



The clinical validity and reliability of the Brief Infant–Toddler Social and Emotional Assessment (BITSEA)

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ABSTRACT

This study investigates the construct validity and reliability of the Brief Infant–Toddler Social and Emotional Assessment (BITSEA) in a psychiatric clinical sample of toddlers. The sample consisted of a psychiatric clinical sample ($N=112$) (male, $n=79$; female, $n=33$) of toddlers (12- to 42-months old). Both mothers and fathers completed the BITSEA and mothers completed the Child Behavior Checklist 2/3 (CBCL). Children and their parents were administered a comprehensive psychiatric evaluation. Parents were also given the Autistic Behavior Checklist (AuBC) and the Aberrant Behavior Checklist–Community (ABC). The internal consistency of BITSEA scores was good to excellent for both parents. The BITSEA/Problem (P) scores were significantly correlated with Internalizing, Externalizing and Total Problem scores of the CBCL, all subscores of ABC and total score of AuBC. The BITSEA/Competence (C) scores were significantly inversely correlated with ABC total and AuBC lethargy scores. With respect to a community sample, BITSEA/P scores were significantly higher in the disruptive behavior disorder (DBD) and anxiety/depression (Anx/Dep) groups and BITSEA/C scores were significantly lower in the autism group. These results support the reliability and validity of the BITSEA as a screening tool that may be employed in primary health care services and in psychiatric clinical settings for assessing social–emotional/behavioral problems and delays in competence in infants and toddlers.

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Despite increasing concerns about psychiatric disorders and social–emotional problem behaviors that appear in early childhood, few research studies have been conducted with clinical populations in this age group (Carter, Briggs-Gowan, & Davis, 2004; Egger et al., 2006; Shaw, Owens, Giovanelli, & Winslow, 2001) and reliable and valid measurements are still needed (Briggs-Gowan, Carter, Irwin, Wachtel, & Cicchetti, 2004; Carter et al., 2004). Screening instruments intended for use in pediatric settings should be brief and easy to administer, score, and interpret (Jellinek & Murphy, 1988; Jellinek et al., 1999). They also should have adequate reliability and validity (Eisert, Sturmer, & Mabe, 1991; Jellinek & Murphy, 1988), and should identify an acceptable percentage (a minimum of 70%) of children who have problems, yet have a false-positive rate of not greater than 30% (Cicchetti, Volkmar, Klin, & Showalter, 1995). Those instruments should provide developmentally appropriate (Glascoe, 2000) and clinically useful information (Carter, 2002).

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There are several instruments developed for preschool children. The preschool Child Behavior Checklist (CBCL)/1.5–5 can be a very useful scale for this age group (Achenbach & Rescorla, 2000). It consists of 100 main items, and it includes Internalizing, Externalizing, and Total Problem scales, plus six syndrome scales. The 35-item Eyberg Child Behavior Inventory (ECBI) measures the symptoms of disruptive behavior disorders (Burns & Patterson, 2000). The 40-item Toddler Behavior Screening Inventory (TBSI) addresses common behavior problems in 1- to 3-year-olds (Mouton-Simien, McCain, & Kelley, 1997). Another screener, the Ages & Stages Questionnaire – Social–Emotional version (ASQ-SE), addresses developmental problems from birth to 5 years of age (Squires, Bricker, & Twombly, 2002). The Modified Checklist for Autism in Toddlers (M-CHAT) is useful for early identification of children with autism (Robins, Fein, Barton, & Gren, 2001). Of course, all scales have certain limitations. For example, some are rather lengthy (e.g., CBCL, ITSEA) and others are confined to a single condition (e.g., M-CHAT) or symptom domain (e.g., ECBI).

