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The Basic Empathy Scale in Adults (BES-A): Factor Structure of a Revised Form

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Initially thought of as a unitary ability, empathy has been more recently considered to consist of 2 components (i.e., an affective and a cognitive component). The Basic Empathy Scale (BES) is a tool that has been used to assess empathy in young people and adolescents on the basis of this dual-component conception (Jolliffe & Farrington, 2006). Recent studies of empathy have led to it being defined as underpinned by 3 components, namely, emotional contagion, emotional disconnection, and cognitive empathy. The aims of this study were (a) to validate the BES in Adults and (b) to compare the different conceptions of empathy. Three hundred seventy French adults took part in the study, and 160 of them filled out complementary scales measuring empathy, alexithymia, and emotional consciousness. The confirmatory factor analyses showed that the 3-factor model was the model that was best able to account for the data. Complementary tools confirmed the relationships previously observed between empathy as assessed with the BES and other scales assessing emotional processes. The results of this study make it clear that empathy can be seen as process-dependent. This conception of empathy, which is based on 3 factors, is consistent with the current, more integrated view of empathy. The implications of this conception and the opportunity to use the 2 or 3 factors of the BES in adults are presented in the Discussion.

Keywords: empathy, emotion, contagion, emotional regulation, Basic Empathy Scale (BES)

Empathy is a heterogeneous construct that has received considerable attention during the last few years (Decety & Svetlova, 2012). Empathy has recently been accorded an important role due to the increasing interest shown by researchers in issues relating to social cognition. For instance, empathy has been shown to be negatively correlated with aggressive behaviors (L. E. Marshall & Marshall, 2011; Mehrabian, 1997). This impairment in empathy has not only been observed in aggressors. For example, depression has also been associated with empathic disturbance (Thoma et al., 2011), with depressed patients usually being more sensitive to both the distress and affective states of other people. Empathic pro-

cesses have also been found to be impaired in schizophrenia, in which a negative correlation has been observed between negative symptomatology and the automatic emotional processes involved during the early stages of empathy (Haker & Rössler, 2009). Similarly, the automatic processes of emotion perception and identification as well as the cognitive strategies involved in the processing of empathy are impaired in autism spectrum disorder (Clark, Winkielman, & McIntosh, 2008; Schulte-Rüther et al., 2011).

Interest in empathy has not been limited solely to the field of psychopathology, and the way it is conceived of has changed

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considerably since the early pioneering studies (Lipps, 1979; Titchener, 1909). Rogers (1951) defined empathy as “the concept of the ‘as if’” (p. 129), which means that empathy makes it possible to understand another person’s views and his or her feelings. This includes the ability to feel similar emotions and understand their causes. Viewed within this perspective, empathy has been considered to be a unique ability. This initial conception highlights the main difference between empathy, in which a certain distance and a distinction is maintained between “self” and “others,” and a complete process of identification.

However, the way in which empathy is thought of has changed in order, more specifically, to account for the processes involved in both emotion processing and social interactions. This shift led to the emergence of a conception of empathy based on two components: an affective and a cognitive component (Davis, 1983a, 1983b; Deutsch & Madle, 1975; Hoffman, 1977; Hogan, 1969; Jolliffe & Farrington, 2006; Lawrence, Shaw, Baker, Baron-Cohen, & David, 2004; Mehrabian & Epstein, 1972). According to this view, empathy is an essential part of both emotional functioning and interpersonal cognition, making individuals particularly attentive to both the mental states and emotions of other people. Furthermore, it is necessary to distinguish between this concept and a simple sensitivity to distress (Batson, Fultz, & Schoenrade, 1987; Decety, 2010). According to this view, appropriate empathic responses are the result of the efficient functioning of several processes. At a fundamental level, if people are to be responsive to the emotional states of others needs, then they must also be sufficiently attentive to their emotions (Decety & Jackson, 2004; W. L. Marshall, Hudson, Jones, & Fernandez, 1995).

The empathic response requires the recognition of one’s own and other people’s emotions. It also requires the ability to share and replicate other people’s emotional states while simultaneously being aware that these emotions are not one’s own (i.e., affective responsiveness). In addition, it demands the ability to adopt another person’s perspective while simultaneously preserving the distinction between self and other (emotional perspective taking). Finally, it requires individuals to choose the best socioemotional response (e.g., by soothing a sad person without being as sad as this person). Although the empathic response is often confounded with that of sympathy, these two concepts are different. Indeed, according to Eisenberg (2010), sympathy frequently stems from empathy but can be distinguished from it in that it consists of feeling an emotion for the other person rather than feeling an emotion as the other feels it or is expected to feel it. According to Jolliffe and Farrington (2006), the emotion felt in sympathy is not necessarily the same as the emotion felt by the other person. Although empathy can result in individuals feeling negative emotions on behalf of another person, it is sufficiently modulated not to cause personal distress.

Curiously, the range of tools developed in order to assess empathy is very limited. Davis (1983b) was the first to contribute by developing the Interpersonal Reactivity Index (IRI; Davis, 1983b). This scale is itself further subdivided into two scales (affective and cognitive components), and also includes several cognitive (i.e., Fantasy and Perspective Taking) and affective (i.e., Personal Distress and Empathic Concern) subscales. It makes it possible to describe the cognitive processes involved in empathy (i.e., the ability to understand another person’s emotion) and to characterize the style of an individual’s emotional functioning (i.e.,

the ability to experience another person’s emotion). Even though the IRI has long been used to assess empathy, it has also been the object of considerable criticism. According to Jolliffe and Farrington (2004, 2006), the perspective-taking component of the IRI is not limited to the understanding of an emotion but assesses a broader ability to adopt the other person’s viewpoint even when emotions are not involved, as in IRI Item 25 (“when I am upset at someone, I usually try to put myself in his shoes for a while”; Davis, 1980). Moreover, Jolliffe and Farrington also argued that the Empathic Concern subscale confounds empathy with sympathy because this subscale is designed to assess “other-oriented feelings of sympathy and concern for unfortunate others” (Davis, 1980, p. 114). This view is also supported by Batson, Early, and Salvarani’s (1997) results. Indeed, these authors showed that asking people to imagine how they would feel in a particular situation leads not only to an empathic response but also to self-oriented distress and a compassionate response. In other words, this subscale assesses sympathy, which is different from empathy. These results weaken the Empathic Concern subscale of the IRI because the items of this subscale are formulated in a way that asks people to determine how they would feel in a particular situation. For instance, there is nothing in IRI Item 2 (“I often have tender, concerned feelings for people less fortunate than me”; Davis, 1980) to suggest that a person less fortunate than the responder is experiencing his or her situation in a negative way. Furthermore, affective empathy is not assessed any better by the Personal Distress subscale because all the corresponding items focus on emergency situations (e.g., IRI Item 5 [“In emergency situations, I feel apprehensive and ‘ill-at-ease’”; Davis, 1980]). However, empathic response does not necessarily involve emergencies. These issues explain why the IRI is not the best way to assess the complexity of the processes involved in empathy.

