



Reliability and validity studies of the Turkish version of Humor Styles Questionnaire for Children

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Abstract

This article presents the investigation of the psychometric properties of the Turkish version of the Humor Styles Questionnaire for Children (CHSQ Turkish). Four studies were assessed using a sample of Turkish secondary school students in two different schools located in Istanbul and a total of 717 students participated in these four studies. Factor analyses and internal consistency (study 1), test-retest reliability (study 2), concurrent validity (study 3), convergent and discriminant validity (study 4) were investigated in this research. In study 1, the results of the confirmatory and exploratory factor analysis indicated that the four-factor structure (aggressive, affiliative, self-enhancing, self-defeating) of a modified 17-item version was confirmed. In addition, corrected item-total correlations (.50–.70) and internal consistency values of the four factors were acceptable (.82, .83, .80, .73, respectively). Test-retest reliabilities during a 4-week period (.69, .82, .74, .72, respectively) were adequate in study 2. In study 3, concurrent validity of the scale was supported with reference to depression and anxiety. In study 4, convergent and discriminant validity of the CHSQ Turkish were confirmed by assessing AVE, square root of AVE and correlations between four factors. Additionally, the correlations of the four factors of the scale with sensation seeking and loneliness were additional evidence for convergent validity. The CHSQ Turkish was assessed to be a valid and reliable measure.

Keywords Humor styles · Adaptation · Validation · Turkish culture · Secondary school students

Introduction

Humor was described as a funny form of communication that creates positive emotions in individuals, groups or organizations (Romero and Cruthirds 2006, p. 59). According to another explanation, humor is a verbal or non-verbal action that causes a positive cognitive and emotional response in listeners (Crawford 1994, p. 11). Humor can be used by the individuals to improve their mood, contribute to the relationship with others, to be socially competent or adversely, make fun of other people or put themselves down to make others laugh (Führ 2002). Additionally, some individuals use humor as a coping strategy or defense mechanism (Lefcourt and Martin 1986). As a coping strategy, the person may use humor to see

the positive aspects of the situation in the face of threat, oppression or distress (Abel 2002). It is emphasized that the individuals with a high sense of humor can cope with stress and negative emotions more easily, develop harmonious relationships with others and see themselves physically and mentally healthy (Lefcourt 2002). These people are more optimistic and humanist, have high levels of self-acceptance, self-confidence and have more authentic interpersonal relationships than others (Abel and Maxwell 2002).

Researchers have been conducting new studies to answer how people show their humor, or which style of humor they prefer in childhood or adulthood (Fox et al. 2013; Führ 2002; Martin et al. 2003). Four different styles in daily use of humor were conceptualized (Martin et al. 2003). Self-enhancing and affiliative humor styles were labeled as adaptive, self-defeating and aggressive humor styles were indicated as maladaptive (Fox et al. 2013). Self-enhancing humor covers the personal or intrapsychic aspects of humor and provides a positive perspective on life. This style of humor is useful to cope with stress, to change the outlook on problems or to reduce negative feelings (Martin et al. 1993). Users of self-enhancing humor have a generally humorous viewpoint of life, tendency

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to often have fun in the face of disagreements in life, and maintain a humorous perspective even in stressful and unfavorable situations (Kuiper et al. 1993). Accordingly, these people may be known as having high self-confidence and self-esteem (Klein and Kuiper 2006). This style was negatively associated with maladaptive constructs such as depression, anxiety, perceived stress, and positively associated with self-esteem and psychological well-being (Kazarian and Martin 2006; Kuiper et al. 2004; Martin et al. 2003). The affiliative style of humor includes the ability to use humor by telling jokes, saying funny words or anecdotes to entertain and relax others (Hampes 2005; Kazarian and Martin 2004). It is a way of using humor as a means of tolerance to develop interpersonal relationships and interactions without hostility toward oneself and others (Kazarian and Martin 2004; Martin 2007).

Aggressive humor; is the use of humor in a socially unsuitable way for others in order to obtain superiority and pleasure. Individuals who use aggressive humor tend to denigrate, despise, discredit, or oppress the others (Romero and Cruthirds 2006). Even if the individuals believe that they protect their self with this kind of humor, it will be harmful to the self in the end because these people may feel lonely when the others move away from them because of these excessive teasing or sarcasm. Therefore, aggressive humor style is seen as a negative and unhealthy humor style (Janes and Olson 2000). Self-defeating humor refers to the individual's use of humor by ignoring his/her needs. This type of humor encompasses behaviors of the individual, such as self-refutation and belittlement of the self in a humorous way, in order to make others laugh and to strengthen relationships with them (Martin et al. 2003). In this kind of humor, even if individuals are upset or depressive, they deny or suppress their true feelings and act as if they are happy. In self-defeating humor, individuals try to entertain others by saying funny things about themselves or use it as a way of gaining approval by agreeing to be the clown of others (Vivona 2013). However, when they criticize their personality or tell funny things about themselves, they try to protect their self-esteem (Martin et al. 2003). Self-defeating humor was positively related to sadness and anxiety, negatively related to relationship satisfaction, psychological well-being and self-esteem (Kuiper et al. 2004; Martin 2007; Tucker et al. 2013). Despite these studies, studies on humor in children were very few and have been recently increasing (Fox et al. 2016; Martin 2007).