Our results indicate that Turkish version of BITSEA is easy to administer, score, and interpret (Karabekiroglu et al., 2009). The 42-item Brief Infant–Toddler Social and Emotional Assessment (BITSEA) scale (Briggs-Gowan et al., 2004) is designed as a screener for parents and child-care providers to identify children “at risk” for or currently experiencing social–emotional/behavioral problems. Delays in social–emotional competence, including autism spectrum disorders, are also covered within the instrument. BITSEA items were drawn from the pool of ITSEA questions (Carter, Briggs-Gowan, Jones, & Little, 2003). In the reliability and validity study of original version of BITSEA (Briggs-Gowan et al., 2004; Briggs-Gowan, Carter, Skuban, & Horwitz, 2001), test–retest reliability was excellent and interrater agreement (mother/father and parent/child-care provider) was good. Findings support the BITSEA as a consistent and sufficient screener for social–emotional/behavioral problems and delays in social–emotional competence (Briggs-Gowan & Carter, 2002, 2006).

The initial study of the reliability and validity of the Turkish version of the BITSEA revealed that it is a reliable, valid and simply applicable instrument for screening social, emotional and behavioral problems among toddlers (Karabekiroglu et al., 2009). In this previous study, validity and cutpoints of the BITSEA/C relative to psychiatric diagnosis were not explored. Despite its validity and practical utility in the community settings, as the BITSEA measures overall severity of the social and emotional problems and competence level in toddlers, it might be a convenient tool for clinical settings, especially to assess the change in time, in terms of overall psychiatric morbidity.

In this study we aimed to investigate the construct validity and the reliability of the Turkish version of BITSEA (Karabekiroglu et al., 2009), and BITSEA/C cutpoints in a psychiatric clinical sample of toddlers. As BITSEA was found to be a promising and practically applicable screening tool for social and emotional problems and delays in competence in toddlers, the current study was designed to test the following hypotheses: (1) the BITSEA/P scores should be higher in toddlers with diagnosable social and emotional problems, (e.g., in the children who were diagnosed with an anxiety disorder, depression and/or disruptive behavior disorder); and (2) the BITSEA/C scores should be lower in toddlers with delays in competence, (e.g., in the children with autism).

1. Methods

1.1. Setting and participants

Over a period of 14 months, in a child psychiatry outpatient clinic in Turkey, 112 consecutive patients (male, $n=79$; female, $n=33$), who were younger than 42 months of age (range = 14–42; mean = 29.86, SD = 7.31), and had no serious medical illness or severe motor and/or mental retardation, were enrolled in the current study. Mothers' average age was 29.92 years (SD = 5.35, range = 16–43) and fathers' average age was 34.54 years (SD = 5.66, range = 23–53). 25% of the mothers were working. While 22.3% of the mothers and 29.5% of fathers had a university degree, 30.4% of mothers and 28.6% of fathers graduated from high school. As the participants were assumed as representative for the general population, the mean BITSEA scores of the community sample in our previous study (Karabekiroglu et al., 2009), which consisted of 462 children with a mean age of 24.60 months (SD = 7.93, range = 12–42), were used as control group. Age and education level of the mothers and fathers were similar in both groups. In the control group, mothers' average age was 29.11 (SD = 5.03, range = 19–44) and fathers' average age was 33.12 years (SD = 6.09, range = 20–72). 25.1% of the mothers were working. In addition, 20.7% of the mothers and 25.9% of fathers had a university degree, and 25.9% of mothers and 34.1% of fathers graduated from high school.

1.2. Procedure

Parents and children were assessed in our outpatient clinic at least twice, with each assessment lasting a minimum of 1 h. The assessment included a comprehensive mental status examination of the children and evaluation of parent–child interaction. The psychiatric assessment procedure was consistent with practice parameters for early childhood psychiatric evaluation (Thomas et al., 1997). The clinical diagnoses were based on the comprehensive mental status examination, and the consensus between two child and adolescent psychiatry specialists, who clinically assessed all children together. They were blind to the questionnaire data. In addition, structured and semi-structured measurements were used. Both mothers and fathers completed the BITSEA and only mothers completed CBCL/2–3. Parents were also given an Autistic Behavior Checklist (AuBC) and Aberrant Behavior Checklist–Community (ABC). Because all patients were toddlers and the validity of the diagnosis could be in question, broad, generic diagnostic groups were formed (e.g., both attention deficit disorders and conduct disorders were grouped as disruptive behavior disorder). Five diagnosis groups were formed: (1) “no

diagnosis group”; (2) “disruptive behavior disorder (DBD) group” (attention deficit disorders and conduct disorders); (3) “anxiety/depression group” (anxiety disorders, depression and adjustment disorders with depression and/or anxiety); (4) “autism group”; and (5) “other diagnosis group”.

