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Turkish Adaptation of the Dusseldorf Illustrated Schema Questionnaire for Children: Psychometric Properties and Relationship with Childhood Difficulties

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Abstract

Dusseldorf Illustrated Schema Questionnaire for Children (DISC) measures early maladaptive schemas (EMS) in childhood. EMS are emotional and cognitive rules and patterns formed in childhood and adolescence because of unmet emotional needs which are maintained throughout life and negatively affect one's potential. The first aim of the current study is to adapt DISC to the Turkish language and examine its psychometric properties to facilitate preventive intervention during early childhood. The second aim of the study is to investigate the relationship between schemas and childhood difficulties. The sample consisted of 771 (419 females, 352 males) children of first graders (8-year-old) to twelfth graders (14-year-old) from 54 of the 81 cities in Turkey. Cronbach's α value for the total of 36 items was calculated as .89 and α values for subscales ranged between .42 and .83. The test–retest reliability coefficient of the total of the scale was .79 at 1 month and subscales' test–retest values ranged between .31 and .91. Confirmatory factor analysis showed a good fit for the purported 18-factor model of the original DISC in the Turkish version within a sample of children from diverse socio-economic and cultural backgrounds from Turkey. The Turkish version of the DISC indicated a reliable and valid instrument to assess maladaptive schemas in children.

Keywords Schema therapy · Early maladaptive schemas · Children and adolescent schemas · Schema questionnaire

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Introduction

Schema therapy (ST) integrates different components of cognitive and behavioral therapy (CBT), attachment theory, object relations, Gestalt therapy, experiential therapies, constructivism, and psychoanalytic theory (Young et al., 2003). ST is particularly suitable for characterological and chronic disorders, and it is designed for cases that are complex and difficult to treat with typical CBT (Jacob & Arntz, 2013). The aim of ST is to help the patient to understand core emotional needs and find ways of meeting them in an adaptive manner (Rafaeli et al., 2011) which has been hampered in childhood through the complex interaction between one's emotional temperament, learning, and toxic experiences with caregivers that resulted in early maladaptive schemas (EMS). Thus, identifying EMS in childhood can help implement preventive treatment against developing chronic emotional and behavioral problems (Loose et al., 2018a).

EMS are emotional and cognitive patterns formed in childhood and adolescence which are maintained throughout life that impede meeting core emotional needs. The individual develops maladaptive coping responses (i.e., schema surrender, schema avoidance, or schema overcompensation) to these EMS which in turn reinforce them, resulting in various forms of psychopathology, and psychological distress (van Genderen et al., 2012; Young et al., 2003). ST works through cognitive, affective, behavioral, and interpersonal techniques to help the patient understand and change EMS and maladaptive coping styles (Arntz & van Genderen, 2009). There are 18 EMS, originally clustered into five schema domains of (1) disconnection and rejection, (2) impaired autonomy and performance, (3) impaired limits, (4) other-directedness, and (5) overvigilance and inhibition. These schema domains correspond to five unmet core emotional needs regarding (1) secure attachment, (2) autonomy, (3) realistic limits and self-control, (4) freedom to express needs and emotions, and (5) spontaneity and play (Young et al., 2003). Schemas in the disconnection and rejection domain pertain to a theme that one's need for safety, warmth, and acceptance in relationships will likely not be met. EMS belonging to this domain are Abandonment/Instability, Mistrust/Abuse, Emotional Deprivation, Defectiveness/Shame, and Social Isolation/Alienation. The schema domain of impaired autonomy and performance is related to beliefs that hinder the individual's ability to function autonomously in the world. EMS belonging to this domain are Dependence/Incompetence, Vulnerability to Harm or Illness, Enmeshment/Undeveloped self, and Failure. The general theme of the schema domain of impaired limits is characterized by a weak self-discipline and a lack of sense of responsibility to others. EMS in this domain are Entitlement/Grandiosity and Insufficient Self-control/Self-discipline. The schema domain of other directedness is associated with attending to the needs of others at the expense of one's own. EMS in this domain are Subjugation, Self-Sacrifice, and Approval-seeking/Recognition-seeking. Lastly, the motif of the schema domain of overvigilance and inhibition is the suppression of one's needs to obey rigid rules of performance and being highly alert against possible adversities. EMS in this domain are Negativity/Pessimism, Emotional Inhibition, Unrelenting Standards/Hypercriticalness, and Punitiveness.