Studies conducted to understand the humor nature indicated that humor is associated with emotional, social and moral development of children (McGhee 1989; Socha and Kelly 1994). Humor plays a key role in facilitating the intellectual, social, emotional, cognitive and personal development of children (McGhee 2002). Masten (1986) stated that the children who have high levels of sense of humor are very keen on cooperation in the class environment, more productive and sensitive, have better academic achievements. Additionally,

the children who have positive types of humor are labeled as more social and assertive by their peers. Results of another study showed that there was a positive relationship between sociability of the children and sense of humor (Chik 2001). McGhee (1989) stated that children learn the sense of humor to establish power and control over others at early ages. Some studies indicated that children use humor as a coping strategy to protect their self-esteem (Dowling 2013; Führ 2002).

Sense of humor enhances in the process of physical, cognitive and language development (Franzini 2002). Children use some actions as humor like throwing things, making different gestures, playing chasing games, sound and word plays etc. Children gain the ability to take control of their emotions using more cognitive ways than behavioral ones from early ages to adolescence (Altshuler and Ruble 1989). Altshuler and Ruble (1989) also stated that affiliative and aggressive humor are observed during early childhood to adolescence while middle aged children begin to use self-enhancing and self-defeating humor which are observed in the way of adulthood. Proyer et al. (2010) portrayed that the sense of humor was quite stable across the lifespan. Despite old people had a higher positive mood, they were laughing less and less easily than younger participants. In another study, adults scored lower on affiliative humor than adolescents (Martin et al. 2003). Findings of Stanley et al. (2014) stated that young and middle-aged adults are more likely to enjoy aggressive humor than older adults featured in sitcom clips. Overall, cognitive processes are the most important reason for the age related differences in humor. Age related deficiencies in cognition may lead to decreased perception of humor in both early and old ages since the essential cognitive sources are required to understand the jokes (Hess 2006; Mak and Carpenter 2007).

Humor Studies in Turkey

In Turkish culture, the study of sense of humor extends back to many years ago. Öngören (1998) categorized periods of Turkish humor as four; Antique Anatolian humor, Seljuki humor, Ottoman humor, and Pre-Republic era humor. Especially some humor figures like Nasreddin Hodja (1208–1294) made a great contribution to humor history (Karakaya 2007). Nasreddin Hodja is internationally known for his wit, intelligence and creative thinking in humor and he still represents the Turkish style of humor after many years (Temizkan 2011). The values of hospitality, honesty, tolerance, bravery, philanthropy, respect and love were praised in the anecdotes and jokes of Hodja (Şen 2016). In contrast, the negative features such as cunning, laziness, stinginess, ignorance, being proud, being negligent, selfishness, theft, bribery, and mocking people were criticized in a humorous way (Kurgan 1986). The jokes of Hodja can be explained as an educative and enhancing type of humor and considered to be a part of a moral

education for children and adolescents in recent years (Karakaya 2007).

After Nasreddin Hodja's time (Seljuki era), in the Ottoman era, sense of humor represented in folk and divan literature (e.g. poems, jokes, letters) almost all of the words in the humor dictionary are the Arabic-Persian origin (Öngören 1998). In the last century (Turkish Republic era), humor has turned into a different dimension with the effect of the western culture and the development of technology in a dazzling way, initially with the effect of radio and TV, and then with the spread of internet and social media (Cemaloğlu et al. 2012). Nowadays, oral, written and electronic cultural environment have many effects on Turkish humor. In this sense, with the rapid development of information technologies, not only via TV but sharing in the scope, and youtube contribute to the process of change in the humorous structure of Turkish culture, especially for children and adolescents (Sevindik 2017). Therefore, researchers in Turkey have already been keen on the topics of humor, humor attitudes, humor styles, predictors of humor and measurement of humor in Turkey (Cemaloğlu et al. 2012).

In recent years, studies on the topic of humor have significantly increased in Turkey. A couple of scales have been developed or adapted to examine humor. Adolescent Humor Scale (Oral 2004) and Humor Attitudes Scale (Cemaloğlu et al. 2012) have been used to measure the humor of adolescents and adults. However, especially to measure "humor styles", only the Humor Styles Questionnaire (Martin et al. 2003) adapted by Yerlikaya (2003), for adults has been used in Turkey. To measure humor styles in children sample, the valid and reliable measurement tool is needed. For this purpose, it was decided to adapt The Humor Styles Questionnaire for Children (Fox et al. 2013) to Turkish culture. The psychometric properties of the CHSQ Turkish were investigated through four studies. The data about these four studies were shown in Table 1.

