

PARENTAL BELIEFS ABOUT THEIR CHILDREN’S EXPRESSION OF NEGATIVE EMOTIONS: REEXAMINING THE FACTORIAL STRUCTURE OF TWO MEASURES AND THEIR DISCRIMINANT VALIDITY

Carlos Carona, Helena Moreira, and Ana Fonseca

Abstract: The Display of Negative Emotions scale and The Social Consequences Of Negative Emotions scale are two understudied questionnaires that assess parents’ *emotion beliefs* about their children’s expression of negative emotions. Therefore, the aims of this study were to ascertain the factorial structure of both questionnaires, to reexamine the internal consistency of each instrument’s scales, and to assess the age- and gender-related discriminant validity of the measures. The two questionnaires were administered by a web-based survey to a sample of 253 Portuguese mothers with children of elementary school age (6–12 years). A two-factor solution (expression of submissive emotions, expression of dominant emotions) was preferred for the first questionnaire, and a single-factor solution emerged for the second questionnaire. Both measures revealed good internal consistency, but while the former was able to identify gender differences, the latter discriminated between age groups. The simultaneous use of these questionnaires is recommended for an informative assessment of parents’ beliefs about their children’s expression of negative emotions.

Keywords: emotion beliefs, parents, children, emotional expression, questionnaires

Carlos Carona PhD (corresponding author) is a researcher, clinician, and lecturer at the Centre for Research in Neuropsychology and Cognitive-Behavioral Intervention, Faculty of Psychology and Educational Sciences of Coimbra University, Rua do Colégio Novo, 3000-115 Coimbra, Portugal. Email: ccarona@fpce.uc.pt

Helena Moreira PhD is a professor in the Faculty of Psychology and Educational Sciences of Coimbra University, Rua do Colégio Novo, 3000-115 Coimbra, Portugal. Email: helena.tcmoreira@gmail.com

Ana Fonseca PhD is a post-doctoral researcher at the Centre for Research in Neuropsychology and Cognitive-Behavioral Intervention of Coimbra University, Rua do Colégio Novo, 3000-115 Coimbra, Portugal. Email: ana.fonseca77@gmail.com

Humans hold a large number of beliefs about the world and themselves that are essential for making sense of the world's complexity and adapting to the challenges of life. Beliefs about emotion shape our interactions with the world, by informing the constant emotion-related decision-making that people engage in (Ford & Gross, 2019). Parents' beliefs about emotions affect their children's emotion socialization by motivating parental reactions and assisting the integration of apparently disparate aspects of the parent–child relationship (Gottman et al., 1996). *Emotion beliefs* can be rather general but can vary across subordinate features (Ford & Gross, 2019), such as: specific emotions or valence (e.g., anger, fear, sadness; negative or positive emotions), specific emotion channels (e.g., expressive behaviors), specific contexts (e.g., at home, at school), and specific targets (e.g., belief about the self, specific other, or generalized others).

Nelson and colleagues (2012) developed two questionnaires intended to assess parental emotion beliefs about the display of negative emotions by their children and the perceived social consequences of that expression. Critically, these are the only published measures focusing particularly on parental beliefs about negative emotions¹ (cf. Halberstadt et al., 2001; Halberstadt et al., 2013) across the aforementioned subordinate features of emotion beliefs. In the original study, both measures revealed good internal consistency and a single-factor structure (Nelson et al., 2012). However, those findings have not been reexamined and additional analyses on their psychometric performance have not yet been performed. Given the fact that maladaptive expression of negative emotions is a core facet of emotion dysregulation (McLaughlin et al., 2011), gathering evidence for the reliability and validity of the assessments of those parental beliefs will likely improve the scope and effectiveness of psychological interventions targeting emotion regulation difficulties in youths.

Child Emotion Regulation and Parents' Beliefs About Children's Emotions

Emotion regulation comprises the internal and external processes involved in initiating, maintaining, and shaping the occurrence, intensity, and expression of emotions (Thompson, 1994). Poor emotion regulation has been proposed as a transdiagnostic feature related to different forms of psychopathology, including psychopathologies of children and adolescents (Ehrenreich-May et al., 2014). Moreover, adaptive expression of negative emotions (e.g., anger, fear, and sadness) has been conceptualized as one dimension of the higher-order construct of emotion regulation, along with emotional understanding and cognitive emotion management (McLaughlin et al., 2011). Accordingly, maladaptive expression of those negative emotions has been linked to internalizing and externalizing psychological problems in youths (Zeman et al., 2006).

¹The first measure devised by Halberstadt, Dunsmore and colleagues (2001), “Parents' Beliefs About Negative Emotions”, was never published. Later, working with other colleagues, Halberstadt and Dunsmore (2013) developed “Parents' Beliefs About Children's Emotions”, which covered the most general dimensions of parental emotion beliefs.

