

# Moral emotions in early childhood: Validation of the Chinese moral emotion questionnaire

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## Abstract

Moral emotions such as pride, guilt and shame play an important role in the social-emotional development of preschool children. However, there are not many instruments available for measuring moral emotions in the preschool age. Moreover, relatively few research had examined cross-cultural validity of measures for moral emotions. The present study tested the Chinese version of the Moral emotion questionnaire (MEQ) upon a group of ( $N = 182$ ) Chinese preschool children aged from 2 to 6 years. The Chinese MEQ is a parent-report translated from Dutch, assessing behavioural responses of pride, guilt and shame in preschool children. Confirmatory factor analysis showed satisfactory goodness-of-fit indexes for a three-factor structure (Pride, Guilt, Shame) with 15 loading items. For concurrent relations, the results suggested an adaptive role of pride and guilt and a maladaptive role of shame in the social-emotional development of preschool children. We could conclude that the 15-item Chinese MEQ is a valid and reliable instrument for measuring pride, guilt, and shame in 2–6-year-old children in the Chinese context.

## KEYWORDS

Chinese culture, moral emotions, preschool age, validation

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## 1 | INTRODUCTION

Moral emotions such as pride, guilt and shame serve important social functions. They regulate social behaviours and motivate people to act in accordance to moral standards (Tangney et al., 2007). Children start to internalize prevailing social norms and moral values since early years of life, manifesting signs of shame and guilt for misconduct, and pride for achievements (Izard, 2009; Lewis, 1992). To date, relatively few studies have investigated moral emotions in young children (Lotze et al., 2010; Olthof, 2012). This can be, at least partly, due to the difficulties in measurement, as most children aged 6 years and younger are not yet fully capable of reflecting upon and reporting their own moral emotional experiences. A parent-report, the Moral Emotion Questionnaire (MEQ), designed for assessing pride, guilt and shame among preschoolers was recently validated in Dutch children aged 2.5–6.5 years (Da Silva et al., 2022), provides a new tool for the assessment of moral emotions in this population. However, the extent to which this Dutch version can be applied to the assessment of moral emotions in non-Western children, is yet unknown. A validation of the MEQ on Chinese preschool children can inform us of its cross-cultural consistency and validity.

Moral emotions are a spectrum of emotions that arise when a person evaluates his/her own attributes or behaviours in light of the dominant social norms and moral values (Tangney et al., 2007; Tracy & Robins, 2004). Pride arises when a person has a positive evaluation on his/her personal attributes or behaviours (Li et al., 2021). For example, if the prevailing social norm views “helping others” as a good deed, one may feel proud of him/herself (“I am a good person”), or of his/her prosocial behaviours (“I did a good thing”) after performing a helping behaviour.

Contrarily, shame and guilt arise when an individual has a negative evaluation on the self or self-related behaviours. Particularly, shame and guilt differ in the self-attribution process: Guilt is felt when a person attributes the cause of a negative event to his/her misbehaviour, e.g. “I did something bad to others”; but when one attributes the negative event to the global self, e.g. “I am a terrible person in others’ eyes”, shame becomes the dominant emotion (Li et al., 2021; Tracy & Robins, 2004). Shame is often perceived as more maladaptive than guilt, as it is accompanied by a devaluation of one’s inherent personalities. Shameful feelings can be very hurtful, driving a person to withdraw and avoid social interactions, or triggering hostility (i.e. “Shame-rage”) in that person for repairing damaged self-image and reinstating the threatened social status (Lewis, 1971; Scheff, 1987). Compared to shame, the experience of guilt is often less overwhelming, as one’s core-self is not threatened. This leaves space for introspection or anticipation of the negative consequences, and motivates apologizing or amending behaviours (Tangney & Dearing, 2002).

Given the nature of moral emotions, it is not surprising that different moral emotions are associated with different behavioural outcomes. Past research examining pride, shame and guilt in children found that a high proneness to feeling pride was related to high self-confidence and good social competence (Tracy et al., 2007). A high proneness of feeling guilt was related to low frequencies of bullying and aggression, strong motivations of prosocial behaviours, and positive qualities of peer-relations (Broekhof et al., 2017; Mazzone et al., 2016). As for shame, a high proneness to shame is a risk factor for developing internalizing behaviours, such as low self-esteem, victimization, depression, or anxiety (Fergus et al., 2010; Gruenewald et al., 2004); and externalizing behaviours such as other-blaming, reactive or passive aggression (Bennett et al., 2005; Stuewig et al., 2010). However, it is important to note that these studies are based mostly on the findings of school-aged children and adolescents from Western societies.

For the development of moral emotions, the abovementioned self-evaluation is an essential component, which involves a complex cognitive process and requires higher-order cognitive abilities. This explains why unlike basic emotions which are already present in a few-month-old infants, moral emotions emerge later in life (Tracy & Robins, 2004). First, children need to have a sense of self as separate from others (Stipek, 1998). An indication of the emergence of the sense of self is when children start to use self-referential language around the age of two (Thompson, 2006). Additionally, children need to learn what their caregivers expect from them and need to develop understanding of what behaviours are deemed socially appropriate or inappropriate (Kagan, 2005). Toddlers were observed to show distress or avoidant behaviours when they realised they misbehaved, yet a positive response with an accomplishment (Emde et al., 1991; Izard, 2009; Kochanska, 2002). These kinds of reactions can be seen as children’s first manifestations

of guilt, shame, and pride (Lagattuta & Thompson, 2007; Lewis et al., 1992; Li et al., 2021; Stipek, 1998). Although these manifestations increase with age and across situations, it is not until the age of six years that children start to acquire a relatively matured understanding of moral emotions. Compared to toddlers, school-aged children are more aware of social norms, but can also attribute responsibility to an actor regarding certain outcomes, i.e. pride can only be attributed when the actor themselves is responsible for that positive outcome, but not when one wins the lottery (Graham & Weiner, 1991; Kornilaki & Chlouverakis, 2004).