As seen in Table 1, four studies were conducted to investigate the psychometric properties of the Turkish CHSQ. In Study 1, the factor structure of the Turkish CHSQ was examined using a confirmatory factor analysis (CFA) and exploratory factor analysis (EFA). Additionally, corrected item-total correlations and internal consistency values were calculated for the reliability of the scale. The test-retest reliability of the Turkish CHSQ was examined in Study 2. Test-retest reliability was investigated with a four-week interval between two measurements.

Concurrent validity was investigated in Study 3. Specifically, the relationships between the Turkish CHSQ, depression and anxiety subscales of the Brief Symptom Inventory were examined. It was predicted that the depression and anxiety will be negatively correlated with affiliative and self-enhancing humor and positively correlated with aggressive and self-defeating humor. Some studies stated that self-enhancing humor was negatively associated with maladaptive constructs such as depression, anxiety, perceived stress, and positively associated with self-esteem and psychological well-being (Kazarian and Martin 2006; Kuiper et al. 2004; Martin et al. 2003). Additionally, self-defeating humor was positively related to sadness and anxiety, negatively related to relationship satisfaction, psychological well-being and self-esteem (Kuiper et al. 2004; Martin 2007; Tucker et al. 2013). A recent study showed that depression was positively correlated with two negative styles of humor and negatively correlated with two positive styles of humor (Kfrerer 2018).

Finally, convergent and discriminant validity were examined in Study 4. Convergent and discriminant validity of the CHSQ Turkish were investigated by assessing AVE, square root of AVE and correlations between four factors of the scale. To obtain additional evidence for the convergent validity, correlations between the Turkish CHSQ, Brief Sensation Seeking Scale and Children's Loneliness Scale were calculated. It was

Table 1 Summary of the four studies

Study	Aim	Method	Tools	Participants	Results
1	To test validity of CHSQ Turkish	Factor analyses	CHSQ (First Test)	300 students from 1st school (122 females / 178 males)	Four different factors of HSQ was identified.
2	To test reliability of CHSQ Turkish	Test-retest	CHSQ (Second test taken 4 weeks later)	65 students from the same group in Study 1 (34 females, 31 males)	Correlation $r = 0.84$ for total score
3	To analyze Concurrent Validity	Brief Symptom Inventory	To compare CHSQ with Brief Symptom Inventory	238 students (88 girls/ 150 boys) from 2nd school.	Positive humor styles were negatively correlated with depression and anxiety while SD humor was correlated with depression
4	To study convergent and discriminant validity	Brief Sensation Seeking Scale and Children's Loneliness Scale	To compare CHSQ results with BSSS-4 and CLS	114 students (46 girls / 68 boys) from the same school in Study 3 but from different classes.	Girls had higher scores of Self-enhancing humor while boys had higher scores of aggressive humor

predicted that the sensation seeking should be positively correlated with affiliative and self-enhancing humor, in contrast, it should be negatively correlated with self-defeating and aggressive humor style. Sensation seeking may be positively related to adaptive styles of humor and negatively related to maladaptive styles of humor (Cann and Cann 2013). Loneliness was predicted to be negatively correlated with affiliative and self-enhancing humor and positively correlated with aggressive and self-defeating humor. Some studies implied that humor enhances perceived social support and helps individuals to be more socially competent (Martin et al. 2003; Yip and Martin 2006). In the light of these studies, it is foreseen that loneliness may be positively related to maladaptive styles of humor and negatively related to adaptive styles of humor.

Humor Styles Questionnaire for Children (CHSQ)

The scale was developed by Fox et al. (2013) to measure humor styles. The age of the participants ranged between 9 and 15 years in their study but the scale had acceptable reliabilities only for 11 years and upwards. CHSQ has 24 items with four factors and each factor have six items rated using a 4-point Likert scale (range from “1-strongly disagree” to “4-strongly agree”). Factors are Self-enhancing (e.g. I usually try to think of something funny when I am in a difficult situation), Affiliative (e.g. My jokes and funny stories make other people laugh), Self-defeating (e.g. I often get carried away in putting myself down if it makes my friends or family laugh) and Aggressive (e.g. If someone makes a mistake I will often tease them about it). There are four reverse items and total mean scores for each factor were calculated and higher scores indicate higher levels of humor of that factor. In the study in which the scale was developed, Fox et al. (2013) found that CHSQ had a good internal consistency for four factors (all α values $> .70$) and adequate test-retest reliability (ranged between .65 and .75).