1.3. Measures

1.3.1. Brief Infant–Toddler Social and Emotional Assessment (BITSEA)

The BITSEA-Problem scale (BITSEA/P) is comprised of 31 items and the BITSEA-Competence scale (BITSEA/C) is comprised of 11 items (Briggs-Gowan & Carter, 2002). Higher total scores on BITSEA/P indicate a higher level of behavioral and emotional problems and lower total scores on BITSEA/C indicate a lower level of competence. The reliability and validity of the Turkish version of BITSEA was established by Karabekiroglu et al. (2009) in a community sample of 462 toddlers. In this study we used the Turkish version of BITSEA (Karabekiroglu et al., 2009).

1.3.2. Child Behavior Checklist/2–3 (CBCL/2–3)

A newer version, the CBCL/1.5–5 (Achenbach & Rescorla, 2000), designed for children 18 months through 5 years, has not yet been validated in Turkey. The CBCL/2–3 is designed for evaluating young children to obtain ratings of behavioral/emotional problems from parents. It includes Internalizing, Externalizing, and Total Problems scales, plus six syndrome scales. The Turkish version of the CBCL/2–3 identifies 16.5% of toddlers as subclinical and 10.9% as clinical. For details see Karabekiroglu et al. (2009).

1.3.3. Autism Behavior Checklist (AuBC; Krug, Arick, & Almond, 1980)

The checklist is used to diagnose autism in school children with severe symptoms, but it has also proved useful in diagnosing the disorder in children as young as 3 years of age. It consists of 57 questions, divided into five categories: Sensory, Relating (social skills), Body and Object Use, Language, and Social and Self-Help. The questions can be independently completed by a parent or teacher familiar with the child.

1.3.4. Aberrant Behavior Checklist-Community (ABC; Aman, Singh, Stewart, & Field, 1985; Aman, Singh, & Turbott, 1987)

The ABC has 58 items that are rated on a four-point scale ranging from 0 (“not at all a problem”) to 3 (“the problem is severe in degree”) The items are scored onto five subscales as follows: (I) Irritability, Agitation, Crying (15 items); (II) Lethargy, Social Withdrawal (16 items); (III) Stereotypic Behavior (7 items); (IV) Hyperactivity, Noncompliance (16 items); and (V) Inappropriate Speech (4 items). Psychiatric clinical validation and reliability study of ABC in toddlerhood has shown a good to excellent validity and reliability measures (Karabekiroglu & Aman, 2009). Subscales of the ABC revealed significant differences between diagnostic groups. ABC total ($p = .005$) and Irritability ($p = .005$) and Hyperactivity ($p = .005$) subscale scores were significantly higher in children with Externalizing disorders; the Lethargy/Social Withdrawal ($p < .001$) and Stereotypic Behavior ($p = .005$) subscale scores were significantly higher in toddlers with autism. The ABC appears to be capable of discriminating several syndromes in early childhood (Karabekiroglu & Aman, 2009).

1.3.5. Infant & Toddler Mental Status Examination (ITMSE)

Although the basic components of the mental status examination are similar for children and adults, other techniques (e.g., play) are also included. We used the Infant & Toddler Mental Status Examination (ITMSE) (Benham, 2000; Thomas et al., 1997), which is a semi-structured mental status examination for young children. It consists of 10 parts including “Appearance,” “Apparent Reaction to Situation,” “Self-regulation,” “Affect and Mood,” and “Play.” This examination is recommended by the American Academy of Child and Adolescent Psychiatry (Thomas et al., 1997).

