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Reference Values Regarding Measure of Basic Empathy Scale in Forensic Adolescents

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Empathy is generally deemed a multidimensional construct, involving affective processes (i.e., the sharing of the emotional state of another) and a cognitive process (i.e., the ability to understand another's emotional state). Empathy can be measured, and people with higher levels of empathy are expected to act in a more responsive way to the perceived feelings of another. Empathic dysfunction has been associated with conduct disorder (CD), antisocial personality disorder, acquired sociopathy, as well as diverse clinical conditions. Besides problems in social communication/interaction, resulting in unstable and impaired relationships, a lack of empathy is often associated with callous and unemotional behavior, violence, aggression, and criminality. The wide use of Basic Empathy Scale (BES) to assess adolescents with CD and/or disruptive behavior disorder, especially in forensic settings, led us to systematically review its results in order to establish reference values for this scale. A systematic review was conducted according to the Preferred Reporting Items for Systematic review and Meta-Analysis for Protocols (PRISMA-P) and Cochrane collaboration guidelines, gathering 14 studies using the BES to assess empathy in adolescents with CD/disruptive behavior disorder. Developing reference data for BES may be particularly important to draw valid conclusions on the characteristics of adolescent assessed in clinical or forensic settings, particularly because BES is largely used in evaluation procedures in these settings.

Public Significance Statement

Given the wide use of BES to assess adolescents with conduct disorder and/or disruptive behavior disorder, especially in forensic settings, it is important to establish reference values for this scale, resorting to a systematic review. Developing reference data for BES may be particularly important to draw valid conclusions on the characteristics of adolescents assessed in clinical or forensic settings.

Keywords: reference values, empathy, BES

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continued

Over the years, empathy has been defined variously several definitions. Despite the lack of consensus regarding its conceptualization, a globally accepted definition of empathy arises from the debate about whether empathy involves recognizing emotion or experiencing it, or both (Bennett, 1995; Chlopan et al., 1985; Jolliffe & Farrington, 2004; Reniers et al., 2011). In this way, empathy is generally deemed a multidimensional construct, involving affective processes (i.e., the sharing of the emotional state of another) and a cognitive process (i.e., the ability to understand another's emotional state; Decety & Jackson, 2006; Gini et al., 2007; Jolliffe & Farrington, 2004; Rankin et al., 2005; Reniers et al., 2011; Young et al., 2008). Cohen and Strayer (1996, p. 988) refer to empathy as "the ability to understand and share in another's emotional state or context."

In general, researchers appear to agree on certain aspects of empathy, such as: it is a factor of individual difference (Eisenberg & Strayer, 1987; Farrington et al., 2001), it influences behavior (Eisenberg et al., 1996; Kaukiainen et al., 1999), it can be measured, and people with higher levels of empathy are expected to act in a more responsive way to the perceived feelings of another (Jolliffe & Farrington, 2004). Empathy can be viewed as a dichotomous risk factor (e.g., lack of empathy), but it is better conceptualized as a continuous variable (e.g., low–high empathy). An increased understanding of the mechanisms of empathy is of great clinical and public health relevance. On one hand, empathy fosters prosocial and altruistic behavior (e.g., Batson et al., 1987). It is generally believed that empathy shapes the landscape of our social lives by motivating prosocial and caregiving behaviors, inhibiting aggression, and facilitating cooperation between members of a similar social group (Decety et al., 2016). On other hand, empathic dysfunction has been associated with conduct disorder (CD), antisocial personality disorder, acquired sociopathy (i.e., people who develop sociopathy after damage to the brain hemispheres; de Oliveira-Souza et al., 2019; Jolliffe & Farrington, 2004; Miller & Eisenberg, 1988; Spinella, 2005), and psychopathy (Blair, 2005). Besides problems in social communication/interaction, resulting in unstable and impaired relationships, a lack of empathy is often associated with callous and unemotional behavior, violence, aggression, and criminality (Blair et al., 2005; Reniers et al., 2011). For this reason, lack of empathy or low empathy is often used to explain behavioral outcomes, especially antisocial behavior (ASB), as it is postulated that those who often act antisocially have lower empathy than those who do not (Burke, 2001; Bush et al., 2000; Hogan, 1969; Jolliffe & Farrington, 2004; Marcus & Gray, 1998). High empathy is viewed as an individual protective factor, decreasing the probability of certain types of antisocial or even criminal behavior, while a lack of empathy is assumed to have a facilitating influence on these behaviors (Jolliffe & Farrington, 2004).