Study 1: Factor Structure of the Adapted Humor Styles Questionnaire for Children

The aim of the study is to evaluate the factor structure of the CHSQ Turkish measure. Firstly, the original CHSQ form was translated into Turkish by four experts from English Language Teaching department, then it was back-translated into English by two independent translators. The back-translated versions were compared with the original form by the author and three doctoral students of psychological counseling and guidance department. It was determined that there was no incoherency of items of the final version. Fox et al. (2013) suggested 4-Likert type to avoid a neutral mid-point in children responses

so 4-Likert type was preferred rather than 5-Likert type. After the translation and agreement upon the final version of the CHSQ Turkish, we conducted a confirmatory factor analysis.

Method

Participants

The research sample was composed of 300 students (122 females and 178 males) from a secondary school. Their age ranged from 11 to 14 years, the mean age was 12.54 (SD = 1.05) years. Ethical and institutional permissions were taken before the research. Participants' consent was obtained before the commencement of the study. The scales were administered in the classroom, and they required no more than 10 min to complete.

Procedure

To examine the factor structure of CHSQ Turkish, the confirmatory factor analysis (CFA) with the method of maximum likelihood estimation via AMOS was performed. Chi-square to degrees of freedom (χ^2/df), comparative fit index (CFI), root mean square error of approximation (RMSEA), standardized root mean square residual (SRMR), and goodness of fit index (GFI), Tucker-Lewis index (TLI) were used as indices of fit. EFA was implemented via SPSS.

Results

Before CFA, assessment of normality was investigated. We detected eleven data points as outliers and deleted them. After that procedure, skewness (ranged .40 to -1.70) and kurtosis (ranged -1.24 to 1.92) of all items of CHSQ Turkish were calculated and normal distribution was obtained. Then, CFA was conducted to analyze the four-factor structure which was proposed in the original CHSQ. The overall fit indices for the proposed structural model were not acceptable $\chi^2 = 1082,786$ ($df = 246$, $p < .05$), $\chi^2/df = 4.40$, SRMR = 0.118, GFI = 0.80, RMSEA = 0.107, CFI = 0.68, TLI = 0.64. Even after suggested modification indices were applied (items 7–13, 15–18 and 16–23), the model did not show good fit again $\chi^2 = 960,545$ ($df = 243$, $p < .05$), $\chi^2/df = 3.95$, SRMR = 0.113, GFI = 0.84, RMSEA = 0.099, CFI = 0.72, TLI = 0.69.

After these results, it was decided to conduct EFA. In EFA, Kaiser-Meyer-Olkin Measure of Sampling Adequacy value was .82 and Bartlett's Test of Sphericity was significant ($p < .000$) so the criteria for EFA was met. Promax rotation was used in principal components extraction because of the estimated factor correlations (Tabachnick and Fidell 2007). Results indicated that items 3, 7, 12, 13, 15, 18, 19 loaded on more than one factor (the difference between cross-loadings $< .10$) or had low factor loadings (cut-off point .3)

so these items were removed (Tabachnick and Fidell 2007). Results of the EFA were presented in Table 2. As seen in Table 2, results indicated that 4-factor structure with 17 items was obtained.

Descriptive statistics and intercorrelations of the factors were investigated after EFA. As seen in Table 3 and as estimated, self-enhancing humor was correlated positively with affiliative humor and negatively with aggressive humor. Additionally, aggressive humor was uncorrelated with affiliative and self-defeating humor. Unexpectedly, self-defeating humor was correlated positively with affiliative and self-enhancing humor.

After this procedure, we reanalyzed CFA. In the last model, fit indices were good $\chi^2 = 202.117$ ($df = 113, p < .05$), $\chi^2/df = 1.78$, SRMR = 0.05, GFI = 0.93, RMSEA = 0.051, CFI = 0.95, TLI = 0.94 (Bentler and Bonett 1980; Browne and Cudeck 1993; Byrne and Campbell 1999; Hu and Bentler 1999; Schermelleh-Engel and Moosbrugger 2003). This four-factor 17-item model was confirmed after EFA and CFA analyses (see Appendix for the items).

For internal consistency, Cronbach's alpha of the aggressive was .82, affiliative was .83, self-enhancing was .80 and self-defeating was .73. Overall Cronbach's alpha of the scale calculated as .73. Corrected item-total correlations of the CHSQ Turkish items ranged from .50 to .70.