Parents' beliefs about emotions derive from their own developmental history and are linked to parenting practices that affect children's adjustment outcomes via both adaptive and maladaptive emotion regulation (Morris et al., 2007). These emotion beliefs influence the regulation applied to parents' emotions (intrinsic emotion regulation) as well as their children's emotions (extrinsic emotion regulation; Ford & Gross, 2019). Specifically, parents' attitudes and beliefs regarding children's expression of emotion — whether they avoid or accept expression of negative emotions — are of the utmost importance in patterning children's long-term emotional style (Malatesta-Magai, 1991).

There are currently few psychometric measures to assess beliefs about emotion, and the existing instruments often neglect the subordinate features of emotion beliefs (e.g., valence, channels, contexts, self vs. others), which limits their clinical and research utility (Becerra et al., 2020). When reviewing the literature in their quest for “a multifaceted questionnaire assessing parents' beliefs about children's emotions” (p. 1197) that would be “applicable across ethnicity and gender” (p. 1196), Halberstadt and colleagues (2013) noted that, apart from an unpublished questionnaire (Halberstadt et al., 2001), there were only two measures specifically assessing parents' beliefs as distinct from their behaviors. Both of those measures had been developed by Nelson and colleagues (2012) to evaluate parents' emotion beliefs about their children's expression of negative emotions. Nelson and colleagues' first emotion belief questionnaire resulted from a considerable adaptation of Matsumoto's (1993) previous work on ethnic differences in emotional expression and was intended to assess parents' acceptance of their children's “display of negative emotions” (Nelson et al., 2012, p. 22) across multiple contexts (e.g., alone, with family, with other children). Following an initial one-factor solution (60% of total variance explained), exploratory factor analysis (EFA) further suggested a two-factor solution (dominant negative emotion and submissive negative emotion), with Cronbach's alphas of .87, .97, and .96 attesting to the good internal consistency of each subscale and the overall scale, respectively (Nelson et al., 2012, p. 27). Complementarily, the second emotion belief questionnaire targeted “the social consequences of negative emotions” (p. 27), as perceived by parents in their children expressing such emotions. Nelson and colleagues (2012) developed the measure ad hoc for addressing the research questions under examination, with a single factor structure obtained from EFA (49% of total variance explained), and a Cronbach's alpha of .73 indicating adequate internal consistency for the overall scale (p. 28).

Despite the contributions of these exploratory analyses, a detailed description of the theoretical rationale and of the results for the suggested factor structures was not reported, and those findings have not been replicated elsewhere. Moreover, none of the instruments was proven to detect gender differences, and the focus of the study was mothers of 5-year-old children, which precluded the analysis of discriminant validity for age groups. When reexamining the internal structure (i.e., the dimensionality) of an understudied measure in larger and wide-ranging samples, EFA is preferable to confirmatory factor analysis for two reasons: first, it does not require clear predictions as to which factors exist, or how they relate to variables and to each other; and second, it allows the

detection of unexpected, though substantially meaningful, factors influencing subsets of items or unexpected cross-loadings, which may be overlooked in confirmatory analyses (Flora & Flake, 2017; Gorsuch, 1997).

The Current Study

The Display of Negative Emotions scale and The Social Consequences of Negative Emotions scale are two understudied questionnaires for assessing parents' emotion beliefs about their children's expression of negative emotions. In order to address the abovementioned research gaps regarding their psychometric properties, the present study aimed to: (a) ascertain the factorial structure of both questionnaires, through EFA; (b) determine the internal consistency for each instruments' scale(s); and (c) assess the discriminant validity of the measures for identifying age- and gender-related differences in mothers' beliefs about their children's expression of negative emotions. No specific predictions were made for the first two objectives. In the assessment of discriminant validity, it was hypothesized that mothers would report stronger beliefs about the acceptability and the social consequences of expressing negative emotions (especially in the presence of others) for boys than for girls, and for older children (preadolescents) than for their younger counterparts (early elementary schoolers).

The current study comprises a sample of mothers of children of elementary school age, thus expanding the age range of the sample used in the original study (mothers of 5-year-old children). This is informative because, during elementary school years, patterns of emotion regulation become more stable and stylized. The development of more sophisticated cognitive and verbal skills enables greater complexity in conceptualizing and verbalizing ideas about emotions, as seen in children's conscious awareness of experiencing simultaneous, mixed emotions (Cole et al., 1994). From early elementary age to preadolescence, the influence of social interactions, such as the reactions of others (particularly parents and peers) to one's emotions increasingly contributes to the internalization of emotions about emotions (e.g., youths are more like to express an emotion if a supportive reaction is expected), as well as to a matured understanding of display rules (Cole et al., 1994). Specifically, there is some evidence for a gender socialization of emotion, with emphasis on boys suppressing their sadness and girls inhibiting anger expression, because of less positive expectations about obtaining a supportive response for these emotional displays (Zeman et al., 2006).