At the developmental level, the ability to empathize begins at an early age, with infants showing some responsiveness to other infants' distress (Martin & Clark, 1982; Ornaghi et al., 2020). During the second year of life, toddlers' responses to others' distress typically transform from an overwhelming personal distress reaction to a more other oriented empathic reaction. At the same time, toddlers become capable of rather sophisticated helping behaviors (Hammond, 2014; Piaget & Cook, 1952; Zahn-Waxler et al., 1992). As children reach the preschool years, significant developments occur in cognitive empathy. There is evidence to suggest that these early dispositions toward empathy and prosocial behavior may be consistent and stable over time (Batson, 1991; Carlo et al., 2015; Hoffman, 2000; Mcdonald & Messinger, 2011). It should be noted that the ability to empathize develops with contributions from various biologically and environmentally based factors. These factors include genetics, subserving areas of the brain such as the mirror neuron system and the limbic system, as well as environmental factors, as facial mimicry and imitation, child temperament, parenting factors such as warmth, parent–child synchrony, and other qualities of the parent–child relationship (Mcdonald & Messinger, 2011). If one or more of these factors function atypically, they may contribute to empathy deficits.

The most used measure to assess empathy in children and adolescents is the Basic Empathy Scale (BES; Jolliffe & Farrington, 2006). This instrument has been widely used in different age-groups because it is short, easy to administer, and provides measures on both affect congruence (affective empathy) and the understanding of another's emotions (cognitive empathy). Specifically, the BES consists of 20 items measuring cognitive and affective empathy. The possible total score ranges from 0 to 20, with the scores of the cognitive empathy subscale ranging from 0 to 9 and the scores of the affective empathy subscale ranging from 0 to 11.

Besides the widely use all over the world, it is possible to identify several adaptations and studies of psychometric properties of this instrument. In Europe, several studies use samples of adolescents from the community to validate the BES, demonstrating good psychometric qualities. The factor structure commonly reported concerns the structure of two factors (*affective* and *cognitive empathy*), comprising 20 items in its complete version (Albiero et al., 2009; Anastácio et al., 2016; D'Ambrosio et al., 2009; Pechorro et al., 2017; Villadangos et al., 2016) or a shorter version with 12 items (Zych et al., 2022). Three factor structure was also reported comprising factors named, emotional contagion, emotional disconnection, and cognitive empathy (Bensalah et al., 2016). Similarly, the United States or Asian countries find good psychometric qualities in two-factor–factor structures comprising 20 items (Li et al., 2011; Topcu et al., 2010; You et al., 2018), or older versions. reduced, comprising nine items (Ventura-Léon et al., 2021). BES has also

the psychology of aggression and violence, and clinical intervention with juveniles and adults' offenders.

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The study was conducted according to APA ethical standards.

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been validated on a variety of forensic and at-risk youth samples. Most studies report two-factor–factor structures, comprising 20 items (Pechorro et al., 2015, 2017) or shorter versions of 16 items (Geng et al., 2012), 12 items (Heynen, Van der Helm, Stams, et al., 2016), or seven items (Salas-Wright et al., 2013). Across the studies, validity of the original BES was supported by significant positive relations between empathy and prosocial behavior (e.g., Albiero et al., 2009), intelligence, extraversion, neuroticism, agreeableness, conscientiousness, parental supervision, socioeconomic status, and age (e.g., Jolliffe & Farrington, 2006). Although it is widely accepted that the relationship between empathy and ASB is simply the converse of the empathy—prosocial behavior relationship (Gery et al., 2009; Jolliffe & Farrington, 2004; Lovett & Sheffield, 2007), some interesting derivations have been noted. In line with expectation, some research has noted that empathy is negatively related to aggression and disruptive behavior (Bons et al., 2013; Miller & Eisenberg, 1988; Tampke et al., 2020; van Langen et al., 2014), children and adolescents with CDs had significantly lower empathy than those in the control group (e.g., de Wied et al., 2005; Kostić et al., 2016), but others have not found evidence that those who act antisocially have lower empathy (e.g., Noten et al., 2020). The explanation of these apparent contradictory findings, concerning Geng et al. (2012), "appears to be related to both the seriousness of the ASB and whether cognitive or affective empathy was assessed" (p. 501).