In order to overcome the weaknesses of the IRI, Jolliffe and Farrington (2006) developed the Basic Empathy Scale (BES), which focuses on two factors (i.e., cognitive and affective factors of empathy) and four basic emotions (i.e., anger, fear, happiness, and sadness). In the BES, *affective empathy* is defined as the ability to feel an appropriate emotional response when one is confronted with the mental state attributed to another person (Bryant, 1982), and *cognitive empathy* is defined as the understanding of another person’s affective state (Hogan, 1969). Unlike in the IRI, the Cognitive subscale of the BES is limited to understanding why another person feels a specific emotion (e.g., “I can understand my friend’s happiness when she/he does well at something”), whereas the Affective Empathy subscale focuses on how another person’s emotions are felt without any reference to an emergency situation (e.g., “After being with a friend who is sad about something, I usually feel sad”).

However, the BES, which can be considered to be a two-factor scale, does not take account of the most recent conception of empathy. Indeed, a number of studies have suggested that empathy depends on three components (e.g., Decety, 2011a; Decety & Michalska, 2010). First, emotional contagion is thought to correspond to the automatic replication of another person’s emotions (Iacoboni & Dapretto, 2006; Lipps, 1979). Second, cognitive empathy is defined as the ability to understand and mentalize another person’s affects (Decety, 2011b). The mechanism of cognitive empathy is therefore thought to be distinct from emotional contagion and automatic identification (Hoffman, 1977, 2000; W. L.

Marshall et al., 1995). Third, emotional disconnection is seen as a regulatory factor that involves self-protection against distress, pain, and extreme emotional impact (Batson et al., 1987; Lamm, Batson, & Decety, 2007). One argument suggesting that this three-factor model might be appropriate is its consistency with developmental and neuroimaging studies of empathy (Decety, 2010, 2011a; Decety & Jackson, 2004; Decety & Svetlova, 2012), and the need to see empathy as an active process based on functional and dynamic mechanisms that are involved in social contexts and account for the processes involved in empathy (Gerdes, Lietz, & Segal, 2011). Indeed, recent research suggests that empathy, as well as the processing and regulation of emotions, depends on both bottom-up and top-down processing (Decety & Svetlova, 2012; Gyurak, Goodkind, Kramer, Miller, & Levenson, 2012). According to this approach, the bottom-up component of empathy would relate to affective sharing or contagion, whereas the top-down processes, which involve the regulation of emotions and intentional mechanisms, would modulate empathic experience (i.e., the cognitive empathy component of the three-factor model) and could be regulated by emotional disconnection (i.e., the third component of the three-factor model), which could itself correspond to an emotional suppression (Gross, 2002; Lamm et al., 2007).

Neuropsychological studies also seem to support the idea that three components are involved in empathy. Emotional contagion, for example, is thought to involve automatic processes that permit the rapid evaluation of the nature of the emotion and whether it is positive or negative, pleasant or aversive. Due to its automatic character, it involves subcortical structures such as the limbic lobe, which is known to be involved in emotion processing (Derntl et al., 2010; Hariri, Tessitore, Mattay, Fera, & Weinberger, 2002; Phillips, Drevets, Rauch, & Lane, 2003). The second component, which relates to cognitive empathy (Decety & Svetlova, 2012), involves activations of the insular cortex, which promotes emotional awareness, as well as of the ventromedial prefrontal cortex (PFC) and the medial PFC, which are responsible for the understanding of emotions (Decety, 2011a). The third component of empathic functioning makes it possible to regulate emotions through the mechanism of emotional disconnection. This appears to be related to executive functions that are implemented in a top-down network based on the orbitofrontal cortex, medial and dorsolateral prefrontal cortex, and the anterior cingulate cortex (Decety, 2011a; Decety & Michalska, 2010).

From a developmental viewpoint, the emotional contagion processes are the first component to appear. After this, more cognitive (i.e., cognitive empathy) and regulatory (i.e., emotional disconnection) functions develop in parallel with cognitive and cerebral maturation. Indeed, both these components of empathy are closely related to the development of both theory of mind and executive functions, which evolve later (Zelazo, Carlson, & Kesek, 2008).

Among the different tools used to assess empathy, the BES appears to avoid some of the weaknesses present in the IRI (Jolliffe & Farrington, 2004) and is therefore a suitable instrument to use when seeking to account for the characteristics of empathy. Although the BES has been translated and support for a two-factor structure has been found in French adolescents (D'Ambrosio, Olivier, Didon, & Besche, 2009), its factor structure has not yet been examined in French adults. The first aim of the present study was to verify that the score on the BES, which was initially developed for young people, is a valid measure for assessing

empathy in healthy adults (BES-A). Second, to determine the best factor structure for the BES-A, we compared three conceptions of empathy, namely, the single-factor model, the usual two-factor model of the BES (Albiero, Matricardi, Speltri, & Toso, 2009; Albiero, Matricardi, & Toso, 2010; D'Ambrosio et al., 2009; Jolliffe & Farrington, 2006; Li, Lv, Liu, & Zhong, 2011), and the three-factor model, which has emerged from the most recent developments in the study of empathy (Decety, 2010, 2011b). We wanted to determine which of these models provides the best account of the psychometric properties of the BES-A. Furthermore, because empathy is related to emotional functioning, we evaluated the relationship between empathy and the dimensions of emotional consciousness assessed using the Emotional State Questionnaire (ESQ; Cassé-Perrot, Fakra, Jouve, & Blin, 2007). We expected that the BES-A subscales would be correlated with the ESQ. Moreover, a number of previous studies have found relationships between empathy and alexithymia, indicating that a person who finds it difficult to express or identify his or her own feelings is likely to experience similar difficulties when confronted with another person's emotions (D'Ambrosio et al., 2009; Grynberg, Luminet, Corneille, Grèzes, & Berthoz, 2010; Jolliffe & Farrington, 2006). We expected to find a link between impairments in empathy and alexithymia as assessed using the Toronto Alexithymia Scale (TAS-20; Bagby, Taylor, & Ryan, 1986). Finally, in order to exclude the possibility that the score on the BES-A, which is a self-report questionnaire, might be related to a desirability bias, we also included the Social Desirability Scale (SDS; Crowne & Marlowe, 1960). We did not expect to find any correlation between the SDS and the BES-A.