1.3.6. Zero-to-Three Psychiatric Assessment Sociodemographic Form

This form included most sociodemographic, medical and developmental variables important for early childhood psychiatric assessment (Thomas et al., 1997), such as complaint history, family relations, medical problems, and cultural background.

1.4. Data analyses

The analytic plan included assessment of the scale structure, interrater reliability, and criterion and construct validity of the BITSEA. Internal consistency of maternal and paternal BITSEA-Problem (P) and -Competence (C) scores were calculated with Cronbach’s α . Scores of the scales were compared with the parametric (Pearson’s correlation) and non-parametric tests (Spearman’s correlation) depending on the normality of the data. Interrater reliabilities of the BITSEA-Problem and -Competence scores were calculated with Spearman’s correlations. For the construct validity, BITSEA scores of diagnosis groups were compared with the Kruskal–Wallis tests. The Tukey HSD or Mann–Whitney U tests were used in the post hoc analysis. As we calculate difference between diagnosis groups in five subscores (BITSEA [2 subscores] and CBCL scores [3 subscores]), for Bonferroni correction, a p value of less than .01 (.05/5) was determined as the level of statistical significance. In addition, construct validity was examined dimensionally and through dichotomous sensitivity-specificity analyses and was evaluated by comparing the BITSEA scores with the diagnosis groups. The BITSEA-Problem and -Competence clinical

Table 1
Correlations between subscores of BITSEA, ABC, and CBCL and total score of AuBC.

Subscale	1	2	3	4	5	6	7	8	9	10
1. BITSEA-Problem	–	–.06 (105)	.54* (85)	.45* (86)	.45* (86)	.50* (86)	.51* (102)	.64* (103)	.79* (101)	.52* (80)
2. BITSEA-Competence	–	–	–.05 (86)	–.48* (87)	–.32 (87)	–.26 (87)	–.33* (103)	–.04 (104)	–.09 (102)	–.38* (81)
3. ABC-Irritability			–	.40* (87)	.44* (87)	.74* (87)	.33 (84)	.77* (85)	.65* (84)	.45* (82)
4. ABC-Lethargy				–	.64* (88)	.53* (88)	.69* (85)	.39* (86)	.51* (85)	.64* (82)
5. ABC-Stereotypic					–	.29 (88)	.40* (85)	.38* (86)	.39* (85)	.66* (82)
6. ABC-Hyperactivity						–	.43* (85)	.79* (86)	.66* (85)	.58* (82)
7. CBCL Internalizing							–	.41* (104)	#	.44* (79)
8. CBCL Externalizing								–	#	.45* (80)
9. CBCL Total									–	.46* (79)
10. AuBC Total										–

Note. Correlation scores (*r* scores) are shown in the table. Numbers in the parenthesis indicate number of cases. ABC: Aberrant Behavior Checklist; AuBC: Autism Behavior Checklist; CBCL: Child Behavior Checklist: 2–3. Figures in bold correspond to cells where a high correlation would be expected a priori.

* $p < .001$ (Spearman's correlations).

CBCL total scores comprise Internalizing and Externalizing scores, that is why some correlations are not shown in the table.

cutpoints were identified by using diagnosis groups. We looked for optimum combination of acceptable level of sensitivity and specificity and as it is a screening tool, sensitivity is primary, we decided to select 85% sensitivity at least. Then cut-off scores of BITSEA were used to form clinical and non-clinical groups. These groups and diagnostic groups were compared with chi-square tests. SPSS 11.0 was used for all statistical calculations.