The wide use of BES to assess adolescents with CD and/or disruptive behavior disorder (DBD), especially in forensic settings, led us to systematically review its results in order to establish reference values for this scale, both for the abovementioned adolescents, as well as for typical controls (whenever available). This reference values can be useful for the application of the BES and the interpretation of its results, both in clinical practice and in further research with adolescents.

Method

This systematic review was conducted according to the Preferred Reporting Items for Systematic review and Meta-Analysis for Protocols (PRISMA-P) and Cochrane collaboration guidelines (Shamseer et al., 2015).

Search Strategy

Data were taken by searching EBSCO, Pubmed, and Web of Science. The reference lists of the selected studies were also reviewed in order to identify other relevant studies. The search expression was: full text (TX; "Basic Empathy Scale" *OR* BES) AND abstract (offend* *OR* "sex offend*" *OR* Criminal* *OR* Inmate* *OR* Prisoner* *OR* Violent *OR* Delinq* *OR* Antisocial *OR* Anti-social *OR* "Conduct Disorder*" *OR* "Conduct Problem*" *OR* "Disruptive Behav*" *OR* "Oppositional Defiant" *OR* "Oppositional Behav*" *OR* "Defiant Behav*" *OR* "Behavior Problem*). This search was complemented by hand searching to prevent publication and source selection bias, namely, by screening the reference lists of the selected studies.

Study Selection

To select the studies, the following inclusion criteria were applied: (a) were written in English, French, Portuguese or Spanish (b) empirical study—the study had to report empirical findings, including results of BES, such as mean and standard deviation (or other statistics allowing to compute variance); (c) adolescents and late adolescent (between 10 and 24 years old) with CD and/or DBD or forensic samples. This age limit was decided taking into account contemporary social patterns regarding adolescent growth and the transitions of social roles that have undergone changes over time (Sawyer et al., 2018). The exclusion criteria were as follows: (a) literature reviews and case studies; (b) studies that do not provide mean and standard deviation (or other statistics allowing to compute variance). The studies were selected by two independent reviewers from reading abstracts according to recommendations of PRISMA guidelines, to reduce the probability of missing a study or errors in classification (Moher et al., 2009; Shamseer et al., 2015).

The interrater agreement was computed after full-text assessment for study eligibility, taking into account the previous inclusion and exclusion criteria, which was also conducted by the two independent reviewers. The value found for Cohen's Kappa was .74, indicating a substantial agreement between reviewers (Landis & Koch, 1977). Disagreements were discussed and resolved by consensus (see Figure 1).

Identification and Screening

The search resulted in 423 articles relevant to the review, published until 2022. Of these, 112 duplicates were excluded. From the analysis of the abstracts, 230 articles were excluded, and 81 articles retained for further inspection. From there, the TX of the retained studies was examined to further assess whether they met the inclusion criteria and corresponded to the aims of the review. A total of 69 studies were excluded for the following reasons: the empathy was not assessed by BES (n = 18); mean and/or standard deviation (or other statistics allowing to compute variance) were not provided in the study (n = 24); adolescents and late adolescent (between 10 and 24 years old) without CD and/or DBD or forensic samples (n = 7); children and adults (n = 17); wrong publication type (n = 2); only a few BES items used (n = 1). After the full-text analysis, 12 studies were included in this systematic review and complemented with two additional records identified by screening the reference lists of the selected studies, making a total of 14 studies.

