matrices (χ^2), was found to be significant ($p < 0.01$). However, the *p* value is not expected

Table 1 The Goodness of Fit Indexes related to the confirmatory factor analysis model of MNBS-CR 10–15 Years (Mother Form)

χ^2	sd	χ^2 /sd	RMSEA	NFI	NNFI	GFI	AGFI	CFI
731.65	545	1.342	0.048	0.78	0.93	0.76	0.72	0.93

to be significant. However, a significant *p* value can be accepted as a fair condition due to the large size of the sample in the studies of confirmatory factor analysis (Çokluk et al. 2014). Another goodness of fit index is the ratio of χ^2 to the degree of freedom (χ^2 /sd). In this study, the ratio of the Sattora-Bentler scaled χ^2 value to the degree of freedom is examined, as the observed values (items) of the study are sequential categorical variables. The Sattora-Bentler scaled χ^2 value was found to be 731.65 and the degree of freedom was found to be 545. The ratio of these values to each other was found to be χ^2 /sd = 1.342. A value of χ^2 /sd under 3 is suggested to indicate a perfect goodness of fit (Kline 1994; Kline 2005). The RMSEA value is shown as 0.048 in the path diagram. A RMSEA value under 0.005 is argued to indicate perfect fit (Jöreskog and Sörbom 1993). An examination of NNFI and CFI indexes reveals that the model obtained in the analysis, which ultimately consists of 6 factors and 35 items, indicates a good fit to the data.

Correlations between the Sub-Dimensions of the Mother Form of MNBS-CR

Structure of the Mother Form of An analysis of the correlations between the sub-dimensions of the Mother Form was performed and the results are reported in Table 2.

An examination of Table 2 reveals that there are significant and moderate positive correlations between all sub-dimensions of the scale ($p < 0.01$). Depending on this finding, it is thought that the scores of the sub-dimensions can be totaled to compute a total neglect score.

Factor Structure of the Father Form of MNBS-CR

In terms of the Father Form, confirmatory factor analysis was performed for the abandonment, alcohol use, cognitive neglect, emotional neglect, failure to protect, general neglect, physical neglect and supervisory neglect sub-dimensions of the original version. Similarly to the Mother Form, the Father Form is also scored as 1–0. Hence, the analysis was performed by employing the asymptotic covariance matrix model. However, the analysis revealed that this model failed to provide meaningful results. Consequently, the analysis was repeated by employing the covariance matrix model and the factor loadings and *t* scores indicated by the model were

Table 2 Spearman Correlation Coefficients Between The Sub-Dimensions MNBS-CR 10–15 Years (Mother Form)

Sub-dimensions	Cognitive neglect	Emotional neglect	Failure to protect	General neglect	Physical neglect	Supervisory neglect
Cognitive neglect	–	.448**	.238**	.311**	.466**	.366**
Emotional neglect		–	.463**	.334**	.489**	.564**
Failure to protect			–	.415**	.521**	.389**
General neglect				–	.421**	.318**
Physical neglect					–	.561**
Supervisory neglect						–

**= $p < 0.01$

examined. As a result of the analysis, five items (4, 12, 26, 36, 42) were excluded as they had insignificant *t* scores and low factor loadings. When the 4th item was excluded, only one item (48) remained in the alcohol sub-dimension. The alcohol sub-dimension was entirely excluded as a consequence, as a sub-dimension cannot consist of only one item. Eventually, it was seen that all the remaining items had significant *t* scores. Analysis was repeated after the exclusion of six items and one sub-dimension. It was seen that the factor loadings of the 8th and 40th items in the cognitive neglect sub-dimension are -0.36 and -0.24 , respectively. Roscoe (1975) suggested that factor loading is a measure of the item's relationship with the factor itself and it is not supposed to be negative. Therefore, these two items were excluded. The asymptomatic covariance model was re-employed after the exclusion of eight items. The results showed that all the remaining 41 items had significant *t* scores. This final factor analysis revealed a construct of 41 items and 7 potential sub-dimensions, which are abandonment, cognitive neglect, emotional neglect, failure to protect, general neglect, physical neglect and supervisory neglect. According to the findings, the lowest factor loading is 0.26 (item 39). A total of eight items are excluded in the analysis.