There is strong evidence for the utility of ST model and EMS in treating mental health problems in adults (Henker et al., 2019; Körük & Özabacı, 2018; Köse Karaca, 2015; Köse Karaca & Ateş, 2019; Maher et al., 2021; Peeters et al., 2021). In addition to facilitating the understanding of adult psychology, ST model is also valuable in understanding psychological distress and mental health problems in adolescents (Loose et al., 2018a; Muris, 2006; Roelofs et al., 2013; Santos et al., 2018; Zarbock et al., 2018). For example, ST model provides insights into borderline features (Barazandeh et al., 2018), depressive symptoms (Gökçe et al., 2017), depressive and social anxiety symptoms (Calvete et al., 2014; Orue et al., 2014), eating disorders (Ataman Temizel, 2019), disruptive behaviors (van Wijk-Herbrink et al., 2017), addiction potential (Bakhshi Bojed & Nikmanesh, 2013), internalizing and externalizing behavior problems (van Wijk-Herbrink et al., 2018), and bullying victimization (Alba et al., 2017) in adolescents. Conceptualization of the interaction between temperament and core emotional needs in childhood and adolescence in terms of EMS, schema modes, and dysfunctional coping styles can help prevent the development of psychological disorders as well as contributing to resilience and well-being (Zarbock et al., 2018). EMS are shown to be related to youth mental health (Nicol et al., 2020) and childhood psychosocial problems such as emotional symptoms, behavioral problems, hyperactivity/inattention, and peer relationship problems (Loose et al., 2018b). However, there is no consensus in the literature as to when these EMS emerge in childhood and whether all are maladaptive when considering the developmental level of the child (Stallard & Rayner, 2005). Moreover, there is a limited number of studies conducted with younger children compared to adults and adolescents. It is important to investigate the state and structure of EMS in childhood since ST model underscores that they are formed early in life (Loose et al., 2018a). Identifying and working on EMS in childhood to understand the distorted perception can impede developing chronic emotional and behavioral problems (Loose et al., 2018a). Consequently, it is essential to have a valid and reliable measure to assess EMS in childhood.

Young Schema Questionnaire (YSQ; Young, 2005a) is a self-report measure designed to assess active EMS in adults. Several versions (i.e., YSQ-3, YSQ-Short Form 3) of this measure exists in the literature and they are adapted into other cultures (e.g., Bach et al., 2017; Kriston et al., 2013; Pauwels et al., 2018). Turkish adaptations of the YSQ-Short Form 3 (Soygüt et al., 2009) and Short Schema Mode Inventory (Aytaç et al., 2020) demonstrated adequate levels of reliability and validity. Furthermore, the presence of EMS in childhood and their associations to psychological distress are studied with questionnaires adapted to children. A recently developed scale, The Dusseldorf Illustrated Schema Questionnaire for Children (DISC; Loose et al., 2018b) which is based on the items of the YSQ, has an advantage compared to earlier measures (e.g., Early Maladaptive Schema Questionnaires Set for Children and Adolescents, SQS, Güner, 2016; Schema Inventory for Children, SIC, Rijkeboer & de Boo, 2010; Schema Questionnaire for Children, SQC, Stallard & Rayner, 2005) because it is composed of illustrations which make it easily accessible to younger children. The aim of the current study is first to adapt the DISC to the Turkish language and investigate its psychometric properties because having a reliable, valid, and easily administrable measure to assess EMS in clinical

and research settings in Turkey could facilitate preventive intervention during early childhood. Moreover, it is essential to have cross-cultural support for the validity of EMS in childhood; therefore, it is also aimed to examine if the 18 EMS model is valid with children from Turkey. Lastly, the second aim of the study is to investigate the relationship between EMS and childhood difficulties to discern the role of EMS in childhood distress.

Method

Participants

The participants of this study consisted of 771 children of first graders (8-year-old) to twelfth graders (14-year-old). The data was collected from 54 of the 81 cities of Turkey through convenience sampling. The gender ratio of the sample was balanced, with 54.3% ($n=419$) females and 45.7% males ($n=352$). Two hundred nineteen children (28.4%) were first to fourth graders, 455 (59%) were fifth to eighth graders, and 97 (12.6%) were ninth to twelfth graders. Children attended two types of schools: 139 children (18%) attended private, and 632 children (82%) attended public school. A total of 771 mothers participated in the study. Most (76.78%) of them were unemployed, 18.82% were working in the private sector, 2.97% were working in the public sector, and 1.43% indicated "other." Regarding fathers ($n=771$), most of them (65.76%) were working in the private sector, 11.67% were working in the public sector, 3.11% were unemployed, and 19.46% indicated 'other'.