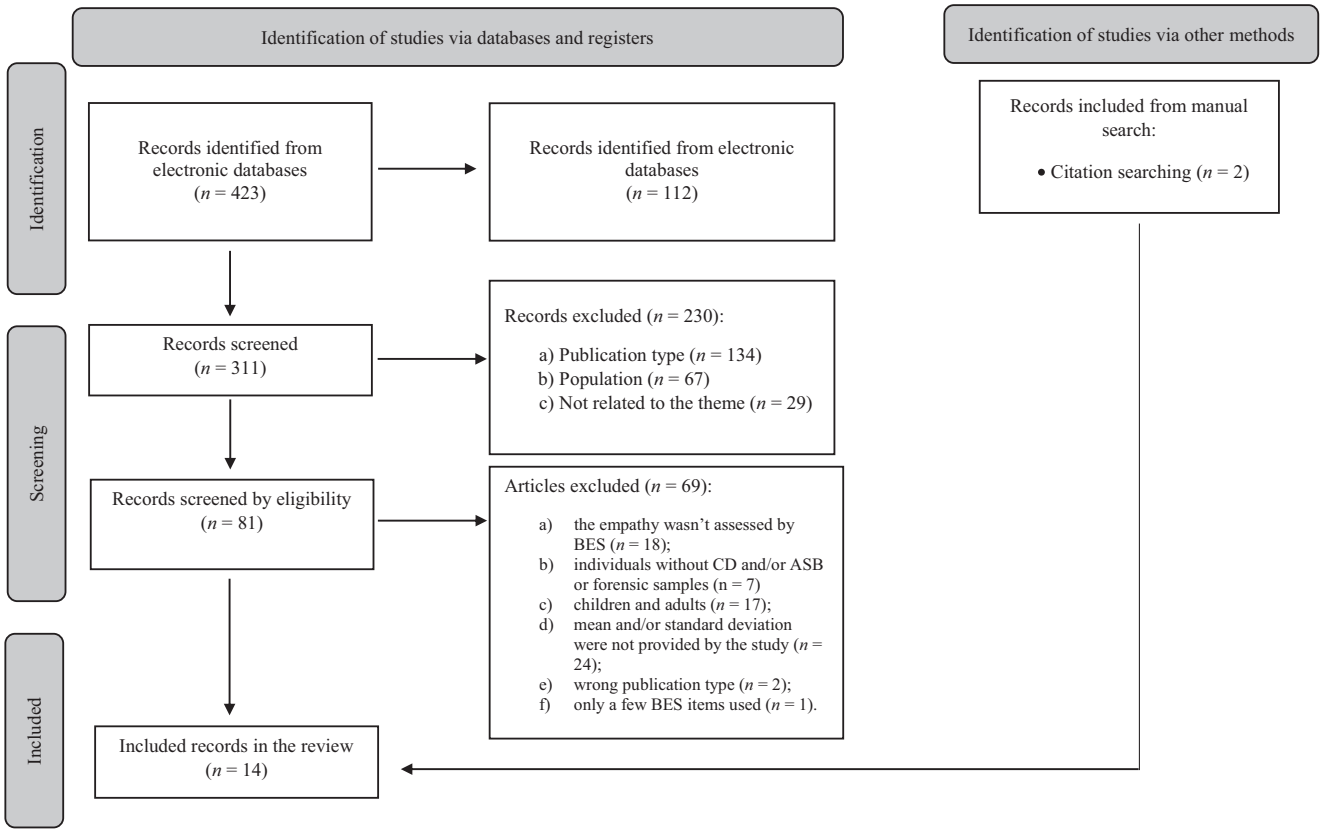
A flowchart of the selection process is presented in Figure 1, reporting the number of studies identified, the number of articles excluded, and the number of eligible studies that were included *per* question of interest.

Statistical Analysis

Means and standard deviations were compiled from all studies in relation to BES to provide normative data for the abovementioned instrument. Normative data serve as reference values for the assessment of empathy through the BES and can guide the application of prevention/intervention programs in normative, institutionalized, and forensic samples. It should be noted that not all items of the BES or its subscales were applied in some studies. In such cases, the reported score was divided by the number of responded items and then multiplied by the number of items of the scale or respective subscale for comparison purposes. Finally, it was computed the pooled mean, pooled variance, and pooled standard deviation (square root of pooled variance) for BES total score and for each subscale (i.e., cognitive and affective empathy), *per* group.