Method

Participants

Three hundred seventy participants (260 women and 110 men) were recruited. The participants consisted of psychology or social science students (248 participants) as well as working (118) (employees) and retired people (four participants). According to the classification by the Institut National de la Statistique et des Etudes Economiques (French National Institute of Statistics and Economic Studies; INSEE), 26 of the working participants were considered as belonging to Category 3 (i.e., senior executive), 18 to Category 4 (i.e., middle executive), 28 to Category 5 (employee) and 23 to Category 6 (i.e., manual worker). The other participants were unemployed persons (12), artisans (five), or agricultural workers (one). This information was not provided for six persons. The participants were recruited on a voluntary basis. A brief screening questionnaire was used at the start of the study in order to collect information about gender, age, level of education, and mother tongue. These characteristics are detailed in Table 1. A self-report questionnaire was then administered to identify past or present anxious, depressive, neurological or somatic disorders, addictions, and drug consumption. Participants with current or past disorders were excluded from the analyses. Sixty percent of the sample ($n = 222$) completed the scale twice at an interval of 7 weeks in order to establish test-retest reliability. The participants were volunteers who completed and signed a consent form. The study was designed in accordance with the Declaration of Helsinki.

Table 1
Characteristics of the Participants

| Variable | <i>M (SD)</i> |
|---------------------------|-------------------|
| Age (years) (<i>SD</i>) | 26.05 (12.41)** |
| Level of education | 12.58 (1.29) |
| Social Desirability Scale | 16.49 (5.03) |
| IRI | (<i>n</i> = 160) |
| FS | 26.57 (5.17) |
| EC | 26.63 (4.68) |
| PT | 23.25 (4.48) |
| PD | 22.63 (4.92) |
| ESQ | (<i>n</i> = 278) |
| Total score | 24.17 (6.45)** |
| REC | 6.7 (1.54)* |
| EXPRES | 6.42 (1.53)** |
| IEE | 5.63 (1.69)** |
| SC | 6.1 (1.91)* |
| TAS-20 | (<i>n</i> = 160) |
| Total score | 57.13 (8.69) |
| DIF | 17.02 (5.32) |
| DDF | 14.32 (3.15) |
| EOT | 25.78 (3.19) |

Note. IRI = Interpersonal Reactivity Index; FS = Fantasy; EC = Empathic Concern; PT = Perspective Taking; PD = Personal Distress; ESQ = Emotional State Questionnaire; REC = Recognition; EXPRES = Expression; IEE = Internal Emotional Experience; SC = Social Context; TAS-20 = Toronto Alexithymia Scale; DIF = Difficulties in Identifying Feelings; DDF = Difficulties in Describing Feelings; EOT = Externally Oriented Thinking.

* gender differences with $p < .05$ using a t test. ** gender differences with $p < .001$ using a t test.

One hundred sixty participants from the overall sample involved in this study completed three supplementary scales: the TAS-20 (Bagby et al., 1986; Loas, Otmani, Verrier, Fremaux, & Marchand, 1996), the IRI (Davis, 1983b; Grynberg et al., 2010), and the ESQ (Cassé-Perrot et al., 2007). These three scales were optional and were completed at the same time as the initial completion of the BES.

Measures

The BES. The BES is a 20-item scale developed by Jolliffe and Farrington (2006). The items in the French version that we used in the present study were back-translated by D'Ambrosio et al. (2009). The participants had to give their ratings on a 5-point Likert type scale (1 = *Strongly Disagree*, 2 = *Disagree*, 3 = *Neither Agree nor Disagree*, 4 = *Agree*, 5 = *Strongly Agree*).

In the two-factor model (Jolliffe & Farrington, 2006), nine items assess cognitive empathy (Items 3, 6, 9, 10, 12, 14, 16, 19, 20), and 11 items assess affective empathy (Items 1, 2, 4, 5, 7, 8, 11, 13, 15, 17, 18). In the two-factor conceptualization, the BES included seven reversed items and the scores could range from 20 (deficit in empathy) to 100 (high level of empathy). One of the authors of the present study also classified the items according to the definitions used in the three-factor model. According to this classification, six items were thought to relate to the definition of emotional contagion (CONT; Items 2, 4, 5, 11, 15, 17) (e.g., "I get caught up in other people's feeling easily"), eight items to the definition of cognitive empathy (EMP; Items 3, 6, 9, 10, 12, 14, 16, 20) (e.g., "I have trouble figuring out when my friends are happy"), and six

items to the definition of emotional disconnection (DIS; Items 1, 7, 8, 13, 18, 19) (e.g., "I am not usually aware of my friend's feelings"). In order to ensure that the items were correctly assigned to the corresponding factors, we also asked two independent persons to classify the items on the basis of the definitions used in the model. Both persons classified 19 items correctly. The item that was classified in another scale was Item 6 and was interpreted as corresponding to emotional disconnection. However, after being asked why they did not consider the item to correspond to cognitive empathy, both of them spontaneously changed their decision and classified the item as cognitive empathy. Items are shown in Appendix A.

The SDS. The SDS (Crowne & Marlowe, 1960) is one of the tools that is most frequently used to assess the tendency of individuals to respond by distorting their own self-representations in a way that reflects social desirability and a need for approval (Andrews & Meyer, 2003; Leite & Beretvas, 2005). The SDS is a scale consisting of 33 true-false items that cover two kinds of behaviors: acceptable but doubtful behavior or unacceptable but plausible behavior. Given that this scale reflects a social desirability bias (i.e., a lack of honesty in the responses), no significant correlations were expected between the SDS scores and the BES.