Methods

Participants

The sample for this study comprised 253 Portuguese mothers of school-aged children (6–12 years). The mother's mean age was 40.64 years ($SD = 4.61$, range = 25–53). Most of the mothers (87.0%, $n = 220$) were married or in a common-law relationship; the remainder were single, divorced, or widowed. Most mothers were currently employed (89.3%, $n = 225$) and had completed higher education (68.0%, $n = 172$). Household income reported included 15.8% ($n =$

40) below 1000€, 56.1% ($n = 142$) between 1001 and 2500€, and 28.1% ($n = 71$) above 2500€. Most mothers lived in an urban area (81.8%, $n = 207$).

Mothers with more than one child in the specified age range were instructed to select one child to base their answers on. About half of all the mothers (53.4%, $n = 135$) responded to the questionnaires based on their experiences with their daughters, while 118 answered based on their experiences with their sons. The children's mean age was 8.71 years ($SD = 2.05$, range: 6.0–12.0). To compare mothers of younger and older children we divided the sample by a school-related transition: 61.3% of the sample were early elementary schoolers (6–9 years old, $n = 155$) and the rest were preadolescents (10–12 years old). While 40.7% of the mothers ($n = 103$) had only one child, 59.3% had more than one child ($n = 150$, 2–6 children).

Procedure

Inclusion criteria to participate in this study were: (a) being a mother of a school-aged child (6–12 years old), (b) being 18 years old or older, and (c) being able to read and understand Portuguese. Sample collection occurred between May and July of 2019. Participants were invited to participate in the study through social networks (e.g., Facebook), both through unpaid cross-posting and through paid boosting campaigns. The web-based survey was hosted by Limesurvey. The study's consent form was presented to all participants before they started the survey, explaining the purpose, recruitment criteria, the participants' roles (e.g., voluntary participation), and the researchers' roles (e.g., guarantee of confidentiality). Those who consented to participate in the study (by clicking on the option "I understand and accept the conditions of the study") were given access to the assessment protocol. All procedures performed in this study were in accordance with the ethical standards of the institutional research committee, and with the Declaration of Helsinki and its later amendments for research involving human participants (World Medical Association, 2013). The study was approved by the Ethics Committee of the Faculty of Psychology and Educational Sciences of Coimbra University.

After obtaining authorization from their original authors, both questionnaires used in this study were translated to Portuguese through a forward-backward translation procedure. They were first translated independently by two of the authors of this study (A. Fonseca & H. Moreira), who were familiar with the concepts and terminology of the topics covered by the questionnaires and fluent in Portuguese and English. The two translated versions were reconciled to obtain the Portuguese version of the questionnaires. In a second step, the Portuguese versions were back-translated into English by a third researcher not familiar with the questionnaires. The two versions (original and back-translated) of each questionnaire were compared to achieve a comprehensible and conceptually consistent Portuguese version.

Measures

Sociodemographic Data

Sociodemographic (e.g., age, marital status, educational level, professional status, household income, residence, number of children) and child (e.g., gender, age) data were collected through a self-report form.

Emotion Beliefs: Display of Negative Emotions

This self-report questionnaire includes 20 items. As in Nelson et al.'s (2012) study, mothers were asked to rate how acceptable they believed it was for their children to display negative emotions (anger, fear, sadness, and crying) in different contexts (when alone, with family, with other children, in public, and with an authority figure); the items were answered on a 4-point scale ranging from 1 (*not at all*) to 4 (*very much*; p. 27). Higher scores were indicative of a greater acceptance of the child's display of negative emotions (Nelson et al., 2012, p. 27).

Emotion Beliefs: The Social Consequences of Negative Emotions

As in Nelson et al.'s 2012 study, this self-report questionnaire assesses the extent to which mothers believed there were negative social consequences associated with the display of negative emotions. It comprises five items: (a) When my child shows anger, people may view my child as aggressive; (b) People will not like my child if my child shows his/her negative emotions; (c) If my child shows fear, people may think my child is a "scaredy-cat"; (d) When my child shows sadness, he/she may seem weak or "soft" to others; (e) If my child shows negative emotions openly, other people might give him/her fewer opportunities for success in life. Items were answered on a 6-point Likert scale ranging from 1 (*strongly disagree*) to 6 (*strongly agree*; p. 27). Higher scores were indicative of a perception of more negative social consequences for the child's display of negative emotions (Nelson et al., 2012, p. 28).