Figure 1

Flowchart of Literature Review Process



Note. BES = Basic Empathy Scale; ASB = antisocial behavior; CD = conduct disorder.

The pooled mean is a weighted mean of means. The pooled mean was estimated by adding up the mean multiplied by the respective sample size and dividing this number by the sum of the sample sizes. The pooled variance is a method to estimate the variance of several different populations when the mean of each population may be different. The pooled variance estimates the population variance by aggregating the variances obtained from two or more samples. The pooled variance is widely used in statistical procedures where different samples from one population or samples from different populations provide estimates of the same variance (Salkind, 2010). Finally, square root of the pooled variance was obtained to produce the pooled standard deviation.

Results

The systematic review included 14 studies, involving 1,750 participants aged between 9 and 23 years. From each article, the mean and standard deviation of the total and subscale scores of the BES, as well as the sample size for both adolescents with CD/DBD and typical control were obtained. Whenever these data were missing, the authors were contacted and asked to provide them.

Studies Characteristics

All reviewed studies (n = 14) assessed empathy in adolescents with CD and/or DBD. Specifically, a total of 11 studies examined participants up to the age of 21, thus covering late adolescents, all from forensic settings, namely, of the juvenile justice system (Aghajani et al., 2016, 2018, 2021; Heynen et al., 2018; Klapwijk, Aghajani, et al., 2016; Klapwijk, Lelieveld, et al., 2016; Pechorro et al., 2017, Pechorro, Simões, et al. 2018; van der Helm et al., 2012; van der Stouwe et al., 2016), while the remaining three studies were conducted in institutions to which adolescents with CD/DBD are referred (Geng et al., 2012; Roberts et al., 2020; Zhou et al., 2017).

A total of eight studies compared BES scores between CD/DBD groups and typical controls (Aghajani et al., 2016, 2021; Geng et al., 2012; Klapwijk, Aghajani, et al., 2016; Klapwijk, Lelieveld, et al., 2016; Pechorro et al., 2017, Pechorro, Simões, et al. 2018; Roberts et al., 2020).

Regarding the total score of the BES, the pooled mean of the CD/DBD groups (M_{pooled} = 51.64, SD_{pooled} = 9.82, n = 911) is lower than that of controls (M_{pooled} = 67.34, SD_{pooled} = 15.32, n = 647). The same applies to the scores of both subscales of the BES. The pooled mean of CD/DBD groups is lower both in the Affective Empathy subscale (M_{pooled} = 28.57, SD_{pooled} = 5.87, n = 772) and Cognitive Empathy subscale (M_{pooled} = 30.80, SD_{pooled} = 5.09, n = 887) than the corresponding pooled scores in controls (M_{pooled} = 32.30, SD_{pooled} = 9.63, n = 562 and M_{pooled} = 34.04, SD_{pooled} = 6.74, n = 670), for the affective and cognitive subscales, respectively). Tables 1 and 2 provide all values for means and standard deviation for all studies, together with pooled means, standard deviations, and variances.