Table 2 Results after the rotated solution of CHSQ Turkish (17-item scale)

Number of the items	Aff	Senh	Agg	Sdef
20.	.85			
4.	.85			
17.	.82			
14.	.75			
8.	.57			
2.		.82		
6.		.80		
10.		.78		
24.		.76		
22.		.48		
1.			.88	
21r.			.84	
5r.			.77	
9.			.77	
11.				.87
23.				.86
16.				.71
% of variance	26.4	16.3	11.3	9.4
Eigenvalue	4.5	2.7	1.9	1.6

r represents reverse item and reverse items were recoded before EFA. Factor loading values higher than .3 were presented. Aff is affiliative, Senh is self-enhancing, Agg is aggressive, Sdef is self-defeating

Table 3 Descriptive statistics and intercorrelations of the four factors

Factors	1	2	3	4
1- Affiliative	1.00			
2- Self-defeating	.29**	1.00		
3- Aggressive	-.06	.03	1.00	
4- Self-enhancing	.43**	.19**	-.14*	1.00
Mean	10.15	3.99	6.35	10.41
SD	4.03	1.53	2.78	4.22

* $p < .05$, ** $p < .01$

These results evaluated that internal consistency of the CHSQ Turkish was confirmed.

Study 2: Test-Retest Reliability

The aim of this study is to investigate the test-retest reliability of the CHSQ Turkish.

Method

Participants

Test-retest reliability study was conducted with 65 (34 females, 31 males, $M_{age} = 12.42$, $SD = 1.10$) secondary school students from the 300 students who completed the CHSQ Turkish in Study 1. These participants included only those who voluntarily agreed to participate in the test-retest study after receiving detailed explanation.

Procedure

To indicate the test-retest reliability of the CHSQ Turkish, 65 participants were asked to fulfill the form after 4 weeks from the first application. Again, all participants filled out the scale form in their classroom.

Results

Four-week interval test-retest reliability of the aggressive was .69, affiliative was .82, self-enhancing was .74, self-defeating was .72 and for test-retest reliability of the total scores was found .84. These results indicated that the scale had acceptable test-retest reliability.

Study 3: Concurrent Validity

In this study, the relationships between CHSQ Turkish, depression, and anxiety were investigated to test the concurrent

validity of the CHSQ Turkish. It was predicted that the depression and anxiety would be negatively correlated with affiliative and self-enhancing humor and would be positively correlated with aggressive and self-defeating humor.

Method

Participants

The research sample was composed of 238 students (88 females, 150 males) from a secondary school. Their age ranged from 11 to 14 years, the mean age was 12.67 (SD = .98) years. Participants' consent was obtained before the commencement of the study. The scales were administered in the classroom, and they required no more than 20 min to complete.

Measures

In addition to CHSQ Turkish, depression, and anxiety subscales of the Brief Symptom Inventory were used in the present study. The information about the scale is detailed below.

Brief Symptom Inventory (BSI; Derogatis 1992) This is a 5-point Likert-type scale consists of 53 items. Items are rated between 0 (not at all) and 4 (very much). Higher total scores indicate the frequency of psychological symptoms (Derogatis and Derogatis and Lazarus 1994). Findings of the study of Derogatis (1992) showed that the internal consistency coefficients for the nine sub-dimensions of the scale ranged from .71 (depression) to .85 (psychoticism). The scale was adapted to Turkish by Şahin et al. (2002) to measure psychological symptoms in children and adolescents. There are five factors in the scale; anxiety, depression, negative self, somatization, and hostility. According to the findings of these researchers, the Cronbach alpha values of the subscales were between .70 and .88. The correlation coefficients of the subscales with social comparison, depression, trait anxiety and life satisfaction were between -45 ($p < .001$) and $.71$ ($p < .001$). In this study, depression (12 items) and anxiety (13 items) subscales were used, the Cronbach's Alpha value of the depression and anxiety obtained from this study was found as .63 and .82, respectively.

Results

Concurrent validity was assessed by implying the Pearson correlation coefficients between four dimension of the CHSQ Turkish and depression, and anxiety subscales of the Brief Symptom Inventory. Results indicated that affiliative humor was negatively correlated with both anxiety ($r = -.16$, $p < .05$) and depression ($r = -.15$, $p < .05$). Self-defeating humor was positively correlated with anxiety ($r = -.22$, $p < .05$) and depression ($r = -.26$, $p < .05$). Self-enhancing humor was negatively correlated with depression ($r = -.18$, $p < .05$) but surprisingly

had no significant correlation with anxiety ($r = -.12$, $p > .05$). Last, aggressive humor was not significantly related to anxiety ($r = .01$, $p > .05$) and depression ($r = .01$, $p > .05$).

Study 4: Convergent and Discriminant Validity

The purpose of this study was to examine the convergent, discriminant validity and gender differences of the CHSQ Turkish to present additional evidence of the measure's validity. The convergent role of sensation seeking and loneliness on four humor styles were investigated. It was predicted that the sensation seeking should be positively correlated with affiliative and self-enhancing, in contrast, it should be negatively correlated with self-defeating and aggressive humor style. Loneliness was predicted to be negatively correlated with affiliative and self-enhancing humor and positively correlated with self-defeating humor. Finally, loneliness was predicted to be uncorrelated with aggressive humor style. For discriminant validity and additional evidence for convergent validity, AVE (Average Variance Extracted) values of the four-factor were investigated. Last, on gender differences, it was predicted that girls should score higher on affiliative and self-enhancing humor styles than did boys. In addition, boys should score higher on aggressive and self-defeating humor than did girls.