The ESQ. The ESQ (Cassé-Perrot et al., 2007) is a short self-report measure of emotional consciousness. The 33 items are distributed into four dimensions, that is, recognition (REC), expression (EXPRES), internal emotional experience (IEE), and social context (SC). This tool assesses participants' impression of their own ability to encode and decode emotions. Each dimension is rated on a 10-point scale. The items in the ESQ are based on fundamental emotions (happiness, sadness, anger, fear, disgust, and surprise) and are mostly assessed on the basis of the perception of familiar faces. This makes it possible to evaluate emotional profiles and their variations during changes to emotional states (Besnier et al., 2010; Cassé-Perrot et al., 2007).

To the best of our knowledge, no norms or cutoff values relating to the emotional consciousness assessed with the ESQ have as yet been published for the general population. However, these values have been published in a study of changes in emotional consciousness in psychiatrists and psychologists (Besnier et al., 2010). A comparison of Besnier et al.'s (2010) results with those obtained in the present study suggests that the sample in the present study obtained slightly higher scores.

The IRI. The IRI (Davis, 1983a, 1983b) is one of the most widely used self-report questionnaires for the study of empathy. It is a 5-point Likert type scale consisting of 28 items. The IRI contains four subscales (Fantasy-Empathy, Perspective Taking, Empathic Concern, Personal Distress). Two subscales assess the cognitive dimension: Perspective Taking (PT) and fantasy (FS). The affective dimension is also assessed by two subscales: Personal Distress (PD) and Empathic Concern (EC). More specifically, *Perspective Taking* refers to the ability to take into account both the views and mental states of others. *Fantasy* measures fictional identification. *Personal Distress* assesses the tendency to feel anxious in negative situations and experience a lack of control in emotional conditions. Finally, the *Empathic Concern* subscale evaluates feelings toward others and the ability to worry about them. An examination of norms for the IRI (Davis, 1980) revealed that our French sample obtained lower scores than the original sample, which consisted of students.

The TAS-20. *Alexithymia* is defined as an impairment in the processing of emotions (Taylor, Bagby, & Parker, 1997). The relations between empathy (assessed with the BES) and alexithymia (assessed by the TAS) were assessed because alexithymia shares characteristics with empathy at the level of interpersonal cognition (Grynbeg et al., 2010). The 20-item version of the TAS-20 (Bagby, Parker, & Taylor, 1994; Loas et al., 1996) is composed of three subscales: Difficulties in Identifying Feelings (DIF), Difficulties in Describing Feelings (DDF), and Externally Oriented Thinking (or attention to external events). The maximum score that can be obtained on the TAS-20 is 100. On the basis of French norms (Guilbaud et al., 2002; Loas et al., 1996), our sample appeared to obtain scores slightly above the mean in the TAS-20 ($M = 46.2$; $SD = 10.52$), with a few scores being above the general cutoff for alexithymia (≥ 56). The scores obtained in the present study are presented in Table 1.

Statistical Analysis

The confirmatory factor analyses were conducted using LISREL (Jöreskog, 1990; Jöreskog & Sörbom, 2004). Confirmatory factor analyses were performed on the polychoric correlations. We used Bravais-Pearson test to examine the correlations between the BES and the other scales used in the study.

Results

Psychometric Properties of the BES-A

A confirmatory factor analysis was performed on the polychoric correlations using the diagonally weighted least squares parameter estimation method in order to assess the factor structure of the BES in the French-speaking adult population. We tested the two-factor structure that was originally proposed by Joliffe and Farrington (2006) and had previously been tested in French youths (D'Ambrosio et al., 2009). When performing the analyses, we treated residual errors as uncorrelated. This analysis revealed that the data were fitted to the model, $\chi^2(169) = 510.65, p < .001$, root-mean-square error of approximation (RMSEA) = .074 (90% CI [.067, .81]), goodness-of-fit index (GFI) = .95, adjusted goodness-of-fit index (AGFI) = .94. These different indices revealed a reasonably good fit between the data and the model because the chi-square value was not greater than 3 times the degree of freedom, the RMSEA was less than .10, and both the GFI and the AGFI were greater than 0.90 (see Figure 1).

We tested two other models of empathy in order to determine whether they might provide a better account of the data. The first of these was the single-factor model. The different adjustment criteria suggested that this model did not account for the data as well as a model in which the affective and the cognitive factors are dissociated, $\chi^2(170) = 776.54, p < .001$, RMSEA = .098 (90% CI [.091, .110]), GFI = .93, AGFI = .91. These results were confirmed by the Akaike's information criterion (AIC), which was smaller for the two-factor model (AIC = 592.65) than for the single-factor model (AIC = 856.54), as well as by the significant improvement in chi-square between the unidimensional and the affective-cognitive model, $\Delta\chi^2(1) = 265.89, p < .001$.

The second alternative model that we examined was the three-factor model (e.g., Decety, 2011a, 2011b; Decety & Michalska,

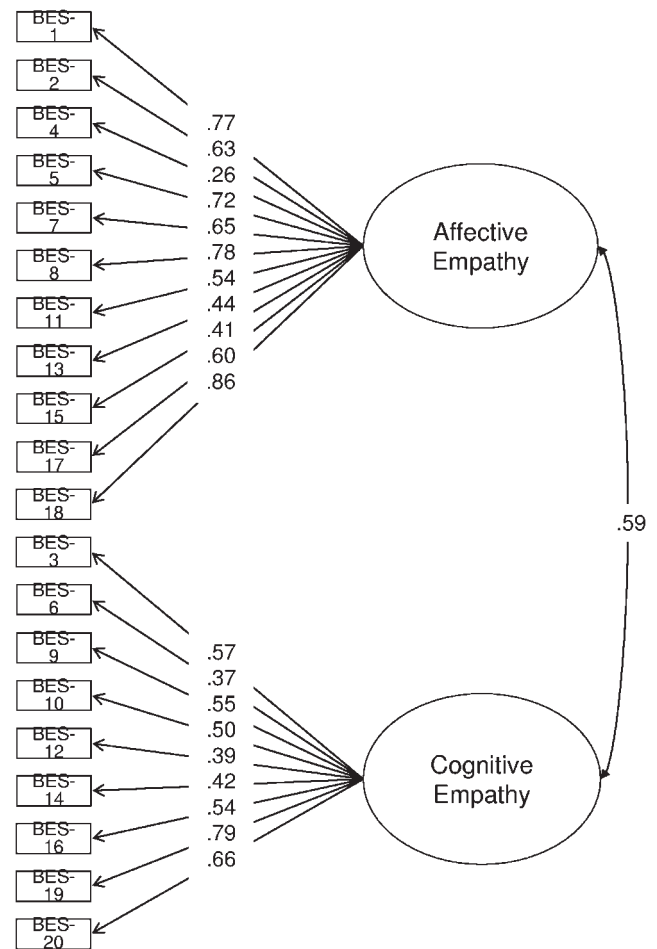


Figure 1. Two-factor structure of the Basic Empathy Scale in Adults (BES-A).