The Goodness of Fit Indexes related to the confirmatory factor analysis model of MNBS-CR 10–15 Years (Father Form) are reported in Table 3.

According to the results shown in Table 3, the *p* value related to the difference between the expected and the observed covariance matrixes (χ^2) is significant ($p = 0.00$). The Sattora-Bentler scaled χ^2 value is found to be 949.32 and the degree of freedom is found to be

Table 3 The Goodness of Fit Indexes related to the confirmatory factor analysis model of MNBS-CR 10–15 Years (Father Form)

χ^2	sd	χ^2/sd	RMSEA	NFI	NNFI	GFI	AGFI	CFI
949.32	758	1.252	0.041	0.80	0.95	0.76	0.73	0.95

758. The RMSEA value is shown as 0.041 in the path diagram, which indicates a perfect goodness of fit, as it is lower than 0.05. AGFI, GFI and NFI are suggested to be sensitive indexes to sample size. It is argued that the values are more fitting and acceptable when the sample size is larger. The NNFI and CFI indexes are argued to operate more effectively when the sample size is smaller (Tabachnick and Fidel 2013). An examination of these indexes reveals that the model obtained in the analysis, which ultimately consists of 7 factors and 41 items, indicates a good fit to the data.

An analysis of the correlations between the sub-dimensions of the Father Form is performed and the results are given in Table 4.

Correlations between the Sub-Dimensions of the Father Form of MNBS-CR

An examination of Table 4 reveals that there are significant and moderate positive correlations between all sub-dimensions of the scale ($p < 0.01$). Depending on this finding, it is thought that the scores of the sub-dimensions can be summed up.

Criterion Related Validity In the original form of the scale, the depression and social desirability scores were not included in the total neglect score. Therefore, both sub-dimensions were only included in the analysis of the criterion related validity. The depression sub-dimension was included in the original scale as it was assumed that the children who are exposed to neglect will have higher levels of depression. In the criterion-related validity study of the original form, depression scores were found to be significantly and positively correlated with total neglect scores, as expected. On the other hand, the sub-dimension of social desirability was included in the original scale in order to assess children's tendencies to respond in a socially acceptable manner. It was assumed that the higher the social desirability tendency, the lower neglect scores will be. In the validity analysis, social

Table 4 Spearman correlation coefficients between the sub-dimensions of MNBS-CR 10–15 Years (Father Form)

Sub-dimensions	Abandonment	Cognitive neglect	Emotional neglect	Failure to protect	General neglect	Physical neglect	Supervisory neglect
Abandonment	–	.360**	.386**	.307**	.272**	.477**	.417**
Cognitive neglect		–	.655**	.500**	.414**	.696**	.567**
Emotional neglect			–	.534**	.550**	.673**	.71**
Failure to protect				–	.52**	.442**	.468**
General neglect					–	.467**	.538**
Physical neglect						–	.642**
Supervisory neglect							–

**= $p < 0.01$

desirability scores were found to be significantly and negatively correlated with total neglect scores, as expected.

In this respect, the correlations between the scores for depression and social desirability and the scores obtained from the sub-dimensions of the scale and total neglect scores of the Turkish version of the scale are examined. In addition to this, PARQ was included in the criterion analysis as the convergent scale. The results of the criterion-related validity analysis of the Mother Form is reported in Table 5.