Data Collection Tools

Dusseldorf Illustrated Schema Questionnaire for Children

DISC, developed by Loose et al., (2018a, b), is a 36-item questionnaire that assesses maladaptive schemas in 8- to 13-year-old children. It is based on the YSQ-Short Form 3 (Young, 2005b). The DISC is presented in the form of a booklet. On each page of the booklet, there is a cartoon representing the schema-specific scenario followed by 2 schema-specific items for each of the 18 schemas. These items are self-statements that are asked to be rated on a 4-point rating scale (4 = "always true," 3 = "often true," 2 = "seldom true," and 1 = "never true") to assess the level of agreement. In the original study by Loose et al., (2018a, b), Cronbach's alpha level for the internal consistency of scale was found to be 0.87 and test–retest reliability was $r=0.61$ ($p<0.001$) at 12- to 13-month intervals and $r=0.37$ ($p<0.05$) at 26- to 34-month intervals. Corresponding schemas of the DISC and the SIC were found to be positively correlated (ranging between 0.22 and 0.69, $p<0.001$) indicating criterion validity (Loose et al., 2018b). Pearson's r correlations of the DISC with Strengths and Difficulties Questionnaire (SDQ, Goodman, 1997) for predictive validity indicated that the correlation was $r=0.42$ ($p<0.001$) with the self-assessment version of the SDQ and it was $r=0.23$ ($p<0.001$) with the parent assessment

version of the SDQ (Loose et al., 2018b). In the current study, Cronbach's alpha of the total score was 0.89 and it ranged between 0.42 and 0.83 for the subscales.

Strength and Difficulties Questionnaire

SDQ, developed by Goodman (1997), assesses emotional symptoms, behavioral problems, hyperactivity/inattention, peer relationship problems, and prosocial behavior in 3- to 16-year-old children. It has 25 items divided into five subscales each consisting of five questions. Items are scored on a 3-point scale (0 = "not true," 1 = "somewhat true," and 2 = "certainly true"). The total score from the first four subscales gives a total difficulty score. The scale has parent, teacher, and self-rated versions. Mean Cronbach's alpha level of the subscales for different informants was found to be 0.73 and mean test–retest reliability at 4 to 6 months was found to be 0.62 (Goodman, 2001). Moreover, factor analyses supported a 5-factor solution for all the versions of the scale (Goodman, 2001). The Turkish adaptation study found that Cronbach's alpha coefficient of the parent-rated version of total difficulties and prosocial behavior scores were 0.84 and 0.73, respectively (Güvenir et al., 2008). The observed Cronbach's alpha coefficients of the parent-rated version in this study were 0.62 for total difficulties and 0.72 for prosocial behavior scores.

Process

The study was approved by the ethics committee of Bingöl University. Most of the data was obtained online because of Covid-19 pandemic restrictions, except for the first 70 participants. The first 70 participants (pre-pandemic period) were reached through convenience sampling. The authors contacted teachers from different schools. First, the informed consent was sent to eligible parents by these classroom teachers. If the parents agreed to the informed consent, the children filled the DISC under the supervision of their classroom teacher and took the demographic information form and the parent-rated version of the SDQ attached to the DISC to their parents. Then, the children brought back the forms to their classroom teacher who sent them to the researchers. Regarding the online data collection process, participants were also reached through convenience sampling. Psychology undergraduate students from the universities where authors had connections voluntarily sent the online form to eligible participants, and others were reached through social media platforms (WhatsApp, Facebook). The first part of the online form consisted of informed consent. If the parent accepted the informed consent, they were instructed to complete the demographic information and the SDQ parent-rated version. After completion, they were asked to invite their child to complete the DISC. To reach a sufficient sample size for a reliable retest coefficient, consent and contact information of 140 participants were taken for test–retest data collection. Retest forms were sent at 1 month to these participants and 44 of them provided data. Retest data were matched through the pseudonyms that the participants gave themselves in the first part of data collection. The data collection coincided with the pandemic period which may have affected the low response rate for the test–retest data. However, it

was found in the literature that a sample of 40 to 50 participants for retest yielded reliable results (Kennedy, 2022). The data was collected between September 2020 and January 2021.

Statistical Evaluation

To reach the aim of the study, the psychometric properties of the Turkish version of the DISC regarding its internal consistency, reliability, construct validity, and concurrent validity were investigated.