2010; Favre, Joly, Reynaud, & Salvador, 2005, 2009). In order to assess this model, we redefined the different items of the BES-A in the light of the definition of each of these factors (see the Method section). This model also fitted the data, $\chi^2(167) = 460.10, p < .001$, RMSEA = .069 (90% CI [.061, .077]), GFI = .96, AGFI = .95. The AIC was smaller for the three-factor model (AIC = 546.10) than for the two-factor model (AIC = 592.65). Chi-square was also significantly better in the three-factor model than in the two-factor model, $\Delta\chi^2(2) = 50.55, p < .001$. These results suggest that the three-factor model can also be used to account for the data. The loadings of the items on the corresponding factors in this model are presented in Figure 2.

Given that the loading of Item 4 was weak both in the two-factor model and in the three-factor model, we explored the possibility that errors could covary. However, the addition of error covariance in the model did not improve the loading of Item 4. Given that we could not improve the loading of Item 4, we excluded this item from the analyses. This exclusion improved both the two- and three-factor models. However, the three-factor model remained statistically better than the two-factor model and yielded the following indices: $\chi^2(149) = 372.28, p < .001$, RMSEA = .064 (90% CI [.056, .072]), GFI = .97, AGFI = .96. The AIC was smaller for

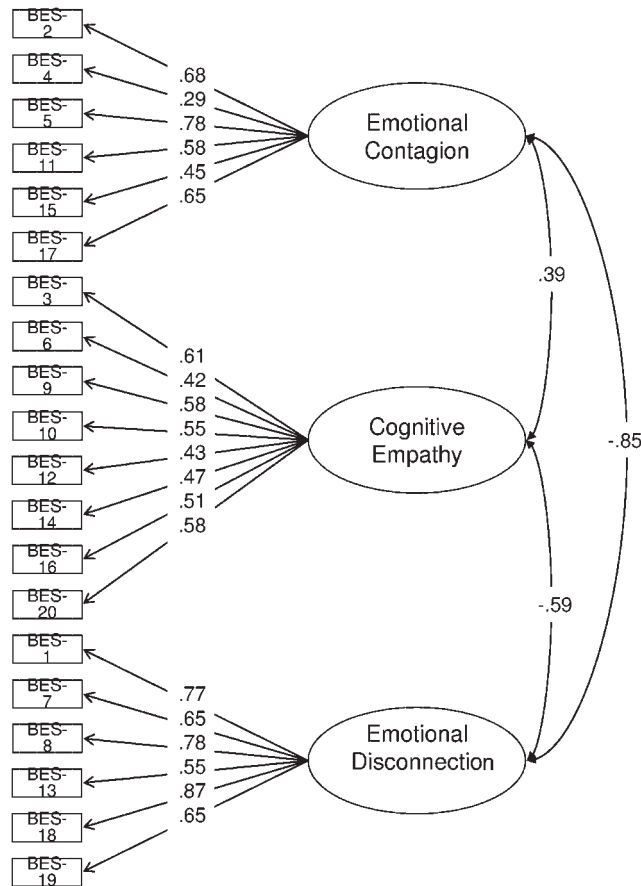


Figure 2. Three-factor structure of Basic Empathy Scale in Adults (BES-A).

the three-factor model (AIC = 454.28). The final model is presented in Figure 3.

In order to determine the internal consistency of the BES-A, we computed Cronbach's alpha for each factor in the three-factor model. Cronbach's alpha for EMP was .69. The corresponding value for CONT was .72 and .82 for DIS. In order to determine whether reliability decreased for the three-factor model, we computed Cronbach's alpha for the two-factor model (without Item 4, which was also problematic in the two-factor model). These analyses showed that Cronbach's alpha for cognitive empathy was .71, whereas the corresponding value for affective empathy was .84. These values were thus quite similar to the alpha values obtained in the three-factor model for EMP (.69) and for DIS (.82). The details of the item-total correlations are presented for the structures with three and two factors in Table B1.

Finally, we also analyzed the test-retest reliability in a sample of 222 participants. After a mean interval of 7 weeks, the correlations between the test and the retest were analyzed on the different factors. The correlation between EMP scores was $r = .56$, $r^2 = .3118$, $p < .001$, whereas that between CONT scores was $r = .74$, $r^2 = .5488$, $p < .001$, and, finally, between DIS scores, $r = .70$, $r^2 = .4761$, $p < .001$. The participants' scores in the BES-A are presented in Table 2. We also assessed the test-retest reliability for the two-factor model. Concerning affective empathy, the correla-

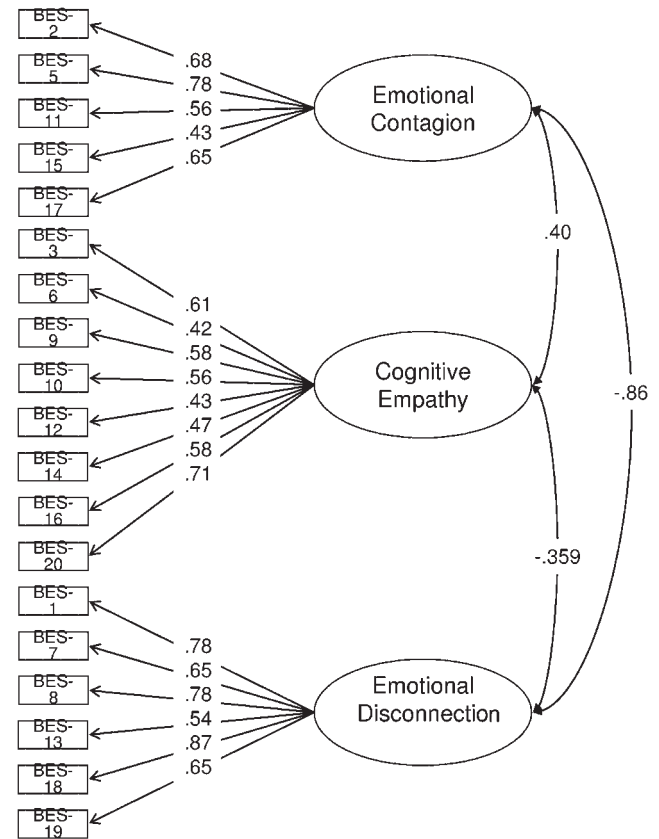


Figure 3. Three-factor structure of Basic Empathy Scale in Adults (BES-A) with 19 items.