Statistical Analyses

Statistical analyses were performed using the Statistical Package for the Social Sciences (SPSS, version 22.0; IBM SPSS, Chicago, IL). Descriptive statistics were computed for sample characterization. Item descriptive statistics and distributions were first computed to examine the items' characteristics. Absolute values of skewness above 2 and absolute values of kurtosis above 9 represent severe violations to a normal distribution (Schmider et al., 2010). To explore the factorial structure of both scales, EFA using a principal component analysis (PCA) with an oblique rotation (direct oblimin) were performed, as we expected the factors to correlate. Data was checked for suitability by inspecting Bartlett's test of sphericity and the Kaiser-Meyer-Olkin measure of sampling adequacy (Tabachnick & Fidell, 2013). Factor extraction was defined through Kaiser's criterion (eigenvalues ≥ 1) and the visual inspection of the scree plot. The relevance of retained factors was assessed by considering the total variance explained, the greatest simple structure, and the factors' appropriateness in relation to the intended factor structure (Costello & Osborne, 2005; Tabachnick & Fidell, 2013).

The analysis of the internal consistency of both scales was assessed using Cronbach's alpha. Item-total correlations and "Cronbach's alpha if item deleted" were also computed.

Finally, discriminant validity was examined considering child's gender and age-group differences. Multivariate analyses of variance (MANOVA) followed by univariate analyses of variance and an independent samples *t* test were computed to examine differences between the Display of Negative Emotions scale and The Social Consequences of Negative Emotions scale. Effect-size measures are presented for all comparison analyses (small: $\eta^2 \geq .01$, $d \geq 0.20$; medium: $\eta^2 \geq .06$, $d \geq 0.50$; large: $\eta^2 \geq .14$, $d \geq 0.80$; Cohen, 1992).

Results

Preliminary Analyses

The range of scores for all items of the Display of Negative Emotions scale was 1 to 4, suggesting that each response option in each item was selected by at least one participant. The average item scores were mostly above 3, except for the first five items, whose average scores ranged around 2 (data not shown). Skewness (ranging from -1.84 to 0.56) and kurtosis (ranging from -0.84 to 2.72) values showed that the items did not reveal severe violations of the normal distribution (Schmider et al., 2010).

The range of scores for all items of The Social Consequences of Negative Emotions scale was 1 to 5, with the average item scores ranging around 2 (data not shown). Skewness values ranged from 0.137 to 0.950, while kurtosis values ranged between -1.23 and -0.027, suggesting no severe violations of the normal distribution (Schmider et al., 2010).

Exploratory Factor Analyses

Concerning the Display of Negative Emotions scale, the results of the Kaiser-Meyer-Olkin measure (KMO = .92) and of Bartlett's test of sphericity ($X^2_{190} = 5824.61$, $p < .001$) confirmed the sample's adequacy for a PCA. Both the Kaiser extraction criterion (eigenvalues > 1) and the observation of the scree plot suggested a three-factor solution that explained 74.89% of the variance. The rotated solution (direct oblimin) is presented in Table 1. In the three-factor solution, the first factor comprised 12 items with high factor loadings (> 0.78), and explained 56.74% of the variance. Items in this factor refer to the acceptability of expression of submissive emotions (fear and sadness) in the presence of other people (other children, family, public, authority figures). The second factor comprised five items and explained an additional 12.29% of the variance. Items in this factor (loadings on the factor > 0.72) concern the acceptability of expression of dominant emotions (anger) by children. The third factor comprised three items, representing the acceptability of the child's expression of negative emotions when alone. However, the items in this factor also present high loadings in one of the other two factors (see Table 1) and this factor only explained 6.13% of the variance. Therefore, a new PCA was computed forcing the extraction of two factors. The two-factor solution explained 68.76% of the variance. The first factor, Expression of

Submissive Negative Emotions, comprised 15 items representing the perceived acceptability of the child's expression of submissive emotions (fear and sadness) in different contexts and explained 56.47% of the variance. The second factor, Expression of Dominant Negative Emotions, comprised five items assessing the perceived acceptability of the child's expression of dominant emotions (anger) in different contexts, and explained 12.29% of the variance. Therefore, the two-factor solution was retained for subsequent analyses.

Concerning The Social Consequences of Negative Emotions scale, the results of the Kaiser-Meyer-Olkin measure of sampling adequacy ($KMO = .74$) and of Bartlett's test of sphericity ($X^2_{10} = 608.28, p < .001$) confirmed the adequacy of the sample for a PCA. Both the Kaiser extraction criterion (eigenvalues > 1) and the observation of the scree plot suggested a one-factor solution comprising the five items of the scale and explaining 61.1% of the variance. The five items presented high loadings on the unidimensional factor, ranging from 0.62 (item 1) to 0.84 (item 3).

Internal Consistency

Concerning the Display of Negative Emotions scale, both factors presented good levels of internal consistency ($\alpha > .89$), and all items showed moderate to very strong correlations with the total score of the respective factor ($r = .47-.91$). No significant improvements in the internal consistency of the factors were found if any item was removed. With respect to The Social Consequences of Negative Emotions scale, the unidimensional scale presented a value indicating good internal consistency ($\alpha = .83$) and the items showed moderate to strong correlations with the total score ($r = .47-.72$). No significant improvements in the internal consistency of the total score were found if any item was removed.