Cronbach's alpha (α) levels and test–retest Pearson's *r* coefficients (at 1 month) were analyzed to assess internal consistency and reliability. Confirmatory factor analysis (CFA) for a model with 36 items and 18 factors as suggested by Loose et al., (2018a, b) was conducted to assess the construct validity. The factor loadings from the CFA were accepted at minimum 0.32 (Tabachnick & Fidell, 2007). The model fit was investigated through chi-square test/degrees of freedom (χ^2/df), root mean square error of approximation (RMSEA), standardized root mean square residual (SRMR), Non-Normed Fit Index (NNFI), and Comparative Fit Index (CFI) indicators. RMSEA and SRMR ≤ 0.05, $\chi^2/df \leq 3$, and CFI and NNFI ≥ 0.90 levels were used as an indication of the goodness of fit (Hooper et al., 2008). The correlations between the SDQ subscales and the DISC subscales were calculated to assess concurrent validity. The analyses were conducted with SPSS 22 and LISREL 8.88 programs with 0.05 significance level.

Translation Process

The scale was translated into Turkish by an independent bilingual clinical psychologist and an Advanced Schema Therapist certified by International Society of Schema Therapy (ISST). The Turkish translation was evaluated and edited by two Advanced Certificated Schema Therapists (certified by ISST). Before collecting data with this final form, it was pre-tested in a small sample of 30 children from a public school (22 females and 8 males, age range between 8 and 14) to ensure applicability and the clarity of the questions. It was determined that some of the questions were not easy to score and understand. These items were edited and modified in line with the feedback.

Results

Descriptive statistics of the DISC are presented in Table 1. Skewness and kurtosis scores were examined for normality assumption. Estimates $\leq |3|$ were considered adequately normal distributions (D'Agostino et al., 1990). Skewness and kurtosis values of the DISC ranged between -1.112 and 2.000, suggesting that all variables had relatively normal distributions (see Table 1). The multivariate normality assumption

Table 1 Descriptive statistics of the Turkish version of the DISC

Subscales	M	SD	Skewness	Kurtosis
Insufficient self-control	5.29	1.67	− 0.054	0.176
Subjugation	3.80	1.58	0.769	− 0.007
Mistrust/Abuse	3.55	1.64	1.000	0.260
Defectiveness/Shame	3.13	1.49	1.435	1.534
Social isolation/Alienation	3.33	1.47	1.167	.921
Dependence/Incompetence	4.08	1.54	0.549	− 0.247
Failure	3.22	1.44	1.495	2.000
Vulnerability	4.31	1.73	0.518	− 0.555
Enmeshment	5.92	1.66	− 0.472	− 0.563
Entitlement/Grandiosity	3.39	1.61	1.143	0.575
Emotional Deprivation	3.21	1.49	1.242	0.932
Abandonment/Instability	6.78	1.55	− 1.112	0.314
Self-Sacrifice	4.21	1.49	0.352	− 0.385
Approval-Seeking	4.19	1.83	0.537	− 0.762
Negativity/Pessimism	3.93	1.55	0.661	0.192
Emotional Inhibition	4.37	1.70	0.441	0.647
Punitiveness	3.85	1.73	0.903	0.007
Unrelenting Standards	5.24	1.67	− 0.102	− 0.656

was examined by using Mahalanobis distance, and the critical chi-square value was identified by the degrees of freedom (at $\alpha = 0.001$; Tabachnick & Fidell, 2007).

Reliability Analyses

Internal consistency and test–retest reliability were examined to measure reliability. Cronbach's α value for the total of 36 items was calculated as 0.89 and the internal consistency level of the subscales ranged between 0.42 and 0.83 (see Table 2). Test–retest was conducted on a group of 44 (28 female, 16 males, aged between 8 and 14 years) participants at 1 month. Pearson's r correlation for the total score was 0.79 and it ranged between 31 and 0.91 for the subscales and all values were statistically significant ($p < 0.001$) (see Table 2). Additionally, an independent sample t-test was conducted to check for a difference between pretest and post-test levels. The results revealed no significant difference between the pretest and post-test scores for all the subscales ($p < 0.05$).

Validity Analyses

The factorial structure of the scale was examined via CFA. The results demonstrated that the scale produced good data-model fit statistics and no modification was necessary (CFI = 0.98; NNFI = 0.96; SRMR = 0.036; RMSEA = 0.038; χ^2/df = 2.11). The factor loadings on schema-item level ranged between 0.33 and 0.82 (see Table 3).