According to the results shown in Table 5, the depression sub-dimension is positively correlated with the sub-dimensions of cognitive neglect ($r = .277, p < 0.01$), emotional neglect ($r = .349, p < 0.01$), supervisory neglect ($r = .241, p < 0.01$), physical neglect ($r = .289, p < 0.01$), failure to protect ($r = .271, p < 0.01$) general neglect ($r = .323, p < 0.01$) and the total neglect score ($r = .396, p < 0.01$) of the MNBS-CR (10–15 Years) Mother Form. The social desirability sub-dimension is found to be negatively correlated with cognitive neglect ($r = -.217, p < 0.01$), emotional neglect ($r = -.324, p < 0.01$), supervisory neglect ($r = -.291, p < 0.01$), physical neglect ($r = -.370, p < 0.01$), failure to protect ($r = -.390, p < 0.01$) and the total score of neglect ($r = -.400, p < 0.01$). However, the correlation between social desirability and general neglect ($r = -.118, p > 0.01$) was found to be insignificant.

On the other hand, an examination of the correlations between PARQ and the MNBS-CR (10–15 Years) Mother Form reveals that the PARQ scores are positively correlated with cognitive neglect ($r = .399, p < 0.01$), emotional neglect ($r = .398, p < 0.01$), physical neglect ($r = .518, p < 0.01$), failure to protect ($r = .508, p < 0.01$) general neglect ($r = .243, p < 0.01$) and the total neglect score ($r = -.523, p < 0.01$) of the MNBS-CR (10–15 Years) Mother Form. The correlation between the PARQ score and supervisory neglect sub-dimension ($r = .210, p > 0.01$) was found to be insignificant. The results of the criterion-related validity analysis of the Father Form is reported in Table 6.

According to the results shown in Table 6, the depression sub-dimension of the MNBS-CR (10–15 Years) Father Form was found to be positively correlated with cognitive neglect ($r = .387, p < 0.01$), emotional neglect ($r = .324, p < 0.01$), supervisory neglect ($r = .322, p < 0.01$), physical neglect ($r = .341, p < 0.01$), failure to protect ($r = .283, p < 0.01$) general neglect ($r = .427, p < 0.01$) and the total score of neglect ($r = .416, p < 0.01$). The social desirability subscale was found to be negatively correlated with cognitive neglect ($r = -.338, p < 0.01$), emotional neglect ($r = -.455, p < 0.01$), supervisory neglect ($r = -.332, p < 0.01$), physical neglect ($r = -.384, p < 0.01$), failure to protect ($r = -.429, p < 0.01$) general neglect ($r = -.284, p < 0.01$) and the total score of neglect ($r = -.460, p < 0.01$). Both depression ($r = .135, p > 0.05$) and

Table 5 Spearman Correlation Coefficients between MNBS-CR 10–15 Years (Mother Form) and PARQ

	MNBS-CR 10–15 Years (Mother Form)						
	Cog. Neg.	Emot. Neg.	Sup. Neg.	Phy. Neg.	Fail. To prot.	Gen. Neg.	Total
MNBS-CR Depres.	.277**	.349**	.241**	.289**	.271**	.323**	.396**
MNBS-CR Soc. Des.	-.217**	-.324**	-.291**	-.370**	-.390**	-.118	-.400**
PARQ	.339**	.398**	.210	.518**	.508**	.243*	.523**

**= $p < 0.01$; *= $p < 0.05$

Depres., depression; Soc. Des., social desirability; Cog. Neg., cognitive neglect; Emot. Neg., emotional neglect; Sup. Neg., supervisory neglect; Phy. Neg., physical neglect; Fail. To Prot., failure to protect; Gen. Neg., general neglect

Table 6 Spearman Correlation Coefficients Between MNBS-CR 10–15 Years (Father Form) and PARQ

	MNBS-CR 10–15 Years (Father Form)							
	Abandon.	Cog. Neg.	Emot. Neg.	Sup. Neg.	Phy. Neg.	Fail. To Prot.	Gen. Neg.	Total
MNBS-CR Depres.	.135	.387**	.324**	.322**	.341**	.283**	.427**	.416**
MNBS-CR Soc. Des.	-.153	-.338**	-.455**	-.332**	-.384**	-.429**	-.284**	-.460**
PARQ	.251*	.450**	.461**	.446**	.374**	.468**	.468*	.530**