Discriminant Validity: Child's Gender and Age-Group Differences

Table 2 presents the descriptive statistics of both scales as a function of child's gender and child's age group (6–9 years old vs. 10–12 years old). A significant multivariate effect of gender in the Display of Negative Emotions scale was found (Pillai's Trace = .026, $F_{2,250} = 3.33, p = .038, \eta^2 = .026$), with univariate tests showing differences in both the Submissive ($F = 5.73, p = .017, \eta^2 = .022$) and Dominant ($F = 3.99, p = .047, \eta^2 = .016$) factors. These results showed that the expression of both submissive and dominant emotions is perceived by mothers as more acceptable in boys than in girls. No significant differences as a function of child's gender were found in The Social Consequences of Negative Emotions scale ($t_{251} = 1.42, p = .156, d = 0.18$).

With regard to child's age group, no significant multivariate effect was found in the Display of Negative Emotions scale (Pillai's Trace = .003, $F_{2,250} = 0.34, p = .713, \eta^2 = .003$). However, significant age-group differences were found in The Social Consequences of Negative Emotions scale ($t_{251} = -3.22, p = .001, d = 0.41$).

Table 1. *Emotion Beliefs: Display of Negative Emotions Scale — Factorial Solutions Extracted from Exploratory Factor Analyses*

Emotion belief	3-factor rotated solution			2-factor rotated solution	
	Factor 1	Factor 2	Factor 3	Factor 1	Factor 2
<i>It is acceptable for children to:</i>					
1. Show their anger when they are alone.		.723	.528		.737
2. Show their anger when they are with their family.		.815			.815
3. Show their anger when they are with other children.		.901			.901
4. Show their anger when they are in public.		.899			.897
5. Show their anger when they are with authority figures (e.g., a teacher).		.828			.825
6. Show their fear when they are alone.	.397		.853	.503	
7. Show their fear when they are with their family.	.783			.782	
8. Show their fear when they are with other children.	.850			.874	
9. Show their fear when they are in public.	.814			.834	
10. Show their fear when they are with authority figures (e.g., a teacher).	.837			.850	
11. Show their sadness when they are alone.	.636		.788	.709	
12. Show their sadness when they are with their family.	.846			.827	
13. Show their sadness when they are with other children.	.931			.925	
14. Show their sadness when they are in public.	.925			.919	
15. Show their sadness when they are with authority figures (e.g., a teacher).	.925			.913	
16. Cry when they are alone.	.653		.721	.716	
17. Cry when they are with their family.	.840			.815	
18. Cry when they are with other children.	.885			.871	
19. Cry when they are in public.	.875			.867	
20. Cry when they are with authority figures (e.g., a teacher).	.882			.866	

Table 2. *Descriptive Statistics of the Two Emotion Beliefs Measures (Discriminant Validity)*

	Display of Negative Emotions Scale		The Social Consequences of Negative Emotions Scale
	Dominant	Submissive	
	<i>M (SD)</i>	<i>M (SD)</i>	<i>M (SD)</i>
Child's gender			
Female (<i>n</i> = 135)	2.36 (0.72)	3.26 (0.75)	2.37 (0.90)
Male (<i>n</i> = 118)	2.58 (0.76)	3.44 (0.67)	2.21 (0.85)
Child's age group			
6–9 years old (<i>n</i> = 155)	2.49 (0.75)	3.35 (0.73)	2.16 (0.84)
10–12 years old (<i>n</i> = 98)	2.41 (0.74)	3.34 (0.71)	2.52 (0.89)

Discussion

This was the first study to systematically report an examination of the factorial structure of the only two existing measures to assess parental beliefs about their children's expression of negative emotions, namely the Display of Negative Emotions scale and The Social Consequences of Negative Emotions scale. The study also gathered critical evidence for the reliability of both instruments and for their distinct psychometric performance in identifying differences in parents' emotion belief patterns related to their children's age and gender. Overall these findings establish preliminary construct validity for the two measures and attest to their reliability and discriminant validity.