To study moral emotions, many studies rely on self-report questionnaires, such as the “Test of Self-Conscious Affect for Children” (Tangney, 1990) and the “Brief Shame and Guilt Questionnaire for Children” (Novin & Rieffe, 2015). For obvious reasons, self-reports are unsuitable at the preschool age, because preschoolers are not fully capable of reflecting on and reporting their feelings (Broekhof et al., 2015). Therefore, research of moral emotions in preschoolers mostly used observational tasks, where “rigged” situations were created to provoke pride, shame, and/or guilt in children. Typically developing children aged 2 to 6 years already showed remorse and regret when they failed a task or damaged the property of others, and pride when making an achievement (e.g., Alessandri & Lewis, 1996; Barrett et al., 1993; Belsky et al., 1997; Ketelaar et al., 2015; Lewis & Ramsay, 2002; Li et al., 2021; Ross, 2017). In addition to measuring moral emotions at the global level by the emotional valence (e.g., Ketelaar et al., 2015; Li et al., 2021), some behavioural studies examined discrete moral emotions within the same valence, e.g., distinguishing between shame and guilt by observing whether children showed avoidance or reparative behaviours (Barrett et al., 1993; Ross, 2017). While these behavioural studies provided valuable information on preschoolers’ shame/guilt-related responses to specific situations, parent questionnaires can further inform us about children’s dispositional tendencies to experiencing moral emotions across contexts. Parents as the ones who watch over their children and interact with them on a daily basis, are excellent informants for evaluating their children’s dispositional reactions of moral emotions based on long-term and close observations (Fung et al., 2003). The MEQ (Da Silva et al., 2022) is such a parent-report designed especially for preschool children. Not only has it shown robust psychometric properties, importantly, but it also makes a distinction between shame and guilt by asking parents what are the behavioural tendencies of their children’s emotional experience. While shame is related with the action tendency of avoiding others and hiding oneself, guilt is often expressed through approaching the other person, seeking forgiveness and compensating for another’s loss.

In spite of the merits of the MEQ, since it was validated originally in a Western sample, it is unclear to what extent it can be applied to non-Western preschoolers. Culture shapes the social environment in which children develop emotional competence. The well-known cultural dimensions are individualism and collectivism (Hofstede, 1980). The general observation is that Eastern cultures, such as the Chinese culture, are more collectivistic-oriented than Western cultures (Tsai et al., 2006). Regarding the cultural influences for moral emotions, empirical research found that pride and guilt functioned similarly across Chinese to Western (e.g., North American or Dutch) cultures: pride was positively related to social competence (e.g. Han et al., 2021; Hooge et al., 2011; Kluwin et al., 2002; Tracy et al., 2007), and guilt was negatively associated with aggression and positively related with prosocial motives in both Chinese and Western cultures (e.g. Broekhof et al., 2017; Ding et al., 2016; Frijda & Mesquita, 1994; Lutwak et al., 2001).

However, shame has been reported to show some degrees of cross-cultural variations. As mentioned, shame arises with a negative evaluation on the core attributes of the self. This goes against the individualistic value which emphasizes self-value. It is repeatedly reported by Western research that a high proneness to shame is related to only maladaptive psychosocial outcomes (e.g. the Dutch sample in Broekhof et al., 2017). In Eastern cultures, however, a “big ego” is discouraged because it may be against the collectivistic value that puts the group above the self (Hofstede, 1980). Therefore, shame is viewed more adaptively in Eastern cultures than in Western cultures, as it prevents developing a bigger ego and stimulates conformity within the group. This might explain why in addition to its associations with maladaptive behavioural outcomes such as internalizing and externalizing behaviours in Chinese children and adolescents (Lee et al., 2016; Li et al., 2004; Wang et al., 2017; Wong et al., 2014; Wu et al., 2021; Zhong et al., 2008), shame can also be related to adaptive psychosocial outcomes such as prosocial and self-improvement behaviors in individuals from China, Japan and other Southern Asian countries (e.g. Bagozzi et al., 2003; Heine, 2002; Wang et al., 2020).

**TABLE 1** Demographic characteristics of the participants

	Boys (89)	Girls (93)	All (182)
Age (in months), M (SD)	44.82 (12.40)	56.88 (11.42)	52.15 (12.29)
<b>Respondent, n (%)</b>			
Mother	67 (75.2%)	69 (74.2%)	136 (74.7%)
Father	16 (18.0%)	22 (23.7%)	38 (20.9%)
Grandparent	5 (5.6%)	3 (3.2%)	8 (4.4%)
<b>Family composition, n (%)</b>			
Two-parent families	81 (91.0%)	87 (93.5%)	168 (92.3%)
Single parent families	8 (9.0%)	6 (6.5%)	14 (7.7%)
<b>Family members in house, n (SD)</b>	2.7 (1.11)	2.6 (.92)	2.6 (.97)
<b>Socio-Economic Status, M (SD)</b>			
Maternal education level <sup>a</sup>	3.87 (.62)	3.93 (.43)	3.90 (.54)
Paternal education level <sup>a</sup>	3.93 (.67)	3.88 (.53)	3.91 (.61)
Annual household income <sup>b</sup>	3.28 (2.33)	3.06 (2.18)	3.17 (2.27)

Note: No differences were noted between girls and boys in all the variables included in this table.

<sup>a</sup>Mean (SD) for each condition. Values: 1 = "Primary school & below", 2 = "Junior high", 3 = "High school", 4 = "University or College", 5 = "Postgraduate & above".

<sup>b</sup>Mean (SD) for each condition. Values: 1 = "<€3,000"; 2 = "€3,00–15,000"; 3 = "€15,000–€20,000" 4 = "€20,000–€25,000"; 5 = "€25,000–€40,000"; 6 = "€40,000–€65,000"; 7 = "€65,000–€130,000"; 8 = ">€130,000".