tion was $r = .7980$, $r^2 = .6368$, $p < .001$, and the correlation for cognitive empathy was $r = .6110$, $r^2 = .3733$, $p < .001$. In order to determine whether test-retest reliability was better for the two-factor model than for the three-factor model, we compared the correlations between cognitive empathy in the two-factor model and the empathy factor in the three-factor model. We also compared both DIS and CONT with affective empathy. These analyses revealed that the sizes of the correlations were quite similar ($p > .12$), except in the case of the comparison between DIS and affective empathy ($p = .02$).

The fact that we found significant correlations means that the three factors appeared, to some extent, to be related to each other.

Table 2
Mean (and Standard Deviation) for the Different Subscales of the BES-A (Three Factors)

| Scale | M (SD) (n = 370) |
|-------|------------------|
| BES-A | |
| DIS | 12.0 (3.95) |
| CONT | 16.6 (3.48) |
| EMP | 32.1 (3.24) |

Note. BES-A = Basic Empathy Scale in Adults; DIS = definition of emotional disconnection; CONT = definition of emotional contagion; EMP = definition of cognitive empathy.

The CONT subscale was correlated with the DIS subscale ($r = -.64, r^2 = .42, p < .001$) and the EMP subscale ($r = .26, r^2 = .06, p < .001$). DIS was also correlated with EMP ($r = -.41, r^2 = .17, p < .001$).

Bravais-Pearson Correlations Between the BES-A With Three Factors and Other Measures

As expected, no significant correlation was found between the BES-A subscales and the total SDS score. This absence of correlation means that responses to the BES-A were not related to a desirability bias. Detailed results are presented in Table 3. With regard to the relationship between the BES-A and emotional consciousness, we found positive correlations between the ESQ social scale and the cognitive empathy factor of the BES-A, which indicate that emotional consciousness about others increases in line with the empathic process (see Table 3). As far as the disconnection and the contagion factors are concerned, we found a negative and a positive correlation with the expression factor of emotion (ESQ-EXPRES), respectively. Difficulties in emotion recognition were related to contagion. Contrary to previous results (e.g., Joliffe & Farrington, 2006), no correlation was found between the BES-A and the TAS-20 total scores, except in the case of the Cognitive Empathy subscale. Moreover, significant negative correlations were found between the EMP subscale of the BES-A and the DIF and DDF subscales of the TAS-20. These results make it clear that the misidentification and mislabeling of emotions might be related to difficulties in representing affective states. The positive correlation between the Contagion subscale of the BES-A and the DIF subscale of the TAS-20 suggests that contagion by other people's emotion is related to difficulties in identifying one's own emotions. Finally, the link between the difficulties in describ-

ing feelings and emotional disconnection suggests that mislabeling could lead to maladaptive behavior toward other people's emotions. Detailed results for the correlations are also presented in Table 3.

Gender Differences in Empathy

Given that previous studies have demonstrated gender differences in empathy (D'Ambrosio et al., 2009; Joliffe & Farrington, 2006), we wanted to determine whether this gender difference appeared on the three factors. Because there were different numbers of men and women in the sample, we resampled the women so that the groups were of the same size. We then performed a two-tailed t test on each factor (using the Satterthwaite approximation due to heteroscedasticity when necessary). These analyses revealed a significantly higher score for women ($M = 17.28, SD = 3.38$) than for men ($M = 14.93, SD = 3.34$) on the emotional contagion factor, $t(218) = 5.17, p < .001, d = 0.70$, and a significantly lower score for women ($M = 11.35, SD = 3.55$) than for men ($M = 13.88, SD = 4.29$) on the emotional disconnection factor, $t(218) = 4.78, p < .001, d = 0.64$. Concerning the cognitive empathy factor, the mean score ($M = 32.24, SD = 2.76$) achieved by the women was marginally higher than that of the men ($M = 31.46, SD = 3.92$), $t(195.55) = 1.71, p = .09, d = 0.64$. These results are consistent with those reported by Joliffe and Farrington (2006) because they showed that the size of the effect was much greater for affective empathy ($d = 1.33$) than for cognitive empathy ($d = 0.63$).

Importantly, although no significant difference was found for the Cognitive Empathy subscale of the three-factor structure, such a difference was observed when the analysis was performed on the two-factor structure, $t(195.66) = 2.34, p < .05$, with a higher mean for women (36.62) than for men (35.44). This discrepancy can be explained by the fact that one cognitive empathy item of the two-factor structure was interpreted as emotional disconnection in the three-factor structure.

Conversely, factor analyses were not performed by gender because there were not enough men in the sample. Indeed, several authors suggest that the sample size should be at least 200, or even more (Cattell, 1978; Comrey & Lee, 1992; Guilford, 1954).