Contrary to Nelson and colleagues' (2012) initial findings, when reexamining the factorial structure of the first questionnaire addressing parents' beliefs of acceptability about their children's display of negative emotions, a three-factor solution emerged. According to Ford and Gross (2019), the resulting three factors apparently depicted an internal structure crossing the subordinate dimensions of emotion valence (i.e., submissive vs. dominant, fear/sadness vs. anger) and interpersonal contexts of emotion expression (i.e., alone vs. in the presence of others). Altogether the three factors accounted for nearly 75% of the total variance. Nevertheless, given the significant cross-loadings in the items pertaining to the subscale on the acceptability of the child's expression of negative emotions when alone, a two-factor solution was ultimately preferred, comprising the dimensions of "child's expression of submissive emotions" and "child's expression of dominant emotions". This factorial structure straightforwardly portrayed the construct under assessment along the subordinate facets of emotion valence (i.e., submissive vs. dominant), and roughly explained 69% of the scale's total variance. In any case, the three-factor and the two-factor solutions accounted for a greater proportion of variance than that reported in the original study for a one-factor solution, which explained 60% of the total variance. It is noteworthy that the submissive–dominant distinction in emotional expression has been corroborated in a series of previous studies (e.g., Eisenberg et al., 1991; Nelson et al., 2012), thus highlighting its theoretical interest for understanding emotional expression styles and behaviors.

Regarding the factorial examination of The Social Consequences of Negative Emotions scale, the observed results are aligned with the single factor solution that was reported in the original study (Nelson et al., 2012). However, the amount of total variance explained was once again greater in our study (approximately 61%) than in the one previously reported (49%). The unidimensionality of this scale suggests that those socially embedded emotion beliefs are not valence-specific in appraising children's expression of negative emotions. This ultimately suggests that this measure assesses beliefs that directly target parental fears and concerns related to decreased social rank as a consequence of their children's expression of negative emotions.

The second aim of the study was to determine the internal consistency of the instruments. The Display of Negative Emotions scale presented Cronbach's alphas of .97 and .89 for the subscales of "child's expression of submissive emotions" and "child's expression of dominant emotions", respectively. The Social Consequences of Negative Emotions scale revealed a Cronbach's alpha value of .83. These results are in substantial agreement with those reported in the original exploratory study (Nelson et al., 2012), except that the reliability coefficient for the second measure was higher than the one previously observed ($\alpha = .73$). Bearing in mind that classical test theory views an observed response as resulting from the interaction of true score and error, the internal consistency values observed in our study are indicative of the reliability of both instruments, in the sense that their items seem to be measuring the same construct.

Finally, the study sought to examine the discriminant validity of the emotion beliefs questionnaires between child's age groups and genders. The observed results were disparate for each measure: on the one hand, the Display of Negative Emotions scale was able to discriminate between genders, with mothers being more accepting of the expression of both submissive and dominant emotions when the child was a boy; on the other hand, The Social Consequences of Negative Emotions scale discriminated between age groups, with mothers of preadolescents perceiving more threatening consequences from their children's expression of negative emotions than mothers of children in early elementary school. Altogether these findings are supportive of the discriminant validity of both measures, even if suggesting a distinct psychometric performance for each in the domains of age and gender.

Our first set of results partially challenges previous literature on gender-related display rules stating that boys are expected to show fewer internalizing emotions (e.g., sadness and anxiety), and are given more freedom to express externalizing emotions (e.g., anger) than girls (Brody, 1999). However, it bears noting that emotional development theorists have argued that boys seem to have higher reactivity and arousal levels, and lower language ability and inhibitory control than girls; therefore, in childhood, boys may be less able than girls to down-regulate negative emotions, and thus more likely to express them (Brody, 1999; Chaplin, 2015). This biologically modulated developmental trend may explain the seemingly disparate findings of our study, as regards mothers' greater acceptance of the expression of negative emotions when their child was a boy.

On the topic of the second set of results in the assessment of discriminant validity, our findings are convergent with previous reports pointing to an increased independency in emotion regulation processes from childhood to adolescence (Zeman et al., 2006). Therefore, in comparison to mothers of younger school-aged children, mothers of preadolescents may hold stronger beliefs about the unintended social consequences (e.g., social put-down, being left out) of the emotional expression of anger, fear, and sadness, because they may be differentially concerned about the attainment of developmental tasks related to autonomy, which are intuitively related to improved chances for their children to achieve happiness and success (cf. Seiffge-Krenke & Gelhaar, 2008).

Despite its contributions to improving current understanding on the psychometric assessment of parental emotion beliefs, this study has a number of limitations. First, the sampling frame relied exclusively on online procedures, thus excluding those mothers with the lowest levels of digital literacy, and those who, through lack of interest or opportunity, do not use social media at all. Second, our study's sample was embedded in the Western European cultural context, which may impair its external validity by limiting the generalizability of findings. The exclusive focus on negative emotions may be regarded as another limitation, given the importance of positive emotions in facilitating coping and developmental adaptive processes (Folkman, 2008; Frederickson, 1998). We are less concerned about this limitation, however, because there is no extant instrument that simultaneously addresses both parental beliefs at their superordinate level (e.g., acceptability and controllability) and valence-specific scores (e.g., positive and negative); this situation calls for a complementary and tailored use of the existing measures (cf. Becerra et al., 2020).