This study aimed to validate the Chinese version of the MEQ by examining its factor structure, internal validity and construct validity using a Chinese preschool sample. The MEQ assesses pride, shame and guilt in preschool children through parental evaluations of children's behavioural responses (Da Silva et al., 2022). It asks parents what happens when their child has misbehaved or made achievements. For validation of the measure, we assessed the construct validity by examining the fit of the intended three-factor structure (pride, guilt, shame) on the sample. Cronbach's alpha, inter-item correlation and composite reliability were examined for each scale to test the internal validity. For concurrent validity, we expected pride to relate positively with social competence (Broekhof et al., 2017; Stuewig et al., 2010); and guilt to relate positively to social competence and negatively with externalizing behaviours (Broekhof et al., 2017; Ding et al., 2016). As for shame, we expected shame to relate positively with internalizing and externalizing behaviours (Wang et al., 2020; Wang & Sang, 2020; Wu et al., 2021), and positively with social competence (Bagozzi et al., 2003; Heine, 2002).

## 2 | METHODS

### 2.1 | Participants and procedure

A total of 182 children aged between 2 and 6 years old (range: 24–72 months, M = 52.23 months, SD = 12.2 months; 48.9% boys) and their caregivers participated in this study. Caregivers were mothers (74.7%), fathers (20.9%) and grandparents (4.4%). The socioeconomic status of this sample (the means of indices, e.g. household income, parental/maternal education level, ratio of single-parent families) was basically in line with the general population in China (Bulletin of the Seventh Population Census, 2021, Akimov et al., 2021). Table 1 showed the information on the characteristics of the participants, including for boys and girls respectively. Appendix Table B1 shows the age distribution.

The children were recruited from two public kindergartens in JiangSu province, which are located in Eastern China. The kindergartens each had three preschool classes (one class per grade, with a total of three grades in Chinese kindergartens). All children of three grades in the two kindergartens were included, except for children with apparent developmental delays and mental health disorders, such as the attention-deficit hyperactivity disorder or autism spectrum disorders. After approvals were authorized by the headmasters of the local kindergartens, the teachers of each class were then contacted about this study of its purpose, execution and privacy policy. The teachers agreed with our requirements and understood about the confidentiality of the data, who later informed the children and caregivers of the study, and delivered to them the inform consent. The goals, execution, data management, privacy policy as well as the voluntary nature of the participation were stated clearly in the inform consent, which the caregivers were requested to sign on prior to the later test procedures. The questionnaires (which were covered with a front page for the purpose of preserving the privacy of participants) were also distributed by the teachers to the children, brought home by the children to their caregivers, and collected by the teachers upon completion and delivered to the researchers. The approval for this study was obtained from both the local kindergartens and the Ethical Committee of Leiden University.

## 2.2 | Measures

### 2.2.1 | Moral emotions questionnaire

The MEQ (see Appendix Table A1) aims to assess behavioural responses that are associated with three distinct moral emotions: pride, guilt and shame. The initial 25-item MEQ was developed by a team of developmental psychologists, based on a pilot sample of 106 caregivers. It was later validated by Da Silva et al. (2022) upon a sample of 377 caregivers of children aged 2.5–6.5 years, and modified into a 17-item version. This 17-item MEQ served as the starting point of the present study, encompassing: “Pride” scale (7 items), “Guilt” scale (6 items), and “Shame” scale (4 items) (Appendix Table A1). The caregivers were instructed to rate the degree to which each item represented their child’s behaviour in the past two months on a 3-point scale (0 = never, 1 = sometimes, 2 = often). A higher score may indicate a higher frequency and intensity that their child experienced for each emotion, except for Item 16, which was contra-indicative formulated and reversely-coded for computing scale scores. Caregivers were encouraged to answer to all items, including those that are seemingly inapplicable to their children.

### 2.2.2 | Internalizing and externalizing behaviours

To examine the severity of the internalizing and externalizing problems, the Early Childhood Inventory 4th edition (ECI-4; Sprafkin et al., 2002) parent checklist was administered. The ECI-4 consists of 9 subscales and 108 items that screen for 15 emotional and behavioural disorders in young children. Caregivers were required to rate as much as they could about how their child demonstrated each behaviour on the 4-point scale (0 = never, 1 = sometimes, 2 = often, 3 = very often), based on how their child manifested each symptom. Higher scores indicate more severe behavioural problems. Following the method of Ketelaar et al. (2017), we combined several scales of ECI-4 as indicators to assess internalizing problems and externalizing problems:

To assess internalizing behavioural problems, the “Major Depressive Disorder” scale (10 items, e.g. “Talks about death or suicide”, “Sad for most of the day”), the “Separation Anxiety” scale (8 items, e.g. “Afraid to sleep unless near parents”, “Gets very upset when child expects to be separated from home or parents”), the “Social Phobia” scale (3 items, e.g. “When put in uncomfortable social situations, the child cries, freezes, or withdraws from interacting”), and the “Generalized Anxiety” scale (4 items, e.g. “Is overly fearful of, or tries to avoid, specific objects or situations”) were combined as the indicator for “Internalizing Behaviours”;

**TABLE 2** The Descriptive statistics, internal consistencies of the MEQ scales and social-emotional functions

	Number of items	Mean (SD)	Cronbach's alpha	Inter-item correlation
<b>Moral Emotions</b>				
Pride	7	2.62 (.34)	.74	.30
Guilt	4	2.34 (.42)	.63	.30
Shame	4	1.70 (.43)	.67	.34
<b>Social Emotional Functions</b>				
Internalizing Behaviors	25	1.63 (.21)	.73	.27
Externalizing Behaviors	18	1.32 (.25)	.87	.31
Social Competence	10	2.37 (.38)	.69	.22

For the assessment of externalizing behavioural problems, the “Oppositional Defiant Disorder” scale (8 items, e.g., “Loses temper”, “Is touchy or easily annoyed by others”), and the “Conduct Disorder” scale (10 items, e.g. “Serious lying”, “Is physically cruel to people”) were combined as the indicator for “Externalizing Behaviours”. Internal consistencies of these two indices were adequate (Table 2).