2. Results

Six (5.3%) mothers and 15 (13.3%) fathers did not complete the BITSEA. CBCL forms were completed by 105 (93.7%) of the mothers. Ninety parents (80.3%) completed the ABC and 88 parents (78.5%) completed the AuBC. Twenty-four of the 112 participants (21%) were younger than 24 months. In this younger group we diagnosed 8 children with autism, 5 with a sleep disorder, 3 with a disruptive behavior disorder (DBD), and 2 with pervasive developmental disorder – not otherwise specified (PDD-NOS). Fifty-seven of the 112 participants (51%) were between 2 and 3 years of age. In this group we diagnosed 18 children with autism, 9 with language disorders, 8 with anxiety/depression disorders, 7 with DBD, and 11 were not assigned any diagnosis. Thirty-three patients were older than 3 years (28%). In this group, we diagnosed 9 children with autism, 5 with DBD, 5 with language disorders, and 7 were not assigned any diagnosis. Mean maternal BITSEA-Problem (P) scores were 18.73 (SD=8.52) and were not significantly different from the mean paternal scores, which were 18.80 (SD=8.26). Similarly, the mean maternal BITSEA-Competence (C) score of 13.16 (SD=4.51) was not significantly different than the mean paternal score, which was 13.05 (SD=3.98). In addition, maternal and paternal BITSEA-P scores were not significantly different across boys and girls (mean maternal male = 19.22, female = 17.58; mean paternal male = 19.44, female = 17.19). However, maternal and paternal BITSEA-C scores were significantly higher in female toddlers (mean maternal male = 12.41, female = 14.97, $p < .01$; mean paternal male = 12.23, female = 15.07, $p < .01$).

2.1. Reliability

2.1.1. Internal consistency

The internal consistency of the BITSEA/P was calculated as .80 (Cronbach's α) and the BITSEA/C was .69 (Cronbach's α) for the maternal and the paternal scales.

2.1.2. Interrater reliability

The maternal and paternal BITSEA scores were significantly correlated (BITSEA/P, Spearman's $\rho = .66$, $p < .001$; BITSEA/C, Spearman's $\rho = .63$, $p < .001$).

2.2. Validity

2.2.1. Criterion validity and correlational analyses of BITSEA with other scales

While BITSEA/P scores were significantly correlated with CBCL Internalizing, Externalizing and Total Problem scores (Table 1), BITSEA/C scores were only significantly inversely correlated with CBCL Internalizing scores. BITSEA/P scores were also significantly correlated with all subscores of AuBC and total score of ABC. The BITSEA/C scores were significantly inversely correlated with AuBC total and ABC lethargy scores (Table 1).

2.2.2. Construct validity, BITSEA scores, and toddler's diagnosis

Maternal and paternal BITSEA/C subscales revealed significant differences between diagnostic groups (Table 2). Post hoc analysis showed that maternal and paternal BITSEA/C scores were significantly lower ($p < .01$) in the

Table 2

Mean and standard deviations of BITSEA, CBCL, ABC and AuBC total and subscores for each diagnosis group.

Subscore	Diagnosis (group)					<i>p</i>	Source of significance
	No dx (1) <i>n</i> = 21	Autism (2) <i>n</i> = 35	DBD (3) <i>n</i> = 15	Anx/Dep (4) <i>n</i> = 12	Control (5) <i>n</i> = 427		
BITSEA-P							
Maternal	18.20 ± 8.35	18.56 ± 8.65	22.60 ± 9.73	21.80 ± 9.22	16.11 ± 7.89	<.01	3:5
Paternal	17.11 ± 6.98	19.57 ± 8.19	20.86 ± 8.14	22.50 ± 13.15	16.16 ± 8.39	<.01	4:5
BITSEA-C							
Maternal	15.80 ± 3.23	9.32 ± 3.53	13.20 ± 4.14	16.30 ± 4.52	15.61 ± 3.81	<.001	1:2; 2:3; 2:4; 2:5
Paternal	15.58 ± 2.89	9.87 ± 3.64	13.86 ± 4.13	16.25 ± 2.05	15.49 ± 3.83	<.001	1:2; 2:3; 2:4; 2:5
CBCL							
Internal	7.16 ± 4.34	11.71 ± 5.27	8.79 ± 4.91	10.89 ± 7.25	6.85 ± 4.54	<.001	1:2; 2:5
External	10.68 ± 10.61	18.82 ± 8.46	29.00 ± 7.08	19.50 ± 8.60	15.36 ± 8.38	<.001	1:3; 2:3; 3:4; 3:5
Total	54.0 ± 24.57	55.67 ± 20.92	71.57 ± 24.84	61.00 ± 24.04	45.09 ± 23.02	<.001	3:5
AuBC	31.33 ± 21.90	61.61 ± 25.66	66.42 ± 20.34	31.75 ± 28.62		<.001	1:2; 1:3; 3:4
ABC							
Irritability	12.16 ± 10.0	10.31 ± 7.36	24.25 ± 6.91	16.44 ± 9.35		<.001	1:3; 2:3
Lethargy	5.20 ± 4.42	12.96 ± 8.20	8.75 ± 3.30	7.78 ± 5.23		<.01	1:2
Stereotypic	1.45 ± 2.01	5.31 ± 4.79	6.00 ± 3.74	2.22 ± 2.94		<.01	1:2; 1:3
Hyperactivity	16.10 ± 10.82	19.69 ± 9.62	29.08 ± 9.52	16.33 ± 10.71		<.01	1:3; 2:3