Our study nevertheless has important clinical implications. One is that it attests to the reliability of two brief measures that can be easily administered and interpreted in clinical routines aimed at consolidating a parent–child approach to psychological interventions in child mental health. The findings from this study also shed a different light on the identification of gender-related differences in mothers' acceptability of their child's expression of negative emotions. Overlooking these differences in clinical practice may hinder opportunities to increase parental psychological flexibility. Moreover, we recommend that the Display of Negative Emotions and The Social Consequences of Negative Emotions questionnaires should be used complementarily, not only because each measure seems to detect unique developmental differences, but also for identifying the parents' fear-related beliefs that may underlie their emotion beliefs about the acceptability of their children's expression of negative emotions. Finally, since beliefs about emotion have been shown to be mechanisms of symptom change, the therapeutic change of parental beliefs about children's emotions may contribute to the development of more adaptive emotion regulation repertoires (Ford & Gross, 2019), especially in the treatment of children's emotional disorders involving both internalizing and externalizing problems (Ehrenreich-May et al., 2014).

Future research may now move on to testing theoretically grounded, hypothesis-driven competing models through confirmatory factor analysis. Using that preferred statistical procedure for the advanced assessment of construct validity, the unidimensionality of The Social Consequences of Negative Emotions scale may be ascertained, and the suggested factor

solutions for the Display of Negative Emotions scale can be comparatively examined (e.g., three-factor vs. two-factor vs. bifactor models). The longitudinal study of both scales will be required to document their test-retest reliability (temporal stability). An important point is that sampling for future studies would desirably include both mothers and fathers to assess parental concordance in the reported beliefs about their children's emotions. Finally, more research is needed to distinguish parental beliefs from parenting behaviors, and to eventually explore the directionality of the associations between those two constructs.

Data availability statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

References

- Becerra, R., Preece, D. A., & Gross, J. J. (2020). Assessing beliefs about emotions: Development and validation of the Emotion Beliefs questionnaire. *PLoS ONE*, *15*, e0231395. [doi:10.1371/journal.pone.0231395](https://doi.org/10.1371/journal.pone.0231395)
- Brody, L. R. (1999). *Gender, emotion, and the family*. Harvard University Press.
- Chaplin, T. M. (2015). Gender and emotion expression: A developmental contextual perspective. *Emotion Review*, *7*, 14–21. [doi:10.1177/1754073914544408](https://doi.org/10.1177/1754073914544408)
- Cohen, J. (1992). A power primer. *Psychological Bulletin*, *112*, 155–159. [doi:10.1037/0033-2909.112.1.155](https://doi.org/10.1037/0033-2909.112.1.155)
- Cole, P. M., Michel, M. K., & Teti, L. O. (1994). The development of emotion regulation and dysregulation: A clinical perspective. *Monographs of the Society for Research in Child Development*, *59*, 73–100. [doi:10.2307/1166139](https://doi.org/10.2307/1166139)
- Costello, A. B., & Osborne, J. W. (2005). Best practices in exploratory factor analysis: Four recommendations for getting the most from your analysis. *Practical Assessment, Research, and Evaluation*, *10*, 1–9. [doi:10.7275/jyj1-4868](https://doi.org/10.7275/jyj1-4868)
- Ehrenreich-May, J., Queen, A. H., Bilek, E. L., Remmes, C. S., & Marciel, K. K. (2014). The unified protocols for the treatment of emotional disorders in children and adolescents. In J. Ehrenreich-May & B. C. Chu (Eds.), *Transdiagnostic treatments for children and adolescents: Principles and practice* (pp. 267–292). The Guilford Press.
- Eisenberg, N., Fabes, R. A., Schaller, M., Miller, P., Carlo, G., Poulin, R., Shea, C., & Shell, R. (1991). Personality and socialization correlates of vicarious emotional responding. *Journal of Personality and Social Psychology*, *61*, 459–470. [doi:10.1037/0022-3514.61.3.459](https://doi.org/10.1037/0022-3514.61.3.459)
- Flora, D. B., & Flake, J. K. (2017). The purpose and practice of exploratory and confirmatory factor analysis in psychological research: Decisions for scale development and validation. *Canadian Journal of Behavioural Science*, *49*, 78–88. [doi:10.1037/cbs0000069](https://doi.org/10.1037/cbs0000069)
- Folkman, S. (2008). The case for positive emotions in the stress process. *Anxiety, Stress & Coping*, *21*, 3–14. [doi:10.1080/10615800701740457](https://doi.org/10.1080/10615800701740457)
- Ford, B. Q., & Gross, J. J. (2019). Why beliefs about emotion matter: An emotion-regulation perspective. *Current Directions in Psychological Science*, *28*, 74–81. [doi:10.1177/0963721418806697](https://doi.org/10.1177/0963721418806697)
- Fredrickson, B. L. (1998). What good are positive emotions? *Review of General Psychology*, *2*, 300–319. [doi:10.1037/1089-2680.2.3.300](https://doi.org/10.1037/1089-2680.2.3.300)
- Gorsuch, R. L. (1997). Exploratory factor analysis: Its role in item analysis. *Journal of Personality Assessment*, *68*, 532–560. [doi:10.1207/s15327752jpa6803_5](https://doi.org/10.1207/s15327752jpa6803_5)