### 2.2.3 | Social competence

To measure social competence, the Chinese version of the Strengths and Difficulties Questionnaire (SDQ; Goodman, 1997; Lai et al., 2010) was adopted. The Chinese SDQ consists of 5 subscales and 25 items that screen for 5 emotional, social and behavioural aspects. Caregivers were required to rate as much as they can about how their child manifested each behaviour in the past two months on a 3-point scale (0 = not true, 1 = somewhat true, 2 = certainly true). Following the method of Ketelaar et al. (2017), we selected two scales of SDQ: the “Peer Relation” scale (5 items, e.g. “Generally liked by other children”, “Has at least one good friend”) and the “Prosocial Behaviour” scale (5 items, e.g. “Considerate of other people’s feelings”, “Kind to younger children”) to form an indicator as “Social Competence”. The internal consistencies of this index were adequate (Table 2).

### 2.2.4 | Translation procedure

Due to there being no existing Chinese versions of the MEQ and the ECI-4, we thus followed a back-translation procedure to translate the questionnaires (Brislin, et al., 1973). The MEQ was translated from Dutch to Chinese, while the ECI-4 was translated from English to Chinese, by senior psychologists from our lab who are fluent in Dutch/English and Chinese. Afterwards, back-translations from Chinese to Dutch (MEQ) and to English (ECI-4), were performed by other bilingual colleagues of ours. The translated items were checked for language consistency comparing with the original versions. Inconsistencies were resolved by discussions within our research team.

## 2.3 | Statistical analyses

First, the construct validity of the Chinese MEQ was assessed through the confirmatory factor analysis (CFA) and reported following the guidelines by Jackson et al. (2009). We designated the Dutch MEQ with 17 items (Da Silva, et al., 2022) as our baseline model. Considering that the 3-point scale of the MEQ was of an ordinal (ordered-category)

nature, we used the weighted least-squares means and variance adjusted (WLSMV) as the estimator for (multi-group) CFAs (Brown, 2014; Ruppert & Wand, 1994). To evaluate model fits, a set of absolute and relative fit indices were used: A model was preferred when the normed chi square ( $\chi^2$ ) < 3.0, also  $\chi^2/df$  < 2.0 (Bollen, 1989); the Comparative Fit Index (CFI) > .90 (an acceptable level), or > .95 (a good fit; Hu & Bentler, 1999; Li, 2016), the Tucker-Lewis Index (TLI) > .95 (Lucas-Molina et al., 2018); the Root Mean Square Error of Approximation (RMSEA) and the Standardized Root Mean Square Residual (SRMR) < .08, while the null model RMSEA > .158 (Kenny et al., 2015; Little, 2013). Considering that WLSMV might be prone to overestimate the CFIs compared to maximum likelihood (ML) estimations, a cut-off criterion of .95 for CFIs was preferred (e.g., Bandalos, 2014; Li, 2016). Also, Modification Indexes (MI), Standardized Expected Parameter Changes (SEPC), Inter-factor Correlations were computed for evaluating the diversity of items and scales, MI > 10 or SEPC absolute value > .30 indicates loadings of an item on unexpected scales (Whittaker, 2012).

Second, for internal consistencies, Cronbach's alphas and inter-item correlations were examined. A Cronbach's alpha coefficient of .70 or higher was considered adequate (Ponterotto & Ruckdeschel, 2007). An inter-item correlation ranged .30 to .50 may indicate a consistency of the items within a scale, however, an inter-item correlation higher than .50 may indicate a tendency for the items (of the same scale) to be overly repetitive.

Third, we examined the concurrent validity of the three MEQ scales by examining their correlations with Internalizing Behaviours, Externalizing Behaviours, and Social Competence. Partial Spearman's correlation analyses were performed, controlling for age. If one MEQ scale was also correlated with the other MEQ scales and/or gender, then they were controlled for as well (e.g., controlling for age, gender, Guilt when examining correlations of Pride; Appendix Table C1 for the correlations between all study variables). Bonferroni correction was applied to adjust for multiple testing.

In addition, for exploratory purposes, we evaluated whether measurement properties of the MEQ were invariant across gender and across age groups (i.e., < 54 months [median age] vs.  $\geq$  54 months), via multigroup CFAs. Given the relatively small sample size, this part of the results should be interpreted with caution. Following the standard procedure (Brown, 2014; Milfont & Fischer, 2010), three levels of measurement invariance hypotheses were tested sequentially: configural, metric, and scalar. The examination of configural invariance assessed whether the model structure was equivalent across the target groups. The examination of metric invariance was to confirm if the factor loadings of the scales were invariant across the groups. Testing the scalar invariance allowed us to confirm whether the item intercepts were equivalent across the groups. Partial invariance was tested when full metric/scalar invariance was not met, by freeing the invariant items (Byrne et al., 1989). The criteria for the metric, scalar invariance were: the decrease in the CFI value ( $\Delta CFI$ ) < .01; the change in RMSEA ( $\Delta RMSEA$ ) < .015; and the change in SRMR ( $\Delta SRMR$ ) < .030 (Chen, 2007). The selection of the items to be freed was based on their univariate MI, and the Lagrange multiplier test, which shows the effect of releasing an equality constraint simultaneously between groups (e.g. Martin-Puga et al., 2022; Rosseel, 2012). The group differences were assessed when at least 50% of the items within one factor were invariant (Steenkamp & Baumgartner, 1998).

The (multigroup) CFAs were conducted in R (R Core Team, 2022, version 4.0.5), using *Lavaan* package version 0.6-9 (Rosseel, 2012). The examination for internal consistencies and Spearman's rank-order correlations for concurrent validity were conducted in SPSS version 24 (IBM Corp., 2016).