Subscales	Number of items	Results of reliability	
		Cronbach's α	Test–retest r
Insufficient self-control	2	0.65	0.81
Subjugation	2	0.61	0.61
Mistrust/Abuse	2	0.71	0.58
Defectiveness/Shame	2	0.62	0.86
Social isolation/Alienation	2	0.61	0.82
Dependence/Incompetence	2	0.69	0.75
Failure	2	0.73	0.85
Vulnerability	2	0.73	0.84
Enmeshment	2	0.56	0.31
Entitlement/Grandiosity	2	0.69	0.63
Emotional Deprivation	2	0.75	0.81
Abandonment/Instability	2	0.83	0.91
Self-Sacrifice	2	0.42	0.70
Approval-Seeking	2	0.67	0.69
Negativity/Pessimism	2	0.67	0.67
Emotional Inhibition	2	0.57	0.56
Punitiveness	2	0.63	0.63
Unrelenting Standards	2	0.47	0.49
Total	36	0.89	0.79

Table 2 Results of reliability analyses of the Turkish version of the DISC

All values are significant at $p < .001$

Additionally, the intercorrelations of the subscales of the DISC were examined to assess construct validity of the scale. The results indicated significant relationships among the subscales (see Table 4). Overall, these results contributed to the construct validity of the scale.

The concurrent validity of the scale was examined through the correlations between the subscales of the DISC and the corresponding subscales of the SDQ (parent-rated version). The results demonstrated significant relationships among the subscales of these two questionnaires. The correlation between SDQ parent-rated version difficulties total score and the DISC total score was in the expected direction ($r = 0.39$, $p < 0.05$) parallel to the original study ($r = 0.23$, $p < 0.001$). Moreover, the correlation between prosocial behavior score and the DISC was also in the expected direction ($r = -0.24$, $p < 0.05$). Overall, these results contribute to the concurrent validity of the Turkish version (see Table 5).

Discussion

The first aim of the present study was to investigate the psychometric properties of the Turkish version of the DISC developed by Loose et al., (2018a, b). The results of the reliability analyses indicated that the Turkish version of the scale had good internal consistency and strong test–retest reliability. Cronbach's alpha level for the

Table 3 Factor loadings of the DISC for the 18-factor model (*N*=771)

Schemas	Factor loadings	
	Item 1	Item 2
Insufficient self-control	.77	.63
Subjugation	.68	.63
Mistrust/Abuse	.74	.74
Defectiveness/Shame	.68	.68
Social isolation/Alienation	.61	.72
Dependence/Incompetence	.70	.78
Failure	.69	.80
Vulnerability	.82	.76
Enmeshment	.60	.67
Entitlement/Grandiosity	.68	.78
Emotional Deprivation	.82	.75
Abandonment/Instability	.72	.92
Self-Sacrifice	.33	.84
Approval-Seeking	.74	.68
Negativity/Pessimism	.79	.65
Emotional Inhibition	.82	.46
Punitiveness	.57	.77
Unrelenting Standards	.64	.48

total scale (0.89) was parallel to the original study (0.87). Moreover, Pearson's *r* correlation coefficient for test–retest of the total score (0.79 at 1 month) was parallel to the original study (0.61 at 13 to 14 months). The factorial structure obtained from CFA showed schema-item factor loadings of above 0.32 level and adequate level of fit indices supporting construct validity. Furthermore, the results of correlation analyses revealed significant relationships among the subscales of the DISC which also supported construct validity. Additionally, the fit indices of the Turkish version of the DISC pointed to a better fitness compared to the original study and supported the validity of 18 EMS in a Turkish sample. The second aim of the study was to investigate the relationship between childhood psychosocial problems and EMS. Significant correlations were found between the SDQ (which measures childhood difficulty areas of emotional symptoms, behavioral problems, hyperactivity/inattention, and peer relationship problems) and the DISC. This result contributed to the concurrent validity of the scale. Additionally, this result supported the literature that EMS are related to youth mental health and childhood difficulties (Loose et al., 2018b; Nicol et al., 2020). In conclusion, the Turkish version of the DISC indicated good reliability and validity and the presence of 18 EMS in a culturally different sample was validated. Moreover, the relationship between EMS and childhood difficulties was supported.