** = $p < 0.01$; * = $p < 0.05$

Abandon., abandonment; *Depres.*, depression; *Soc. Des.*, social desirability; *Cog. Neg.*, cognitive neglect; *Emot. Neg.*, emotional neglect; *Sup. Neg.*, supervisory neglect; *Phy. Neg.*, physical neglect; *Fail. To Prot.*, failure to protect; *Gen. Neg.*, general neglect

social desirability ($r = -.153$, $p > 0.05$) sub-dimensions were not significantly correlated with abandonment.

An examination of the correlations between PARQ and the MNBS-CR 10–15 Years (Father Form) revealed that the PARQ scores are positively correlated with abandonment ($r = .251$, $p < 0.05$), cognitive neglect ($r = .450$, $p < 0.01$), emotional neglect ($r = .461$, $p < 0.01$), supervisory neglect ($r = -.446$, $p < 0.01$), supervisory neglect ($r = .374$, $p < 0.01$), failure to protect ($r = .468$, $p < 0.01$) general neglect ($r = .468$, $p < 0.01$) and the total score of neglect ($r = -.530$, $p < 0.01$) of the MNBS-CR 10–15 Years (Father Form).

Reliability

In terms of the reliability analysis, internal consistency coefficients were computed. For the analysis of the internal consistency, KR-20 coefficients were computed as the items are scored as 1–0. The internal consistency coefficients were computed for the Mother and Father forms, respectively. The results of the analysis are given in Table 7.

According to the findings shown in Table 7, the reliability coefficients of the sub-dimensions varied between .373 and .583 in the Mother Form and between .197 and .726 in the Father Form. The reliability coefficient was found to be .832 for the total neglect score of the Mother Form and .908 for the total neglect score of the Father Form.

Table 7 Reliability Coefficients of The Mother and The Father Forms of MNBS-CR 10–15 Years

Sub-dimensions	MNBS-CR 10–15 years (mother form)	MNBS-CR 10–15 years (father form)
Abandonment	–	.197
Cognitive neglect	.468	.334
Emotional neglect	.480	.726
Failure to protect	.565	.583
General neglect	.449	.555
Physical neglect	.373	.667
Supervisory neglect	.583	.696
Total	.832	.908

Discussion

In the present study, the objective was to adapt the MNBS-CR 10–15 Years into Turkish and to examine the psychometric properties of the Turkish version.

Initially, the forward and the backward translation studies were conducted. After the translation, the Turkish version of the scale was reviewed by eight specialists in terms of the convenience of the content and the language used. The scale was initially tested in a pre-pilot study, which consisted of 13 children. After the correction of some detected printing and spelling errors, the procedure continued with the pilot study as the next step. In the pilot study, the scale was administered to 160 children between the ages of 10 and 15, in three schools.

In terms of the validity analysis of the Turkish version of MNBS-CR 10–15 Years, construct and criterion related validity analysis were conducted. Construct validity of the scale was examined by employing confirmatory factor analysis for the Mother and Father Forms independently. In the analysis, the final models revealed a construct of 6 factors and 35 items for the Mother Form and a construct of 7 factors and 41 items for the Father Form. Both final models indicated good fit to the data. In both forms, an analysis of the correlations between the scores of the sub-dimensions revealed that a total neglect score can be

computed by totaling the sub-dimension scores. An examination of the correlations between sub-dimensions of MNBS-CR in both the Mother and Father Forms revealed that all sub-dimensions are significantly correlated with each other. In the original study Straus (2004) found that correlations among MNBS-CR subscales ranged from moderate to high. The highest correlations were .80 or greater: cognitive and emotional ($r = .90, p < 0.01$), emotional and physical ($r = .80, p < 0.01$), cognitive and supervision ($r = .86, p < 0.01$), and cognitive and physical ($r = .83, p < 0.01$). These findings are in line with the findings of the present study except abandonment sub-dimension in the Mother Form which was excluded in the confirmatory factor analysis.