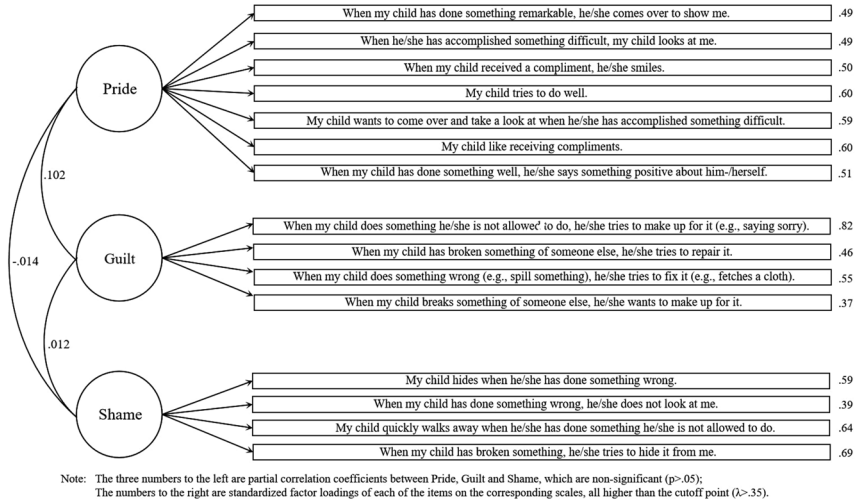
## 2.4 | Missing data analysis

One hundred and eighty-six out of 210 participants sent responses back to the researcher, among which 4 were not fully completed (<90% completion). For the remaining data, few missing values existed (<.5%). Little's MCAR test suggested these values were missing at random ( $p > .05$ ). Listwise deletion was used for the cases with missing values.

**TABLE 3** Fit indices for the model testing of the MEQ

Model	$\chi^2$	df	RMSEA [90% CI]	Null RMSEA	CFI	TFL	SRMR
Model1	203.65	116	.065 [.050, .080]	.183	.892	.873	.089
Model2	167.37	101	.061 [.044, .077]	.191	.915	.900	.086
Model3	127.16	74	.043 [.017, .062]	.196	.96	.952	.077

Note: CFI = comparative fit index; RMSEA = root-mean-square error of approximation. Model 1 = the original Dutch model (17 items, Da Silva et al., 2022); model 2 (16 items) = a revised model where 1 item were deleted from Model 1 (Item 11 from Guilt) to get a better model fit; model 3 = the final model with 1 more item deleted based on Model 2 (item 5 from Guilt) for better modification indices.

**FIGURE 1** The CFA result: a three-factor construct of the MEQ

## 3 | RESULTS

### 3.1 | Construct validity

Table 3 shows the fit measures of three sequentially tested models in the present study. Model 1 presented the original Dutch model developed by Da Silva et al. (2022), which was regarded as the starting point of our analysis. The fit measures suggested that the original model required improvement for this Chinese sample (CFI = .892, TFL = .873, RMSEA = .065). We firstly removed the item with the lowest factor loading ( $\lambda = .11$ , item 11 from Guilt), leading to Model 2. Although Model 2 revealed an acceptable model fit ( $\chi^2 = 167.37$ ,  $df = 107$ , RMSEA = .061, CFI = .915, TFL = .90), item 5 from Guilt had a high MI ( $>30$ ) and SEPC ( $>0.35$ ) on Shame. Hence, we removed item 5, leading to Model 3. Model 3 revealed very good fit measures ( $\chi^2 = 127.76$ ,  $\chi^2/df = 1.72$ , RMSEA = .43, null model RMSEA = .198, CFI = .96, TFL = .95) and variance parameters. Furthermore, we checked the content of each item in Model 3, and confirmed that all are appropriate under the Chinese cultural context. Therefore, we accepted Model 3 as the final model for the Chinese MEQ. Figure 1 shows the structure and items of the final model.

#### 3.1.1 | Measurement invariance across gender

The hypothesis of invariance of the model across gender was tested based on the final model (see Table 4). First, the fit measures obtained from the configural model showed an adequate fit,  $\chi^2(174, N = 182) = 167.08$ ,  $p < .01$ ; CFI = .999;



**TABLE 4** Fit indices of the invariance examinations across gender and age groups (half of participants < 54 months; the other half ≥54 month)

Parameters	Model fit indices				Model fit change values				
	$\chi^2$	df	CFI	RMSEA [90% CI]	Null RMSEA	SRMR	$\Delta$ CFI	$\Delta$ RMSEA	$\Delta$ SRMR
<b>Gender</b>									
Configural	167.08	174	.999	.001 [0, 0.042]	.198	.084			
Metric	212.83	186	.963	.04 [0, 0.064]	.198	.097	-.036	.039	.013
Partial Metric <sup>a</sup>	191.69	184	.990	.014 [0, 0.052]	.198	.092	-.009	.013	.008
Scalar	199.38	196	.995	.013 [0, 0.048]	.198	.094	.005	-.001	.002
<b>Age group</b>									
Configural	162.49	174	.999	.001 [0, 0.037]	.207	.085			
Metric	195.39	185	.987	.025 [0, 0.054]	.207	.092	-.011	.024	.007
Partial Metric <sup>b</sup>	183.42	184	.999	.001 [0, 0.046]	.207	.090	0	0	.005
Scalar	213.51	196	.978	.032 [0, 0.057]	.207	.096	-.021	.031	.006
Partial Scalar <sup>c</sup>	198.34	194	.995	.015 [0, 0.049]	.207	.093	-.004	.014	.003

Note: CFI: comparative fit index; RMSEA: root mean square error of approximation; CI: confidence interval; SRMR: standardized root mean square residual.  $N = 182$ . \* $p < .05$ .

<sup>a</sup>Equality constraints on the factor loadings of Item 14 and 16 were freed from the model.