Method

Participants

The research sample was composed of 114 students (46 females and 68 males) from the same school in study 3 but from different classes. Their age ranged from 11 to 14, the mean age was 12.67 (SD = .98) years. Participants' consent was obtained before the commencement of the study. The scales were administered in the classroom, and they required no more than 25 min to complete.

Measures

In addition to CHSQ Turkish, Children's Loneliness Scale, and the Brief Sensation Seeking Scale were used in the present study. The information about the scales is detailed below.

Brief Sensation Seeking Scale (BSSS-4; Stephenson et al. 2003) BSSS-4 comprises four items with one factor. The coefficient alpha of the scale was .66; the corrected item-total correlation average was .44 (Stephenson et al. 2003). The scale does not have any reversed item. Scores are calculated by summing the responses to the items. The scale is five-point Likert type ranging from "strongly agree" to "strongly disagree".

Higher scores demonstrate higher levels of sensation seeking. Turkish adaptation of the scale was performed by Çelik (2015). Internal consistency coefficient of the adapted scale was .81 and test-retest reliability was .84. The result of the item analysis demonstrated that corrected item item-total correlations ranged from 0.56 to 0.68. In the present study, the Cronbach alpha internal consistency coefficient of the scale was .80.

Children's Loneliness Scale (CLS; Asher and Wheeler 1985)

The scale was developed for measuring loneliness in children. Asher and Wheeler (1985) developed the scale for children between 3 and 6 classes but 7 and 8 classes were also included in the adaptation study. The scale is a fifteen-item unidimensional factor structure with a 5-point Likert-type self-rating scale ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). Higher scores indicate higher levels of loneliness. The scale was adapted to Turkish by Kaya (2005). EFA yielded unidimensional factor structure with 11 items for 3rd–4th grades and 15 items for 5th–8th grades, respectively. Internal consistency coefficient of the scale was .87 for all grade levels, and test-retest reliability was .76 for 3rd–4th grades and .87 for 5th–8th grades. In the present study, the scale form for 5th–8th grades was used. The Cronbach Alfa coefficient of the total scale was .80 within the scope of this study.

Procedure

Pearson correlation analysis was carried on to find the relationships between convergent variables and CHSQ Turkish scores. CHSQ Turkish scores are expected to have significant correlations with sensation seeking and loneliness. Gender differences in CHSQ Turkish were also examined. All scales were applied as random order.

Results

To evaluate the convergent validity, the Pearson correlation coefficients between four factors of the CHSQ Turkish, Children's Loneliness Scale, and the Brief Sensation Seeking Scale were examined in this part of the study. As predicted, the sensation seeking was positively correlated with affiliative ($r = .32, p < .001$) and self-enhancing, in contrast, it was negatively correlated with self-defeating humor ($r = -.23, p < .05$). It was also clarified that the sensation seeking was uncorrelated with aggressive humor style ($r = .10, p > .05$). Loneliness was negatively correlated with affiliative ($r = -.24, p < .01$) and self-enhancing humor ($r = -.23, p < .05$) and positively correlated with self-defeating humor ($r = .20, p < .05$). Finally, loneliness was uncorrelated with aggressive humor style ($r = .03, p > .05$).

Convergent validity of the scale was also examined evaluating AVE values with a cutoff point of .50 (Fornell and Larcker 1981). As seen in Table 4, aggressive, affiliative and self-

Table 4 AVE, the square root of AVE and intercorrelations

Factor	AVE	1	2	3	4
1. Aggressive	.58	.76			
2. Affiliative	.51	.06	.71		
3. Self-enhancing	.46	-.15	.49	.68	
4. Self-defeating	.53	.01	.28	.12	.73

Bold values are the square root of AVE

defeating humor indicate acceptable convergent validity (.58, .51, .53, respectively) but self-enhancing humor had unacceptable convergent validity (.46). Discriminant validity was examined by comparing the correlation between factors and the square root of AVE values. If the square root of AVE value is higher than the correlation between the two factors of the scale, discriminant validity is confirmed (Fornell and Larcker 1981). Table 4 shows that this criterion of discriminant validity was met in terms of aggressive and affiliative humor (square roots of AVE were .76 and .71, respectively, the correlation between the factors was $-.06$), aggressive and self-enhancing humor (square roots of AVE were .76 and .68, respectively, the correlation between the factors was $-.15$), aggressive and self-defeating humor (square roots of AVE were .76 and .73, respectively, the correlation between the factors was $.01$), affiliative and self-enhancing humor (square roots of AVE were .71 and .68, respectively, the correlation between the factors was $.49$), affiliative and self-defeating humor (square roots of AVE were .71 and .73, respectively, the correlation between the factors was $.28$), self-enhancing and self-defeating humor (square roots of AVE were .68 and .73, respectively, the correlation between the factors was $.12$). In sum, evidence of discriminant validity was provided for all factors.