An examination of the criterion-related validity analysis results revealed that, except abandonment sub-dimension of the Father Form, the depression scores are significantly and positively correlated to all sub-dimension scores and the total scores in both forms. Except abandonment sub-dimension of the Father Form, all sub-dimension scores and the total scores of both forms were also found to be significantly and negatively correlated to the social desirability scores. These patterns of correlations between neglect and depression as well as neglect and social desirability are in line with the findings of Straus (2004).

In terms of the findings related to abandonment sub-dimension, it is thought that the insignificant results may be due to the small number of items consisted in the sub-dimension. However, both the depression and social desirability sub-dimensions are found to be significantly correlated with total neglect scores. This finding is in line with the validity study of original scale. In their study, Straus (2004) found that depressive symptoms were significantly correlated with total neglect scores ($r = .56, p < .01$). On the other hand, social desirability measure was used to examine the extent to which social desirability influences children's reports of parental neglect. Although the MNBS-CR was designed to ask about caretaking behaviors in a neutral manner, it was thought that children who have a stronger desire for social approval might downplay any neglectful behaviors on the part of their caretaker. Consistent with this possibility, a negative correlation between social desirability and neglectful behaviors were found in the study ($r = -.31, p < .01$). The limited number of items in the abandonment sub-dimension of the Father Form might be considered as a limitation in terms of reliability. However, the results of confirmatory analysis confirmed abandonment as a potential sub-dimension in the Father Form. On the other hand, the assessment of neglect

requires a multidimensional approach in accordance with the nature of the concept. Despite of the psychometric limitations, the assessment of children's experiences in terms of abandonment by their parents, might be supporting the clinical perspective of the assessment. Therefore, the sub-dimension was not eliminated from the Father Form entirely. The factor analysis did not confirm the construct of abandonment in the Mother Form. Culturally, the mothers are the primary caregivers in the Turkish society and the fathers are less involved in the care giving process of children. It is thought that the difference between the Mother and Father Form in terms of abandonment sub-dimension might be due to the fact that the mothers take the responsibility of the children more than fathers and the frequency of abandonment as a severe form of neglect is observed less than in fathers.

The sub-dimensions in both forms of MNBS-CR are found to be significantly correlated with the sub-dimensions of the Child/Adolescent Form of PARQ which explicitly assesses neglect as well as assessing constructs related to neglect such as warmth, affection, acceptance and rejection. That is, a child who perceives herself or himself rejected by parents reported neglectful parental acts. Thus, the scores of MNBS-CR correlated highly in the predicted direction with scores of PARQ which was already adopted into Turkish to measure a similar construct. These findings provided proof for the criterion related validity of the Turkish Form of MNBS-CR (10–15 Years).

In terms of the reliability analysis, the internal consistency coefficients were computed by employing the KR-20 method. The reliability coefficients for the sub-dimensions of both forms are found to be low, as in the original version of the scale (Straus 2004). A reliability coefficient of 0.70 or higher for psychological instruments is argued to be sufficient (Büyüköztürk 2004). It is thought that the low reliability coefficients of the sub-dimensions may be due to their low number of items. On the other hand, the reliability coefficients for the total scores of the Mother and the Father Forms are found to be above 0.70. In the original reliability study, Straus (2004) computed Cronbach's alpha coefficients of the total neglect score as .95 for clinical sample and .78 for community sample. It is thought that the findings of the present study are in line with the findings of the original one, providing proof in terms of the adequacy of the reliability of the Turkish form. As a result of the conducted analysis, it was concluded that the Turkish versions of the 35-item Mother Form and 41-item 10–15 Father Form of the Multidimensional Neglectful Behavior Scale are sufficiently

valid and reliable. The final version of the Turkish Mother Form includes the following items: 4 in the cognitive neglect, 5 in the emotional neglect, 9 in the supervisory neglect, 10 in the physical neglect, 4 in the failure to protect and 3 in the general neglect sub-dimension. The minimum and maximum scores of the scale dimensions range between 0 and 10; whereas, the minimum and maximum scores from the overall scale range from 0 to 35. The high scores from the scale show the children's neglect experiences in relation to their mothers.