<sup>b</sup>Equality constraint on the factor loadings of Items 4 was freed from the model.

<sup>c</sup>Equality constraints on the intercepts of Items 9 and 17 were freed from the model.

RMSEA = .001; SRMR = .084. In the next step, testing metric invariance revealed a significant change in the fit indices ( $\Delta$ CFI = -.036;  $\Delta$ RMSEA = .039;  $\Delta$ SRMR = .013), suggesting that metric invariance could not be assumed. Thus, partial metric invariance was tested by freeing the equivalence constraint on Item 14 (from Pride) and 16 (from Guilt), and a nonsignificant change in the model fit was obtained ( $\Delta$ CFI = -.009;  $\Delta$ RMSEA = .013;  $\Delta$ SRMR = .008). This implied that the item loadings besides Item 14 and 16 were invariant across gender, hence the hypothesis of partial metric invariance was tenable. Afterwards, testing scalar invariance yielded an insignificant change in the fit indices ( $\Delta$ CFI = .005;  $\Delta$ RMSEA = -.001;  $\Delta$ SRMR = .002), confirming equivalent intercepts across gender.

Since the majority ( $\geq 50\%$ ) of the items for each factor were invariant, the MEQ scores were comparable across gender. Independent t-tests showed that there existed only a gender difference in Pride:  $Pride_{boys} = 2.55 < Pride_{girls} = 2.67$ ,  $t(179) = -2.52$ ,  $p = .013$ , but not in Guilt,  $t(179) = .047$ ,  $p = .963$ , or Shame,  $t(179) = -.413$ ,  $p = .680$ . Due to that item 14 and 16 did not meet invariance in the metric/scalar tests, we further checked the group difference across gender by removing the two items in the comparison and no significant effect was observed (Appendix Table D1).

### 3.1.2 | Measurement invariance across age

We first divided the sample into two equal age groups, one ( $n = 91$ ) < 54 months, and the other ( $n = 91$ )  $\geq 54$  months (Table 4). The configural model showed an adequate fit,  $\chi^2(174, N = 182) = 162.49$ ,  $p < .01$ ; CFI = .999; RMSEA = .001; SRMR = .085. Next, testing metric invariance revealed a significant change in the fit indices ( $\Delta$ CFI = -.011;  $\Delta$ RMSEA = .024;  $\Delta$ SRMR = .007). Thus, partial metric invariance was tested by freeing the equivalence constraint on Item 4 (from Shame), and a nonsignificant change was obtained ( $\Delta$ CFI = 0;  $\Delta$ RMSEA = 0;  $\Delta$ SRMR = .005), indicating that the item loadings besides Item 4 were invariant across age. Afterwards, testing scalar invariance yielded a significant change ( $\Delta$ CFI = -.021;  $\Delta$ RMSEA = .031;  $\Delta$ SRMR = .006). Partial scalar invariance was thus conducted.

**TABLE 5** Spearman's correlations between the MEQ scales and the concurrent indices (controlling for age; also for gender and/or the other MEQ scales when they are correlated with the tested MEQ scale)

	Concurrent indices: social-emotional functions		
	Internalizing behaviors	Externalizing behaviors	Social competence
Pride	.13	.11	.36***
Guilt	-.09	-.15	.16*
Shame	.17**	.24***	-.15

Note: Significance level is adjusted with Bonferroni correction to  $p \leq \alpha/3 = .017$ . \*  $p$  (one-tailed)  $\leq .017$ . \*\*  $p$  (one-tailed)  $\leq .010$ . \*\*\*  $p$  (one-tailed)  $\leq .001$ .

After freeing the equality constraints on the intercepts of Item 9 (from Shame) and 17 (from Pride), partial scalar invariance was achieved ( $\Delta CFI = -.004$ ;  $\Delta RMSEA = .014$ ;  $\Delta SRMR = .003$ ).

Since the majority of ( $\geq 50\%$ ) items for each factor were invariant, the scores of MEQ were comparable across age. Independent t-tests revealed no differences in the MEQ scales between the two age groups,  $t_s < 1.84$ ,  $p_s > .069$ . The three items (items 4, 9, and 17) that were variant and freed in the metric/scalar tests appeared to have no large impact on the comparison between different age groups (Appendix Table D1).

### 3.2 | Internal consistencies

Table 2 shows the internal consistencies of the Pride, Guilt and Shame scales. The Cronbach's alpha varied from .63 to .74. The inter-item correlations ranged from .30 to .34, which were good and not exceeding the suggested range.

### 3.3 | Concurrent validity

Table 5 presents the Spearman rank-order correlation coefficients of the MEQ scales with the indices of social-emotional functions, age and gender. Results showed that after controlling for age, gender and Guilt, Pride was positively correlated to Social Competence. After controlling for age and Pride, Guilt was found to be negatively correlated with Externalizing Behaviours, and positively with Social Competence. Shame, on the contrary, was positively correlated with Internalizing and Externalizing Behaviours.

## 4 | DISCUSSION

This study provided supporting evidence for a 15-item Chinese MEQ, which was developed based on the original 17-item Dutch version (Da Silva et al., 2022). The psychometric results of the Chinese MEQ indicated a good construct validity, thus confirmed a three-factor model distinguishing between the indicated moral emotions (shame, guilt, and pride) upon a sample of Chinese preschool children. This model was tenable across age and gender according to measurement invariance analyses, and no correlations were noted between age and the three different MEQ factors. The internal validity (Cronbach's alphas and inter-item correlations) was adequate for all three scales. The results also demonstrated a pattern for concurrent validity that was by and large in line with previous studies based on Western samples: pride and guilt were positively related to social competence, whereas shame was positively related to internalizing and externalizing behaviours. Below we discuss these outcomes in greater detail.