Several studies demonstrate that dysfunctional parenting can lead to psychosocial problems in childhood (Kapçı & Hamamcı, 2010; Sayal, 2017). These childhood difficulties in areas of emotional symptoms, behavioral problems, hyperactivity/

Table 4 Correlation values for subscales of the DISC

Subscales	Sample	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Sample	1																		
1. IS	.19**	1																	
2. SB	.15**	.08*	1																
3. MA	.11*	.27*	.25*	1															
4. DS	.14*	.10*	.32*	.39*	1														
5. SI	.11**	.16**	.16**	.41**	.35**	1													
6. DI	.12**	.23**	.27**	.25**	.18**	.11**	1												
7. FA	.06	.27**	.30**	.35**	.32**	.29**	.28**	1											
8. VU	−.07	.09**	.16**	.35**	.24**	.22**	.27**	.24**	1										
9. EM	.06	.16**	.04	.12**	.05	.15**	.13**	.06	.24**	1									
10. ET	.19**	.28**	.06	.31**	.16**	.19**	.21**	.31**	.09**	.05	1								
11. ED	.13**	.23**	.25**	.41**	.47**	.37**	.23**	.38**	.34**	.06	.31**	1							
12. AB	.03	−.09**	−.11**	−.30**	−.19**	−.27**	.05	−.23**	−.19**	.01	−.09	.34**	1						
13. SS	.13**	.13**	.28**	.25**	.25**	.19**	.18**	.27**	.24**	.22**	.11**	.28**	−.001	1					
14. AS	.21**	.22**	.19**	.29**	.17**	.09*	.31**	.25**	.19**	.05	.41**	.26**	−.02	.22**	1				
15. NP	.05	.17**	.32**	.45**	.40**	.33**	.23**	.39**	.52**	.20**	.22**	.48**	−.29**	.32**	.27**	1			
16. EI	.13**	.15**	.20**	.34**	.30**	.27**	.23**	.24**	.30**	.18**	.19**	.30**	−.12**	.22**	.30**	.41**	1		
17. PU	.07	.06	.30**	.21**	.20**	.21**	.32**	.14**	.27**	.11**	.15**	.22**	−.08*	.22**	.23**	.34**	.35**	1	
18. US	.13**	.09**	.16**	.16**	.12**	.10**	.19**	.03	.21**	.19**	.13**	.22**	.03	.21**	.35**	.23**	.27**	.24**	1

Abbreviations: IS Insufficient Self-Control, *SB* Subjugation, *MA* Mistrust/Abuse, *DS* Defectiveness/Shame, *SI* Social Isolation/Alienation, *DI* Dependence/Incompetence, *FA* Failure, *VU* Vulnerability, *EM* Enmeshment, *ET* Entitlement/Grandiosity, *ED* Emotional Deprivation, *AB* Abandonment/Instability, *SS* Self-Sacrifice, *AS* Approval-Seeking, *NP* Negativity/Pessimism, *EI* Emotional Inhibition, *PU* Punitiveness, *US* Unrelenting Standards

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

Table 5 Correlations between DISC and SDQ (parent-rated version)

DISC	Emotional problems	Behavioral problems	Hyperactivity/inattention	Peer problems	Prosocial behavior	Total difficulties
IS	.22**	.15**	.11**	.06	−.25**	.22**
SB	.15**	.08*	.03	.05	−.03	.13**
MA	.28**	.19**	.08*	.07*	−.25**	.25**
DS	.21**	.15**	−.02	−.04	−.19**	.13**
SI	.25**	.14**	.01	.12**	−.23**	.21**
DI	.21**	.14**	.08*	.02	−.15**	.19**
FA	.28**	.23**	.08*	.00	−.25**	.25**
VU	.30**	.11**	.08*	.04	−.01	.22**
EM	.16**	−.02	.05	.11**	.07*	.12**
ET	.09**	.22**	.13**	.05	−.28**	.18**
ED	.34**	.28**	.10**	.10**	−.24**	.33**
AB	−.17**	−.16**	−.07*	−.05	.16**	−.18**
SS	.20**	.13**	.14**	.12**	.04	.23**
AS	.13**	.15**	.11**	.06	−.16**	.17**
NP	.37**	.16**	.03	.05	−.10**	.26**
EI	.27**	.19**	.06	.08*	−.13**	.24**
PU	.24**	.18**	.10**	.08*	−.11**	.24**
US	.18**	.12**	.15**	.06	−.04	.20**
Total	.42**	.28**	.14**	.11**	−.24**	.39**