Note. ABC: Aberrant Behavior Checklist; Anx/Dep: anxiety/depression; AuBC: Autism Behavior Checklist; BITSEA/C: Brief Infant and Toddler Social and Emotional Assessment Scale – Competence score; BITSEA/P: BITSEA-Problem score; CBCL: Child Behavior Checklist: 2–3; dx: diagnosis; DBD: disruptive behavior disorder.

autism group compared to groups with “no diagnosis”, disruptive behavior disorder (DBD), and anxiety/depression (Anx/Dep).

The BITSEA/C scores were identified as cutpoints by using autism and non-autism diagnosis groups based on ROC curve (maternal BITSEA/C, sensitivity = 72–93%, specificity: 76–85%) (Fig. 1). There was not gender difference in these cutpoints, but cutpoints change by age. These BITSEA/C cutpoints (14–23 months: ≤ 9 ; 24–35 months: ≤ 12 ; 36–42 months: ≤ 13) identified 85.3% of autism group, and 15% of “no diagnosis” and 17.6% of “other diagnosis” (excluding pervasive developmental disorder – not otherwise specified) group at risk for delay in competence ($p < .001$).

As the BITSEA was developed as a screening tool for social and emotional problems and delays in competence to be used in community settings, we aimed to compare the BITSEA/P and BITSEA/C scores in the community sample from our previous study (Karabekiroglu et al., 2009) with the scores in the current study diagnostic groups. Both maternal and paternal BITSEA/P scores revealed significant differences between diagnostic groups ($p < .01$) (Table 2). Post hoc analysis showed that maternal BITSEA/P scores were significantly higher in DBD group and paternal BITSEA/P scores were significantly higher in Anx/Dep group with respect to the control group ($p < .01$). In addition, maternal and paternal BITSEA/C scores were significantly lower in autism group compared to groups with “no diagnosis”, DBD, Anx/Dep.

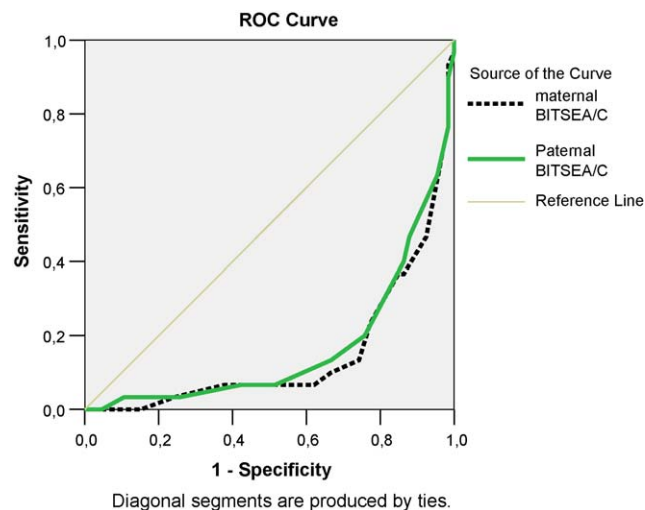


Fig. 1. The ROC curve for maternal and paternal BITSEA/competence scores based on autism and non-autism diagnosis groups ($p < .001$).