A total of two items were deleted due to low factor loadings on their intended scale (Guilt), while both items showed also considerable factor loadings on another scale (Shame): item 5 ("My child shows that he/she regrets something")

and item 11 (“My child cries when he/she has accidentally hurt someone”). Note that both the deleted items refer to children’s negative emotion expressions, whereas the remaining items all refer to children’s behaviours that are aimed at amending (anticipated) transgressions. This may reflect cultural differences. Whilst in Western (e.g., North American, Western Europe) cultures it is acceptable to express negative emotions when well-justified, such as showing a guilty look after misbehaving, in the Chinese culture the expression of negative emotions is overall less welcomed and requires greater caution (e.g., Novin & Rieffe, 2015). For the Chinese children, an adaptive reaction in guilt-provoking situations might involve not only the initiation of reparative behaviours but also the suppression of negative emotions. In addition, although in Western cultures guilt often triggers self-evaluation and self-scrutinization (Tangney & Dearing, 2002), the function of guilt in the Chinese culture might be more other-oriented, namely, the concern is mainly about how the other person would feel and how the relationship with another could be jeopardized (e.g. Huang et al., 2018). This may explain why in our Chinese sample, guilt had only a positive relation with social competence whereas no negative relation with externalizing problems. Future cross-cultural research on moral emotions in young children is thus needed for replicating our findings and to unveil possible cultural influences.

For the concurrent validity of pride and shame, our findings were by and large in line with the previous literature on Western and Eastern samples (e.g. Broekhof et al., 2017; Ding et al., 2016; Lee et al., 2016; Tracy et al., 2007; Wang et al., 2017; Wu et al., 2021): That is, pride was positively correlated with social competence, and shame was positively related with internalizing and externalizing behaviours in our sample. The results therefore, suggested no notable cultural variance between the current Chinese preschool children sample and previous Western samples in regard of the concurrent validity of pride and shame. This cross-cultural consistency could imply that the moral(ity)-mechanism is deeply embedded in the early social-emotional development, although existing research is seemingly lacking in the exploration of this mechanism in young children. Hence, this study highlights the necessity of validating new instruments for different cultures and age-groups, as it may be the first step for extending our horizons on this topic.

Contrary to our expectations, for shame, we did not find it to be related to any adaptive aspects of social functioning in Chinese preschoolers. This result is consistent with previous Western findings, but contradictory to several studies that were based on Eastern samples. For example, Bagozzi et al. (2003), Breugelmans and Poortinga (2006), Heine (2002), and Wang et al. (2020) reported that shame was positively correlated to prosocial behaviours, self-improving motives, or positive interpersonal relationships among Chinese, Japanese, Indian, and Filipino participants, respectively. Notably, the participants of the above studies were from school-age children to adults, yet our sample consists of preschool children with a mean age of four years. Presumably, we could attribute the cause to the on-going yet unfinished socialization processes of preschool children in this special stage - theories suggested that children would first develop a relatively “pure” form of self-awareness before they can adjust their self-identity to conform to the group identities and cultural expectations (Lagattuta & Thompson, 2007). Accordingly, they might have not fully internalized the collectivistic values that is required for suppressing their idiosyncratic desires and acting in accordance to societal expectations. Moreover, children of this age are still under-developed in understanding societal expectations, the existing studies concluded that they are not fully aware of others’ desires, motives, or beliefs (e.g. Broekhof et al., 2015; Olthof, et al., 2010). In this case, the presence of shameful feelings might not trigger a strong internal motivation in preschool children in the shame-eliciting scenarios to defend or remedy their impaired social and self-image.

As for the relation between the levels of moral emotions and age within this preschool period: consistent to the cross-sectional studies (e.g., Cole et al., 2006; Konchanska et al., 1995) and the longitudinal studies focusing on Western preschoolers (e.g., Li et al., 2021), our results revealed no age difference in our Chinese sample either, indicating that the levels of pride, guilt and shame remained relatively static in the preschool stage. The comparisons of scores between groups were based on the premise that measurement invariance were achieved for (the majority of) the items used. However, it is noteworthy that only partial invariance were assumed in this study, while several items were variant on the cross-group assessment, which may influence our evaluation of group differences. Yet, a series of post-hoc t-tests showed that including and excluding the variant items in the analysis did not change the results of the group

comparisons, implying that the group differences were not sensitive to these variant items. Accordingly, our result may indeed suggest that children's development of pride, guilt and shame, as manifested by their daily behaviors, is relatively slow and not significant in preschool years (Etxebarria et al., 2019). By contrast, the development of moral emotions seem to accelerate at later stages, evidence from Western children showed that the experience of moral emotions peaked in early adolescence, which is probably related to the rapid growth of social awareness and social desires of belongingness in adolescence (e.g., Broekhof et al., 2021). Yet, despite the crucial role of moral emotions in the social development, our knowledge of the developmental trajectories and mechanisms is rather limited. This of course highlights the importance of validating measuring tools as the first step, but also calls for future studies to enrich our understandings on this topic.