Discussion

In the present study, we investigated the psychometric properties of the French version of the BES in a sample of healthy adults because these properties of the BES have already been examined in various countries in populations consisting of youths and teenagers (Albiero et al., 2009; D'Ambrosio et al., 2009; Joliffe & Farrington, 2006). Our aim, on the one hand, was to validate an adult version of the BES and, on the other, to identify the model of empathy that is best able to explain the factor structure of the BES. In line with this objective, we tested three models: the unidimensional model, the two-factor model (i.e., affective and cognitive empathy), and the three-factor model of empathy (i.e., emotional contagion, emotional disconnection, and cognitive empathy). A confirmatory factor analysis indicated that both the two-factor and three-factor models could better account for the data than the unidimensional model. These results further confirm both the

Table 3
Correlations of the BES-A and the Other Scales

| BES-A | DIS | CONT | EMP |
|------------|--------|-------|-------|
| SDS | -.16 | -.01 | .09 |
| IRI-FS | -.28** | .48** | .26* |
| IRI-EC | -.66** | .44** | .45** |
| IRI-PT | -.23* | .05 | .36** |
| IRI-PD | -.31** | .50** | -.10 |
| ESQ-REC | .07 | -.15* | .09 |
| ESQ-EXPRES | -.24* | .18* | .14 |
| ESQ-IEE | .10 | -.07 | -.04 |
| ESQ-SC | -.14 | .10 | .19* |
| ESQ-total | -.16* | .11 | .15* |
| TAS-DIF | .01 | .19* | -.18* |
| TAS-DDF | .19* | .01 | -.21* |
| TAS-EOT | .09 | .03 | .06 |
| TAS-total | .11 | .13 | -.17* |

Note. BES-A = Basic Empathy Scale in Adults; DIS = definition of emotional disconnection; CONT = definition of emotional contagion; EMP = definition of cognitive empathy; SDS = Social Desirability Scale; IRI = Interpersonal Reactivity Index; FS = Fantasy; EC = Empathic Concern; PT = Perspective Taking; PD = Personal Distress; ESQ = Emotional State Questionnaire; REC = recognition; EXPRES = expression; IEE = internal emotional experience; SC = social context; TAS = Toronto Alexithymia Scale; DIF = Difficulties in Identifying Feelings; DDF = Difficulties in Describing Feelings; EOT = Externally Oriented Thinking.

* $p < .05$. ** $p < .001$.

cognitive and neuroscientific data relating to emotional and socio-cognitive processing (Decety, 2011a; Decety & Svetlova, 2012), which suggest that empathy could be based on three components. Nevertheless, even though our results suggest that both the two-factor and the three-factor structure are appropriate, this does not constitute a validation of the scale because the finding is due to the unequal proportions of men and women in the sample. Indeed, our sample contained twice as many women as men.

Empathy in social contexts therefore seems to be underpinned by (a) emotional contagion by another person's emotion, (b) emotional disconnection, and (c) cognitive empathy. Emotional contagion is thought to be an automatic and unconscious process (Dimberg & Thunberg, 2000; Papousek, Harald Freudenthaler, & Schuler, 2011), which involves subcortical structures known to be involved in emotion processing (Derntl et al., 2010; Hariri et al., 2002; Phillips et al., 2003). This is consistent with recent studies that suggest that emotional contagion involves a bottom-up component (Decety & Svetlova, 2012; Gyurak et al., 2012) and that it constitutes the first step in the empathic functioning that is thought to develop during the preverbal period (Lamm, Porges, Cacioppo, & Decety, 2008). *Emotional disconnection* is defined as a response that is thought to be based on a mechanism of disconnection from emotion that protects individuals from excessive emotions (i.e., emotions considered to be unsustainable). Emotional disconnection is considered to be a top-down process that has a regulatory function, in particular in terms of the inhibitory control exercised by the prefrontal and the cingulate cortex (Decety & Lamm, 2006; Singer & Lamm, 2009). Alternatively, this emotion regulation strategy could be considered to be a partially efficient way to react to emotional situations (Gross, 2002) when compared with complete emotional appraisal. Finally, cognitive empathy relates to the ability to understand and mentalize other people's affects and is underpinned by the PFC (Decety, 2011a). It also includes emotional awareness, which stems from the insular cortex (Decety & Svetlova, 2012). It corresponds to the concept of empathy as an "orientation towards others" coupled with an ability to understand others' views.

The emotional contagion factor (i.e., BES-A CONT) was positively related to the different subscales of the IRI (i.e., FS), EC, and PD but was not linked to the PT subscale. This suggests that emotional contagion is due to a sensitivity to emotions as well as to a tendency toward a lack of control (i.e., PD), which would be consistent with a lack of PT. Emotional contagion was also positively associated with the expression of emotions (i.e., EXPRES) and negatively linked to emotional recognition (i.e., REC) as measured by the ESQ scale. These results might mean that emotional contagion is also associated with a deficit in the ability to recognize other people's emotions. This result is consistent with the correlation found between emotional contagion and DIF, as measured by the TAS-20 scale. More specifically, our results make it clear that the misidentification and mislabeling of emotions may be related to difficulties in representing affective states and that contagion by other people's emotions is related to difficulties in identifying one's own emotions.

Emotional disconnection (i.e., BES-A DIS) was negatively correlated with all the subscales of the IRI (i.e., FS, EC, -PT, PD) as well as with EXPRESS of the ESQ scale. This would seem to indicate that disconnection in empathic functioning is the inverse of well-adapted empathic functioning. Interestingly, the negative

link between emotional disconnection and both PT and PD could be due to the presence of a conflict between the understanding of other people's emotional situations and one's own lack of emotional control, which would lead to emotional suppression. This emotional suppression might explain the impulsive behaviors adopted in emergency situations (Billieux, Gay, Rochat, & Van Der Linden, 2010; Billieux et al., 2012), on the one hand, and maladaptive behaviors, such as violence among young people (Favre et al., 2005, 2009; Mehrabian, 1997), on the other. A positive correlation was also found between emotional disconnection and DDF, as measured by the TAS-20. This might be related to difficulties affecting the processes involved in empathy and the regulation of emotion.

As far as cognitive empathy (i.e., BES-A EMP) is concerned, this factor appears to assess not only several components of the IRI such as FS, EC, and PT but also experience with social context (i.e., SC) as measured by the ESQ. This finding supports the idea that empathy goes beyond basic skills such as recognizing emotions or understanding another person's point of view and could reflect specific aspects involved in cognitive empathy (Davis, 1983b; Grynberg et al., 2010). The absence of any significant correlation between cognitive empathy (EMP) and the PD measure of the IRI suggests that the process underpinning this component provides a way of instantly distancing oneself from another person's emotions instead of being overwhelmed by them at the cost of personal pain, as is the case for the two previous factors (i.e., emotional contagion and emotional disconnection). Moreover, a negative correlation was found between cognitive empathy and the TAS-20 scales (i.e., DIF and DDF) and provides support for the idea that empathy impairment increases in alexithymia (Grynberg et al., 2010). One could argue that the links between alexithymia and the Empathy scale might simply constitute an artifact due to the difficulties in describing one's own feelings experienced by individuals with a high level of alexithymia. Indeed, one could hypothesize that people who find it difficult to describe their own emotions might also have more general difficulties with regard to emotions and might therefore find it difficult to respond to an empathic scale. However, this view would not be consistent with the studies that have shown that the ability of high- and low-alexithymic participants to recognize facial emotions is similar to that of normal controls (Berembaum & Prince, 1994; Mayer, DiPaolo, & Salovey, 1990; McDonald & Prkachin, 1990; Montebanocci, Surcinelli, Rossi, & Baldaro, 2011). Indeed, there is no reason to think that more highly alexithymic participants would be less capable of understanding words related to emotions.