Abbreviations: IS Insufficient Self-Control, *SB* Subjugation, *MA* Mistrust/Abuse, *DS* Defectiveness/Shame, *SI* Social Isolation/Alienation, *DI* Dependence/Incompetence, *FA* Failure, *VU* Vulnerability, *EM* Enmeshment, *ET* Entitlement/Grandiosity, *ED* Emotional Deprivation, *AB* Abandonment/Instability, *SS* Self-Sacrifice, *AS* Approval-Seeking, *NP* Negativity/Pessimism, *EI* Emotional Inhibition, *PU* Punitiveness, *US* Unrelenting Standards

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

inattention, and peer relationship problems are pointed to be indicators of risk of psychiatric disorders (Goodman et al., 2010). Since EMS are also affected by toxic experiences with caregivers, EMS and childhood difficulties are expected to be related (Loose et al., 2018a). The results of correlation analyses between the SDQ and DISC in this study indicated that all schemas were significantly associated with childhood problem areas. The schemas Emotional Deprivation, Mistrust/Abuse, Self-Sacrifice, and Punitiveness were related to all difficulty domains of the SDQ. The rest of the schemas were significantly correlated with at least two of the domains of the SDQ that represented difficulties. Additionally, all schemas revealed significant relationships with the domain of emotional problems.

The direction of significant relationship between schemas and problem areas was all positive except for Abandonment/Instability schema. The schema of Abandonment/Instability showed a negative significant association with emotional problems, behavioral problems, and hyperactivity/inattention. Considering Maslow's hierarchy of needs (1943) and the childhood universal needs of Schema Theory (Young, 1998), the most important basic need for human beings is safety to survive. In order to be safe, a human being needs a parent who cares, protects, and meets their needs. If it is thought that the Abandonment/Instability schema originates from an insecure environment, where there is no stable caregiver to protect the child, an abandoned child feels a serious threat to survive in an insecure environment, so s/he can be more depressed and withdrawn (Soygüt et al., 2009). Thus, this child has the potential to develop tendencies to suppress his/her emotions/needs/drives and develop coping strategies to take attention such as not causing problems (i.e., emotional, behavioral, and hyperactivity) and being compliant to others not to be abandoned (Mikulincer & Shaver, 2019). This could be the reason for the negative correlation of this schema. Another possible reason for this unexpected result could stem from the use of the parent-rated version of the SDQ in this study. Parents that are susceptible to create an environment of abandonment and instability may not be aware of the emotional problems of their children and may have given unexpected answers to the questions.

As for behavioral problems, all schemas were significantly correlated with behavioral problems apart from Enmeshment schema. Although a child with an Enmeshment schema has emotional problems internally, s/he may not reflect it as the behavior since enmeshment is related to overinvolvement with parents, losing personal boundaries and acting in line with others. On the other hand, most of the schemas showed significant positive relationships with hyperactivity/inattention. For instance, Entitlement/Grandiosity schema was positively associated with hyperactivity/inattention. This could stem from that Entitlement/Grandiosity schema is related to difficulty in self-control and self-discipline originating from a family without setting boundaries as similar to the nature of hyperactivity. Moreover, Approval-Seeking schema also had a significant positive relationship with hyperactivity/inattention. Due to the frequency of peer rejection in hyperactivity/inattention problems (Mrug et al., 2012), the need for approval could be vital for a child to be accepted among friends. Insufficient Self-Control schema based on impulsivity, intolerance to boredom, and difficulty in self-limitation also indicated significant correlation with hyperactivity/inattention problems parallel to the literature (Kiraz & Sertçelik, 2021;

Philipsen et al., 2017). On the other hand, Subjugation, Defectiveness/Shame, Social Isolation/Alienation, Enmeshment, Negativity/Pessimism, and Emotional Inhibition schemas did not demonstrate significant relationship with hyperactivity/inattention problem area. This could be explained by the fact that in contrast to hyperactivity, these schemas block the tendency to act spontaneously and lead a person to attend to others' needs due to feeling adequate, alone, dependent, or pessimistic.

The number of significant relationships with schemas drops in the peer relationship problem area. This can be explained by the fact that a schema does not always have a reflection in the relations with peers, even though it creates emotional problems in the inner world of a child. However, Mistrust/Abuse, Social Isolation/Alienation, Enmeshment, Emotional Deprivation, Self-Sacrifice, Emotional Inhibition, and Punitiveness had significant relationships with this problem area. These findings are understandable because the schema tendencies of not being able to trust others (Mistrust/Abuse), seeing oneself as different from others (Social Isolation/Alienation), seeking overinvolved relationships (Enmeshment), overbearing to other (Self-Sacrifice), suppressing own emotions/needs/desires, and being judgmental (Punitiveness) increase propensity to deteriorate relationships.