Examination of gender differences revealed girls scored higher than boys on self-enhancing ($M_{\text{women}} = 10.85, M_{\text{men}} = 8.66, t(112) = -2.99, p < .05$), affiliative ($M_{\text{women}} = 11.93, M_{\text{men}} = 10.98, t(112) = -1.18, p > .05$) and self-defeating humor ($M_{\text{women}} = 5.43, M_{\text{men}} = 4.92, t(112) = -1.37, p > .05$) but as the results indicated that the only significant difference was in self-enhancing humor. Additionally, boys scored higher compared to girls in only aggressive humor and this difference was also significant ($M_{\text{women}} = 6.20, M_{\text{men}} = 8.56, t(112) = 6.45, p < .001$). All results are discussed in detail in the Discussion section.

Discussion

The aim of this study is to adapt and validate the Turkish version of the Humor Styles Questionnaire for Children. Four studies were planned for validity and reliabilities of the scale. In these four studies, confirmatory and exploratory factor analysis for factor structure, test-retest reliability,

concurrent validity and convergent and discriminant validity of the scale were investigated.

First, confirmatory factor analysis (CFA) was used to test the structural validity of the CHSQ Turkish. Results showed that indices of fit were not acceptable even after applying a couple of modification indices. After these results, it was decided to conduct exploratory factor analysis (EFA). In EFA, Promax rotation was used in principal components extraction and results indicated that items 3, 7, 12, 13, 15, 18, 19 loaded on more than one factor (difference between cross-loadings $<.10$) or had low factor loadings (cut-off point $.32$) so these items were removed thus, 4-factor structure with 17 items obtained. After performing confirmatory factor analyses, 4-factor structure had the best fit to the data and all indices of fit were within acceptable ranges. For internal consistency, Cronbach's alpha values of the subscales were adequate (all values $>.70$). Test-retest reliability of the adapted scale was adequate in 4-week interval except for aggressive humor ($.69$) which indicated that four humor styles were stable over time traits.

For concurrent validity, the relationship between CHSQ Turkish, depression, and anxiety was investigated. Firstly, affiliative humor was found negatively correlated with both anxiety and depression. Self-defeating humor was found to be positively correlated with anxiety and depression. Self-enhancing humor was found to be negatively correlated with depression but surprisingly had no significant correlation with anxiety. Numerous studies demonstrated that depression and anxiety had negative correlations with affiliative and self-enhancing humor and positive correlations with self-defeating humor (Frewen et al. 2008; Martin et al. 2003; Tucker et al. 2013). In a study, self-enhancing and affiliative humor were not correlated with attachment anxiety but using of these humor styles was associated with reduced levels of distress (Besser et al. 2012). Last, aggressive humor was not significantly related to anxiety and depression. Although this result is surprising, Kuiper et al. (2004) suggested that aggressive humor does not focus on directly well-being of the person so it should be uncorrelated with constructs like depression and anxiety because it focuses on others.

In the study of convergent and discriminant validity, the convergent role of sensation seeking and loneliness on four humor styles and the gender differences of the CHSQ Turkish were investigated. As predicted, the sensation seeking was positively correlated with affiliative and self-enhancing, in contrast, it was negatively correlated with self-defeating humor. It was also clarified that the sensation seeking was uncorrelated with aggressive humor style. In a study, sensation seeking was positively correlated with self-enhancing humor but had no significant correlations with the other three types of humor (Amani and Shabahang 2018). Earlier studies indicated that humor was positively related to sensation seeking (see

Deckers and Ruch 1992; Lourey and McLachlan 2003), therefore, sensation seeking may be positively related to adaptive styles of humor and negatively related to maladaptive styles of humor (Cann and Cann 2013). Loneliness was negatively correlated with affiliative and self-enhancing humor and positively correlated with self-defeating humor. Loneliness was uncorrelated with aggressive humor style. These results were completely consistent with the findings of the two study (Fitts et al. 2009; Hampes 2005). Individuals reflect affiliative and self-enhancing humor may have positive social bonds and feel less lonely but individuals reflect self-defeating humor may be lonelier because they intensively disparage themselves to obtain approval of others may make them feel lonely (Schermer et al. 2017). Bowker and Etkin (2014) indicated that aggressive young adolescents may be popular because their behaviors may be viewed as funny or humorous by their peers. Aggressive humor style was positively correlated with cyberbully behaviors in adolescents (Sari 2016), humiliating a friend, gossiping, trying to decrease one's popularity are the social attributes of the individuals who use aggressive humor styles (Klein and Kuiper 2006).