Table 1
Descriptive Statistics (M, SD) for All Studies

Author (year) Country	Age (*M*/*SD*)	Gender	Type of setting	*N*		Main results
				Experimental group (EG)	Control group (CG)	
Aghajani et al. (2016) Netherlands	15–19 (16.83/1.32)	Male	Forensic	$n = 50$	N/A	Total EG: $M = 64.82$, $SD = 10.46$
Aghajani et al. (2018) Netherlands	15–19 (16.87/1.35)	Male	Forensic	$n = 39$	$n = 27$	Total EG: $M = 64.49$, $SD = 10.58$ CG: $M = 74.52$, $SD = 9.25$
Aghajani et al. (2021) Netherlands	15–19 (16.76/1.20)	Male	Forensic	$n = 50$	$n = 27$	Total EG: $M = 64.54$, $SD = 10.14$ CG: $M = 70.53$, $SD = 7.86$
Geng et al. (2012) China	9–18 (n/a)	Male and Female	Clinical	$n = 65$	$n = 195$	Total EG: $M = 28.31$, $SD = 4.74$ CG: $M = 60.94$, $SD = 6.82$ Affective EG: $M = 58.17$, $SD = 7.65$ CG: $M = 28.48$, $SD = 5.54$ Cognitive EG: $M = 29.86$, $SD = 4.72$ CG: $M = 32.09$, $SD = 4.94$
Heynen et al. (2018) Netherlands	12–19 (15.70/1.40)	Male and Female	Community	$n = 128$	N/A	Total EG: $M = 43.20$, $SD = 5.58$ Affective EG: $M = 19.80$, $SD = 2.65$ Cognitive EG: $M = 23.40$, $SD = 2.93$
Heynen et al. (2018) German	18–23 (20.45/1.43)	Male	Forensic	$n = 49$	N/A	Total EG: $M = 57.81$, $SD = 11.27$ Affective EG: $M = 32.34$, $SD = 6.05$ Cognitive EG: $M = 25.47$, $SD = 5.22$
Klapwijk, Aghajani, et al. (2016) Netherlands	15–19 (16.60/1.00)	Male	Forensic	$n = 23$	$n = 33$	BES EG: $M = 59.30$, $SD = 13.10$ CG: $M = 73.20$, $SD = 11.10$ Affective EG: $M = 25.00$, $SD = 6.30$ CG: $M = 36.50$, $SD = 6.00$ Cognitive EG: $M = 36.30$, $SD = 6.80$ CG: $M = 36.70$, $SD = 5.10$
Klapwijk, Lelieveld, et al. (2016) Netherlands	15–19 (16.80/1.20)	Male	Forensic	$n = 32$	$n = 33$	BES EG: $M = 65.20$, $SD = 13.60$ CG: $M = 74.10$, $SD = 12.80$ Affective EG: $M = 28.90$, $SD = 7.70$ CG: $M = 36.10$, $SD = 7.80$ Cognitive EG: $M = 34.30$, $SD = 6.80$ CG: $M = 38.00$, $SD = 5.00$

(*table continues*)

Table 1 (*continued*)

Author (year) Country	Age (*M*/*SD*)	Gender	Type of setting	*N*		Main results
				Experimental group (EG)	Control group (CG)	
Pechorro et al. (2017) Portugal	14–18 (16.41/1.19)	Female	Forensic	$n = 103$	$n = 274$	Total EG: $M = 69.96$, $SD = 9.47$ CG: $M = 68.22$, $SD = 21.30$ Affective EG: $M = 34.15$, $SD = 6.83$ CG: $M = 33.79$, $SD = 12.71$ Cognitive EG: $M = 35.79$, $SD = 5.76$ CG: $M = 34.43$, $SD = 8.59$
Pechorro, Saul, et al. (2018) Portugal	14–18 (16.41/1.19)	Female	Forensic	$n = 103$	N/A	Total EG: $M = 49.96$, $SD = 9.47$ Affective EG: $M = 23.17$, $SD = 6.83$ Cognitive EG: $M = 26.80$, $SD = 5.76$
Roberts et al. (2020) England	11–16 (14.64/1.44)	Male	Community	$n = 54$	$n = 27$	Total EG: $M = 65.77$, $SD = 15.13$ CG: $M = 70.53$, $SD = 7.86$ Affective EG: $M = 31.78$, $SD = 6.5$ CG: $M = 34.98$, $SD = 4.78$ Cognitive EG: $M = 33.99$, $SD = 4.96$ CG: $M = 35.55$, $SD = 3.08$
van der Helm et al. (2012) Netherlands	n/a (17.40/1.79)	Male	Forensic	$n = 59$	N/A	Total EG: $M = 61.20$, $SD = 13.28$ Affective EG: $M = 29.70$, $SD = 6.71$ Cognitive EG: $M = 31.50$, $SD = 6.57$
van der Stouwe et al. (2016) Netherlands	n/a (15.73/1.55)	Male and Female	Forensic	$n = 115$	$n = 108$	Cognitive EG: $M = 35.73$, $SD = 5.58$ CG: $M = 34.20$, $SD = 5.67$
Zhou et al. (2017) Singapore	11–21 (15.80/1.18)	Male and Female	Forensic	$n = 156$	N/A	Total EG: $M = 65.13$, $SD = 8.43$ Affective EG: $M = 33.48$, $SD = 5.71$ Cognitive EG: $M = 31.64$, $SD = 4.10$

Note. BES = Basic Empathy Scale.