Finally, most of the schemas were significantly and negatively related to prosocial behavior. Prosocial behavior requires actions such as helping, cooperating, comforting, sharing, and donating. Thus, it is plausible that schemas negatively correlate with prosocial behavior. On the other hand, Abandonment/Instability, and Enmeshment indicated positive relationships with prosocial behavior. These findings are comprehensible since children with Abandonment schema can be hypersensitive to others' need for help because they do not receive enough support themselves. In addition, a child with an Enmeshment schema may also be hypersensitive to others' need for help because s/he feels over involved with others and does not have a separate self. However, unexpectedly, there was no significant correlation between Subjugation, Vulnerability, Unrelenting Standards, and Self-Sacrifice and prosocial behavior. This may be because the SDQ assesses a child's prosocial behavior based on his/her relationship with peers. The child may be submissive, and sensitive to others' need for help, having high expectations and sacrificing himself/herself in the relationship with the parents, but s/he may not behave like this with his/her friends. On the other hand, parents who try to evaluate their children's behavior during the pandemic period may have been deprived of the opportunity to observe what their children are doing in the social environment. Overall, these results emphasize that schemas can be considered a vulnerability in a child's psychological disposition and that depending on the context some schemas may act as protective factors.

This study had several limitations. The data collection period coincided with the Covid-19 pandemic; therefore, most of it was collected online. This contributed to easily reaching more subjects and having a section for the parents to fill out (SDQ parent-rated version) helped the process of data collection to be supervised. However, the pandemic was a period for children to stay at home and not go to school, play, and socialize like before. A limitation of the study is the lack of knowledge about the effects of the pandemic in the lives of these children, for example, if they lost a loved one or not. Moreover, there was no information on any adverse life events between test–retest time periods. Future studies

after the pandemic period addressing these limitations can be beneficial to clarify their possible effects on maladaptive schemas. Additionally, the response rate for test–retest was very low; the data would have provided more accurate results if more participants had responded. Parent-rated version of the SDQ was used in this study because it was thought that it would be harder for smaller age groups to complete a self-rated version. However, this can lead to a limitation to the study because the correlation between the DISC and the self-rated version of the SDQ was found to be much higher (Loose et al., 2018b). In future studies, self-rated versions of the SDQ or other measures can be used to examine their relationships to schemas to gain better insight into the perspective of children about their own thoughts, feelings, and behaviors. Furthermore, this study examined the construct validity through intercorrelations between subscales and a CFA. However, investigating the relationship of the DISC with another measure that assesses maladaptive schemas in childhood such as SQS (Güner, 2016) would have also contributed to the construct validity. Moreover, the significant correlations between the subscales of the DISC and SDQ in the expected directions points to a meaningful association between these two constructs. However, the correlations were weak. This could be since SDQ does not directly measure psychopathology. These scales assess different constructs and weaker correlations between them can be observed, but stronger correlations would have given better support for the concurrent validity. Additionally, using an index of childhood psychopathology such as the Revised Child Anxiety and Depression Scale–Child Version (Chorpita et al., 2000) rather than SDQ would have yielded better support for concurrent validity of the scale. Therefore, future studies are required to overcome these limitations.

This study presents a useful instrument for research studies and clinical practice to detect developing maladaptive schemas in childhood in Turkey. The most advantageous characteristic of this inventory is the illustrations that make the schemas and questions more relatable and understandable for children (Loose et al., 2018b). Early detection of the formation of the maladaptive schemas is important to prevent future chronic problems that can develop into personality structures (Loose et al., 2018a; Zarbock et al., 2018). This inventory can be used in further research studies to expand knowledge and contribute to literature on child development, psychopathology, happy child, and maladaptive schemas. Moreover, one of the strengths of this study was the characteristics of its sample. Children from a diverse socio-economic and cultural background from more than 50 cities in Turkey were reached and the gender ratio was balanced. This contributed to the representativeness of the sample. The Turkish version of the DISC was a reliable and valid instrument to assess maladaptive schemas in children within such diversity. Moreover, several of the children between ages 8 and 9 commented that the scoring could have been easier if it was a 5-point scale with a middle point. Future studies can consider this comment in scale development and scoring decisions. Furthermore, this study provides important contributions to literature on maladaptive schemas in childhood. It presents validation of the presence of 18 maladaptive schemas in childhood in a non-Western culture. In summary, this study shows that the Turkish version of the DISC is easy to administer with the help of illustrations, a reliable and valid tool for clinical practice and future research studies.

Declarations

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