- Gottman, J. M., Katz, L. F., & Hooven, C. (1996). Parental meta-emotion philosophy and the emotional life of families: Theoretical models and preliminary data. *Journal of Family Psychology, 10*, 243–268. [doi:10.1037/0893-3200.10.3.243](https://doi.org/10.1037/0893-3200.10.3.243)
- Halberstadt, A. G., Dunsmore, J. C., Bryant, A., Jr., Parker, A. E., Beale, K. S., & Thompson, J. A. (2013). Development and validation of the Parents' Beliefs About Children's Emotions questionnaire. *Psychological Assessment, 25*, 1195–1210. [doi:10.1037/a0033695](https://doi.org/10.1037/a0033695)
- Halberstadt, A. G., Dunsmore, J. C., McElwain, N., Eaton, K. L., & McCool, A. (2001). *Parents' Beliefs About Negative Emotions* [Unpublished questionnaire]. North Carolina State University.
- Malatesta-Magai, C. (1991). Emotional socialization: Its role in personality and developmental psychopathology. In D. Cicchetti & S. L. Toth (Eds.), *Rochester Symposium on Developmental Psychopathology, Vol. 2: Internalizing and externalizing expressions of dysfunction* (pp. 203–224). Lawrence Erlbaum Associates.
- Matsumoto, D. (1993). Ethnic differences in affect intensity, emotion judgments, display rule attitudes, and self-reported emotional expression in an American sample. *Motivation and Emotion, 17*, 107–123. [doi:10.1007/BF00995188](https://doi.org/10.1007/BF00995188)
- McLaughlin, K. A., Hatzenbuehler, M. L., Mennin, D. S., & Nolen-Hoeksema, S. (2011). Emotion dysregulation and adolescent psychopathology: A prospective study. *Behaviour Research and Therapy, 49*, 544–554. [doi:10.1016/j.brat.2011.06.003](https://doi.org/10.1016/j.brat.2011.06.003)
- Morris, A. S., Silk, J. S., Steinberg, L., Myers, S. S., & Robinson, L. R. (2007). The role of family context in the development of emotion regulation. *Social Development, 16*, 361–388. [doi:10.1111/j.1467-9507.2007.00389.x](https://doi.org/10.1111/j.1467-9507.2007.00389.x)
- Nelson, J. A., Leerkes, E. M., O'Brien, M., Calkins, S. D., & Marcovitch, S. (2012). African American and European American mothers' beliefs about negative emotions and emotion socialization practices. *Parenting: Science and Practice, 12*, 22–41. [doi:10.1080/15295192.2012.638871](https://doi.org/10.1080/15295192.2012.638871)
- Schmider, E., Ziegler, M., Danay, E., Beyer, L., & Bühner, M. (2010). Is it really robust? Reinvestigating the robustness of ANOVA against violations of the normal distribution assumption. *Methodology: European Journal of Research Methods for the Behavioral and Social Sciences, 6*, 147–151. [doi:10.1027/1614-2241/a000016](https://doi.org/10.1027/1614-2241/a000016)
- Seiffge-Krenke, I., & Gelhaar, T. (2008). Does successful attainment of developmental tasks lead to happiness and success in later developmental tasks? A test of Havighurst's (1948) theses. *Journal of Adolescence, 31*, 33–52. [doi:10.1016/j.adolescence.2007.04.002](https://doi.org/10.1016/j.adolescence.2007.04.002)
- Tabachnick, B. G., & Fidell, L. S. (2013). *Using multivariate statistics* (6th ed.). Pearson Education Limited.

Thompson, R. A. (1994). Emotion regulation: A theme in search of definition. *Monographs of the Society for Research in Child Development*, 59, 25–52. [doi:10.2307/1166137](https://doi.org/10.2307/1166137)

World Medical Association. (2013). World Medical Association Declaration of Helsinki: Ethical principles for medical research involving human subjects [Special communication]. *Journal of the American Medical Association*, 310, 2191–2194. [doi:10.1001/jama.2013.281053](https://doi.org/10.1001/jama.2013.281053)

Zeman, J., Cassano, M., Perry-Parrish, C., & Stegall, S. (2006). Emotion regulation in children and adolescents. *Journal of Developmental and Behavioral Pediatrics*, 27, 155–168. [doi:10.1097/00004703-200604000-00014](https://doi.org/10.1097/00004703-200604000-00014)