Table 2
Meta-Analytic Analysis

		Groups					
		Experimental group			Control group		
Empathy	Statistical parameter	Total	Male	Mixed gender	Total	Male	Mixed gender
Total	Pooled mean	51.64	63.00	55.79	67.34	73.01	—
	Pooled variance	96.36	136.35	59.80	234.58	98.93	—
	Pooled *SD*	9.82	11.68	7.73	15.32	9.95	—
Affective	Pooled mean	28.57	30.20	27.50	32.30	35.92	—
	Pooled variance	34.45	43.96	21.34	92.99	41.03	—
	Pooled *SD*	5.87	6.63	4.62	9.64	6.41	—
Cognitive	Pooled mean	30.80	31.76	30.13	34.04	36.83	—
	Pooled variance	25.88	34.02	18.84	45.48	20.88	—
	Pooled *SD*	5.09	5.83	4.34	6.74	4.57	—

Additionally, it is possible to verify in Table 2 that the reference values were calculated according to the gender covered by the samples. It can be seen that, when the samples are made up of male adolescents, the total score of the BES is lower than controls with the same configuration ($M_{pooled} = 63.00$, $SD_{pooled} = 11.68$, $n = 356$ vs. $M_{pooled} = 73.01$, $SD_{pooled} = 9.95$, $n = 178$, respectively). The same is found for the dimensions of BES (see Table 2).

Final Considerations

The widespread use of BES to assess adolescents with CDs and/or DBD, not only for research, but also for clinical and forensic purposes, calls for a systematic review of the results that are being reported with this scale in order to establish reference values for these specific samples and typical control groups. This was the main objective of this study.

A total of 14 studies using the BES to assess empathy in adolescents with CD/DBD were identified, most also reporting data for typical controls in cross-sectional comparison designs. The reported means and variances were pooled, in order to estimate the above-mentioned reference values.

The findings suggest that adolescent with CD/DBD presents lower scores of empathies than controls, either for the total score of BES or for the cognitive and affective subscales. It was not intended in this study to meta-analyze the data nor estimate statistical differences between groups but taking these results into account, it is probable that the higher levels of empathy shown by adolescents involved in the control groups translate into acting more responsively to the perceived feelings of another person (Jolliffe & Farrington, 2004) than it would be expected in the case of adolescents with CD/DBD. These results are in line with the existing literature in which most authors state that a lack of empathy is often associated with insensitive and emotionless behavior, problems in communication and social interaction, probably resulting in impaired relationships, as well as with violence, aggression, and crime (Blair et al., 2005; Moeller et al., 2001; Reniers et al., 2011).

There are limitations to this study. First, only data from the studies included in the searched databases were considered and there may be undetected studies. However, an additional search was carried out through the bibliographic references of the reviewed studies, and two other articles were added. Second, it was not possible to obtain missing information for articles that did not contain sufficient data from their respective authors, leading to the exclusion not these studies. Third, most of the included studies ($n = 8$) provide results only for male participants, and those that include participants of both genders in the sample, do not report results by gender ($n = 5$). As recommendation, it would be important in future studies to present results according to gender, to understand how empathy levels can vary, as well as results stratified by age and educational level, thus enabling the estimation of detailed norms for clinical and educational practice, as well as for research.

In conclusion, developing reference data for BES may be particularly important to draw valid conclusions on the characteristics of adolescent assessed in clinical or forensic settings, particularly because BES is largely used in evaluation procedures in these settings. Moreover, the data provided in this study can be used in future studies for comparisons purposes, namely, for research.

References

References marked with an asterisk indicate studies included in the meta-analysis.

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