Taken together, these results suggest that the better delineation of factors offered by this new three-factor model of the BES-A could contribute to our understanding of the mental impairment of emotional components and might provide a better account of how empathy is deployed in social and emotional contexts. The relations with other tools that assess emotional functioning provide support for the external validity of the BES-A score. There is a growing body of evidence showing that empathy is a key element in emotional and interpersonal functioning and that it should be considered to be a multidimensional concept (Decety & Jackson, 2004; Gerdes et al., 2011; Grynberg et al., 2010). Initially considered as based on two factors, namely, the cognitive and affective dimensions of empathy, the BES (Jolliffe & Farrington, 2006) can now be thought of as a tool that is based on three factors. Further-

more, our results are not restricted to adult populations. Indeed, we extended our analysis to include empathy as initially modeled in a teenage population in a French sample (in accordance with D'Ambrosio et al., 2009) and found that the three-factor model again provides a better account of the results. The large body of evidence also confirms that empathy can be conceived of within a three-factor model.

To further delineate this conception of empathy, it would appear necessary to examine results obtained using other measures of emotional functioning (e.g., anxious or depressed states) or on the basis of personality dimensions, as in the case of the IRI (Moora-dian, Davis, & Matzler, 2011). Another limitation of this study relates to the fact that the analyses were based on a sample of nonclinical participants. As explained above, the three components that have been described in order to construct the new factors of the BES are drawn primarily from data about social cognition obtained within developmental and psychopathological frameworks. In addition, the BES-A, defined on the basis of the three-factor model, could help to better specify the impairments of empathic functioning observed in several psychopathologies such as anxiety and mood disorders, autism, or schizophrenia. Finally, as empathy is known to involve several processes that are related to different cerebral areas (Shamay-Tsoory, 2011), it seems appropriate to explore the neural correlates of the BES-A in order to determine whether the three components of this model correspond to the neural activations described in previous studies.

In conclusion, if the BES-A remains an appropriate tool for assessing empathy according to a two-factor structure, it is also possible to take into account the recent definition of the processes involved in empathy and to implement them in the BES-A, such as we did in this study. In other words, the BES-A can be used in French either with a two-factor or a three-factor structure depending on the needs of the study. It now provides a brief assessment of empathic functioning in teenagers and adults. This conception of empathy based on three factors is consistent with an extended and more integrated vision of empathy. Earlier two-factor structures (i.e., cognitive and affective processes) were limited in their ability to describe the processes involved in empathy. The three-factor structure (i.e., emotional contagion, emotional disconnection, and cognitive empathy) constitutes a more recent perspective of the functional and dysfunctional components of empathic processes and responses in both adults and teenagers. Further research will be needed in order to gain a better understanding of the usefulness of the BES-A in different contexts.

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(Appendices follow)

Appendix A

Items of the Basic Empathy Scale (20 items)

- | | |
|---|---|
| 1. My friends' emotions don't affect me much. | 11. I often become sad when watching sad things on TV or in films. |
| 2. After being with a friend who is sad about something, I usually feel sad. | 12. I can often understand how people are feeling even before they tell me. |
| 3. I can understand my friend's happiness when she/he does well at something. | 13. Seeing a person who has been angered has no effect on my feelings. |
| 4. I get frightened when I watch characters in a good scary movie. | 14. I can usually work out when people are cheerful. |
| 5. I get caught up in other people's feelings easily. | 15. I tend to feel scared when I am with friends who are afraid. |
| 6. I find it hard to know when my friends are frightened. | 16. I can usually realize quickly when a friend is angry. |
| 7. I don't become sad when I see other people crying. | 17. I often get swept up in my friends' feelings. |
| 8. Other people's feeling don't bother me at all. | 18. My friend's unhappiness doesn't make me feel anything. |
| 9. When someone is feeling 'down' I can usually understand how they feel. | 19. I am not usually aware of my friends' feelings. |
| 10. I can usually work out when my friends are scared. | 20. I have trouble figuring out when my friends are happy. |

(Appendices continue)

Appendix B

Table B1
Details of Cronbach's Alpha Coefficients (BES--Three-Factor Model)

| Items | CONT | EMP | DIS |
|-------|---------|-----|-----|
| 1 | | | .61 |
| 2 | .54 | | |
| 3 | | .29 | |
| 4 | deleted | | |
| 5 | .53 | | |
| 6 | | .40 | |
| 7 | | | .54 |
| 8 | | | .70 |
| 9 | | .34 | |
| 10 | | .48 | |
| 11 | .42 | | |
| 12 | | .40 | |
| 13 | | | .47 |
| 14 | | .38 | |
| 15 | .40 | | |
| 16 | | .37 | |
| 17 | .51 | | |
| 18 | | | .75 |
| 19 | | | .47 |
| 20 | | .44 | |

Details of Cronbach's alpha coefficients (BES--Two-factor model)

| Item | Affective | Cognitive |
|------|-----------|-----------|
| 1 | .56 | |
| 2 | .56 | |
| 3 | | .33 |
| 4 | deleted | |
| 5 | .62 | |
| 6 | | .39 |
| 7 | .56 | |
| 8 | .64 | |
| 9 | | .35 |
| 10 | | .46 |
| 11 | .45 | |
| 12 | | .40 |
| 13 | .49 | |
| 14 | | .37 |
| 15 | .39 | |
| 16 | | .37 |
| 17 | .54 | |
| 18 | .68 | |
| 19 | | .37 |
| 20 | | .47 |

Note. BES = Basic Empathy Scale; CONT = definition of emotional contagion; EMP = definition of cognitive empathy; DIS = definition of emotional disconnection.

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