Discriminant validity was examined by comparing the correlation between factors and the square root of AVE values. All square root of AVE values were higher than the correlation between factors so discriminant validity of the scale was confirmed. For additional evidence about convergent validity, AVE values were examined with a cutoff point of $.50$. All factors had acceptable convergent validity except for self-enhancing humor. Even the criteria for convergent validity of the self-enhancing humor was not met, correlations between loneliness, sensation seeking, and self-enhancing humor indicated that this factor had sufficient convergent validity.

An examination of gender differences revealed girls scored higher than did boys on self-enhancing, affiliative and self-defeating humor but only significant difference was in self-enhancing humor. In addition, boys scored higher compared to girls in aggressive humor and this difference was also significant. Aggressive humor is more common among men than women because social support for this kind of humor is higher for men than women (Dyck and Holtzman 2013). Yip and Martin (2006) also recruited an undergraduate sample and results revealed that only males preferred an aggressive humor style. Kazarian and Martin (2006) demonstrated that male adults usually used aggressive humor and self-defeating humor. Chan et al. (2009) found that males preferred maladaptive humor styles but females preferred affiliative humor style to improve interpersonal relationships.

Despite the contribution of the present study, some limitations exist. Further studies need to be done in order to examine test-retest reliability because the time between first and second

application was short (four-week interval). Fox et al. (2013) stated that the original CHSQ had low reliability because of the negatively worded items so they deleted three of these seven negatively worded items. In the present study, two of these negatively worded items naturally removed in EFA. It is worth to advise for researchers not to use negatively worded items within scale development studies in children sample. Finally, in the present study, the age of the children ranged from 10 to 14 and psychometric properties of the scale can also be tested below ages.

The findings of this research made a contribution to humor studies in Turkey. Since there is no measurement about humor styles in children samples, it may provide a better understanding of this topic in Turkey. Thus, it may enhance the longitudinal and experimental studies about humor styles of children and their functions and relations to other variables such as friendship, well-being, mindfulness or achievement. Since our study was held in Turkish culture and the original scale was developed in British culture, it contributed to a compari-

son of the humor styles of the children in two different (blend-ed and western) culture. Overall, the findings of this study suggested that the Turkish version of the Child Humor Styles Questionnaire is a valid and reliable instrument.

Compliance with Ethical Standards

Conflict of Interest The contents of this manuscript have not been copyrighted or published previously and not now under consideration for publication elsewhere. The author declares that he has no conflict of interest.

Ethical Approval All procedures performed in studies involving human participants were 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. Official permissions have been obtained from Ministry of National Education and the ethical committee of the related university.

Informed Consent Informed consent was obtained from all individual participants (children and their parents) included in the study.

Appendix

Çocuklar için Mizah Tarzları Ölçeği (Turkish Child Humor Styles Questionnaire)

1. Biri bir hata yaparsa sık sık onunla alay ederim.
2. Eğer üzgün hissediyorsam kendimi komik şeyler düşünerek neşelendirebilirim.
3. İnsanları güldürmek kolayıma gelir
4. Bir şey gerçekten komik olsa bile eğer birini üzecekse ona gülmem ya da o konuda şaka yapmam.
5. Eğer bir sorunum varsa bu. sorun hakkında beni daha iyi hissettirecek komik bir şeyler düşünmeye çalışırım.
6. Sıklıkla fıkra ya da komik hikâyeler anlatarak insanları güldürmeye çalışırım.
7. Fıkra anlattığım zaman bunun diğer insanların keyfini kaçırıp kaçırılmayacağı konusunda endişelenmem.
8. Eğer korkuyorsam gülmenin yardım edeceğini düşünürüm.
9. Arkadaş ya da aile ile birlikteyken diğer insanların dalga geçtiği biri olarak bilinirim.
10. İnsanları güldürmek için çok uğraşmam gerekmez - doğal komik bir insan olarak bilinirim.
11. Sıklıkla benimle ilgili yanlış olan ya da yaptığım hatalarla ilgili komik şeyler söyleyerek insanların benden daha çok hoşlanmasını sağlamaya çalışırım.
12. Espri ya da komik hikâyelerim insanları güldürür.
13. Diğer insanları güldürebilirim.
14. İnsanlar başka birilerini aptalca göstermek için onlara güldüklerinde bu. hoşuma gitmez.
15. Gülmek ve espri yapmanın sorunlarla başa çıkmanın güzel yolları olduğunu düşünürüm.
16. Eğer arkadaşlarımı ya da ailemi güldürürse, kendimi küçük düşürmekten kendimi alamam.
17. Zor bir durumda olduğumda genellikle komik şeyler düşünmeye çabalarım.

Ölçek, kâr amacı gütmeyen akademik çalışmalar ya da eğitim faaliyetlerinde izin alınmadan kullanılabilir. (Permission for use of the scale is not compulsory when it is used for nonprofit academic research or nonprofit educational purposes).

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