In terms of the Father Form, the included items are: 4 in the cognitive neglect, 8 in the emotional neglect, 11 in the physical neglect, 2 in the abandonment, 4 in the failure to protect and 4 in the general neglect sub-dimension. The minimum and maximum scores from the dimensions of the scale range between 0 and 11 and the minimum and maximum scores from the overall scale range from 0 to 41. The high scores from the scale state the children's neglect experiences in relation to their fathers.

This study has considerable implications as it provides a potentially beneficial instrument for both the screening and assessment of neglect for clinicians and researchers. The findings of this study can also provide a deeper understanding on the risk factors of child neglect. However, some limitations of the study should be mentioned. Straus (2004) tested the original version of the scale on a clinical sample of 78 children, and a comparison community sample of 24 children. The clinical sample was consisted of children who had a history of severe neglect and was drawn from foster care system and child abuse forensic program; whereas, the community sample consisted of children who drawn from public school programs. The Turkish version of MNBS-CR has only been tested on a community sample. Additional data with a larger comparison sample, particularly a clinical sample of maltreated children may be beneficial for clinical implementation. There are a number of reasons of why a community sample was used in this study. Particularly in a small community such as the Turkish community of north Cyprus, studies conducted on a clinical sample of maltreated children can be challenging as it is difficult to reach such sample. In the north of the island, there is not a record of national data of identified cases of child maltreatment. Social welfare services make interventions on the cases individually where detected rather than implementing structured and systematic foster care or child maltreatment prevention programs. Hence, the recruitment of a clinical sample is difficult to identify. However, neglect may occur at any time of children's daily lives and not all cases are clinical in nature. In many of the child neglect cases, chronic neglect does not exist and in such cases the causes of neglect are largely not related to

the parents themselves, but daily and external factors are more influential. Therefore, an instrument which purports to measure child neglect should be efficient in screening cases of child neglect regardless of their clinical nature and severity. MNBS-CR is used in many countries in the world for screening child neglect in community samples as well clinical samples. Within this context, in the present study, the Turkish form of MNBS-CR (10–15 Years) was tested on a community sample.

On the other hand, as the scale needed to be administered individually and each administration lasted approximately 30 min, the sample used to test MNBS-CR was limited to a relatively small number of children, which limits the generalizability of the results. The external validity of the scale should be improved by testing the scale on larger samples. In the present study, depression and social desirability sub-dimensions of the MNBS-CR are used to test the criterion related validity of the neglect sub-dimensions of the Turkish form. This strategy was employed in accordance with the validity study of the original form. To the best of our knowledge there is not an alternative measure of social desirability in Turkish that can be administered to children. However, alternative measures of depression are available. Further studies should test the validity of the Turkish form of MNBS-CR by using an established alternative measure of depression. It should also be noted that the study relies upon self-reporting by children, which could reflect the subjective perceptions of the children, resulting in inaccurate data. In the present study, the children who are at risk of neglect according to the results of the analysis were identified. Since the study was designed only for psychometric purposes and no personal records of the administrations were kept, no subsequent actions could be taken. Future studies should offer preventive and protective services for cases where children are identified as being at risk.

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Compliance with Ethical Standards

Conflict of Interest On behalf of all authors, the corresponding author states that there is no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were conducted in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki declaration and its later amendments or comparable ethical standards.

Informed Consent Informed consent was obtained from all individual participants included in the study.

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