3. Discussion

Internal consistency of the BITSEA/P (Cronbach's $\alpha = .80$) was good to excellent and the internal consistency of the BITSEA/C (Cronbach's $\alpha = .69$) was good. Interrater reliability for both scales (BITSEA/P, Spearman's $\rho = .66$, $p < .001$; BITSEA/C, Spearman's $\rho = .63$, $p < .001$) were good to excellent. Both maternal and paternal BITSEA/P scores were significantly correlated with the Internalizing, Externalizing and Total Problems scores of the CBCL, all subscores of ABC, and total score of AuBC. The BITSEA/C scores were significantly inversely correlated with AuBC total and ABC lethargy scores. As competence level would be presumed to be lower in the children diagnosed with autism and/or children with higher scores in AuBC, inverse correlation between BITSEA/C and AuBC and ABC lethargy scores could be expected. On the other hand, we found that BITSEA/C scores are also significantly inversely correlated with the CBCL Internalizing scores. As CBCL Internalizing subscale mostly explores the depressive and anxiety symptoms, we may also expect to see an inverse correlation between the level of competence and depression and/or anxiety scores.

As the clinical sample consisted of toddlers with psychiatric complaints even in the group without any psychiatric diagnosis, the BITSEA/P scores were higher and BITSEA/C scores were lower than those observed in the community sample. Therefore, we explored the differences in BITSEA scores between diagnostic groups and the community sample. With respect to the community sample, BITSEA/P scores were higher in the disruptive behavior disorder (DBD) and anxiety/depression (Anx/Dep) groups. Scores were significantly higher in the DBD group only by mother's report and Anx/Dep group only by father's report. Besides scores were similar, the difference in the presence of significance may be a result of limited sample size in the diagnosis groups.

BITSEA/C scores were significantly lower in the autism group. Significant differences in BITSEA/C scores were also found between the autism group and all other diagnosis groups. Therefore, we may suggest that BITSEA is a valid tool for psychiatric clinical settings in differentiating the most common psychiatric disorders of toddlerhood, such as autism and disruptive behavior disorders.

On the other hand, an exploration for cutpoints with ROC curves based on autism diagnosis, we found that suggested cutpoints for BITSEA/C were considerably sensitive for autism. In this study we excluded toddlers with severe motor retardation. Therefore, the specificity of these cutpoints may be assumed to be high for children with autism when toddlers with severe motor mental retardation are excluded.

3.1. Limitations

This study involved some toddlers without any psychiatric diagnosis. However, clinically referred toddlers without diagnoses have higher BITSEA/P and/or lower BITSEA/C scores. In addition, the sample size was not large enough to explore differences in BITSEA scores between individual diagnostic groups and controls. Therefore, we used the scores of a community sample to evaluate the differences. On the other hand, to validate clinical cutpoints, further research studies are needed that participants in the community groups are assessed clinically as well. In addition, to establish cutpoints valid for whole country, randomly selected community samples should be obtained from all regions.

3.2. Conclusion and clinical implications

Overall results support that the BITSEA is a valid and reliable measure for assessing social and emotional problems and delays in competence in a psychiatric clinical sample of toddlers, as well as in a community sample. In addition, it may be assumed that the BITSEA is a reliable and valid instrument for differentiating several psychiatric disorders, such as disruptive behavior disorders, anxiety disorders, depression and autism in toddlerhood. Our results support that the BITSEA may be employed as a useful tool in screening autism as well. As it consists of 42 items and is easily scored, it is a promising screening tool for social and emotional problems and delays in competence in primary health care settings. In addition, it may be used as an additional measurement for assessing the severity of psychiatric disorders with social and emotional problems and developmental delay in toddlerhood.

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