#### 4.1 | Limitations of this study and future directions

Validating a new parent questionnaire for measuring moral emotions in Chinese preschoolers makes a promising first step towards understanding the early moral development among non-Western children. However, limitations should also be noted. First, the sample size in this study was relatively small ( $N = 182$ ). Small sized data of ordinal nature, especially with asymmetrical distributions, could be problematic and biased in the estimations of parameter estimates (e.g., RMSEAs, CFIs), Chi-squares, or standard errors (of factor loadings, of inter-factor correlations, or of structural paths) in confirmatory factor analyses (Bandalos, 2014; DiStefano & Morgan, 2014; Li, 2016). Specifically, Li (2016) suggested that although DWLS/WLSMV estimations with small samples can provide relatively robust parameter estimates, the standard errors can be more biased or inaccurate (5%–8%) comparing to estimations with large samples. Bandalos (2014) and DiStefano and Morgan (2014) suggested when sample sizes were notably small ( $N = 100$ ) with highly asymmetric distributions, both the parameter estimates and standard errors acquired from DWLS/WLSMV estimations could be more biased. Although in our case, skewness of the main factors and most of the items were within  $[-1, 1]$ , that is, close to normal distributions, the parameter estimates and the standard errors could still be slightly more biased (<5% for parameters; 5%–10% for standard errors) comparing to estimations of large samples. Hence, we recommend future validation studies to use larger sample size ( $N > 500$ ), to minimize the biases in estimations. Second, the participants of the present study were recruited solely in the JiangSu province. Although the social-economic status of our participants were largely in line with the general population in China (Bulletin of the Seventh Population Census, 2021), we cannot neglect that the majority (>99.7%) of the population in JiangSu are ethnically Han. Despite the fact that the Han-Chinese culture has always been the mainstream culture of China, it is different from some other subcultures (e.g., Mongolian, Tibetan) in certain aspects. In fact, we did not directly measure any cultural-related variables in this study, which may have limited our understanding of the exact role of cultures (and subcultures) in the moral development, as well as how they may interact with age in the process. Hence, caution is warranted when using the current version MEQ to assess moral emotions in children from the ethnic minority groups of China, and future studies are suggested to further explore such culture-morality dynamics in preschool children. Third, we think it might be necessary to point out that the responses of the caregivers can be to some extent biased, as the caregivers might be prone to over-estimate their children's morality, either intentionally or unconsciously. This may be especially the case when participants sensed that they were or would be evaluated: in this study, the anticipation that the teachers would finally collect the responses can increase the likelihood of biases in caregivers' responses, as some caregivers care much about teacher's evaluation on their children. Although the paper questionnaires were stapled with front covers (with only logos, the project title, and affiliations), confidentiality was not fully guaranteed. In this case, envelopes that can be sealed up (upon completion) may be ideal to contain paper questionnaires and to protect privacy, thus are recommended for future studies. Lastly, the correlational nature of the validation studies does not allow for interpretations on the causality and mechanisms of the concurrent relations we found. Longitudinal designs may be needed to study the developmental trajectories of moral emotions in the preschool years.

## 5 | CONCLUSION

This validation study showed that the modified 15-item Chinese version of the MEQ is suitable for assessing pride, guilt and shame in Chinese preschool children. Considering the significant role of moral emotions in guiding children's social behaviours, we hope that the Chinese MEQ provides a valid tool for assessing moral emotions in preschool children and will complement research in the function and early development of moral emotions across cultures.

### AUTHOR CONTRIBUTIONS

**Zijian Li:** Investigation, Formal analysis, Validation, Writing Original Draft, Funding acquisition; **Boya Li:** Review & Editing, Project administration, Supervision; Funding acquisition; **Yung-Ting Tsou:** Formal analysis, Review & Editing, Supervision; **Paul Oosterveld:** Formal analysis; **Carolien Rieffe** (the corresponding author): Conceptualization, Methodology, Supervision, Review & Editing, Funding acquisition.

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### CONFLICT OF INTEREST

No potential competing interest was reported by the authors.

### DATA AVAILABILITY STATEMENT

The data that support the findings of this study are openly available in DataverseNL at <https://doi.org/10.34894/DZ1A6T>.

### ETHICS STATEMENT

Caregivers of the children were fully informed (by consent form) of the goals, execution, data management, privacy policy of this study, and the voluntary nature of their participation. Written consents were required before study began. Approval for this study was obtained from the Ethical Committee of Leiden University.

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## APPENDIX

**TABLE A1** Items of the moral emotions questionnaire, MEQ (Da Silva et al., 2022)

<i>Pride</i>	
2	When my child has done something remarkable, he/she comes over to show me
6	When he/she has accomplished something difficult, my child looks at me
8	When my child receives a compliment, he/she smiles
10	My child tries to do well
12	My child wants me to come over and take a look when he/she has accomplished something difficult.
14	My child likes receiving compliments
17	When my child has done something well, he/she says something positive about him-/herself
<i>Guilt</i>	
3	When my child does something he/she is not allowed to do, he/she tries to make up for it (e.g., saying sorry)
5	My child shows that he/she regrets something
9	When my child has broken something of someone else, he/she tries to repair it
11	My child cries when he/she has accidentally hurt someone
13	When my child does something wrong (e.g., spill something), he/she tries to fix it (e.g., fetches a cloth)
16	My child does not respond when I scold him/her for doing something he/she is now allowed to do (R)
<i>Shame</i>	
1	My child hides when he/she has done something wrong
4	When my child has done something wrong, he/she does not look at me
7	My child quickly walks away when he/she has done something he/she is not allowed to do
15	When my child has broken something, he/she tries to hide it from me

**TABLE B1** Age distribution and mean scores (standard deviations)

	Age Distribution				
	2 years	3 years	4 years	5 years	6 years
<i>N</i> (total = 182)	10	46	48	63	15
<b>Moral Emotions</b>					
Pride	2.41 (0.27)	2.66 (0.27)	2.65 (0.46)	2.59 (0.31)	2.61 (0.29)
Guilt	2.11 (0.40)	2.33 (0.43)	2.31 (0.43)	2.38 (0.41)	2.40 (0.40)
Shame	1.67 (0.41)	1.67 (0.46)	1.71 (0.48)	1.69 (0.39)	1.78 (0.39)
<b>Social-Emotional Functions</b>					
Internalizing Behaviors	1.70 (0.27)	1.66 (0.23)	1.66 (0.21)	1.59 (0.17)	1.61 (0.21)
Externalizing Behaviors	1.49 (0.31)	1.33 (0.28)	1.35 (0.23)	1.27 (0.22)	1.24 (0.31)
Social Competence	2.14 (0.34)	2.29 (0.31)	2.37 (0.44)	2.41 (0.35)	2.55 (0.42)

**TABLE C1** Spearman's correlations between the study variables

	3.	4.	5.	6.	7.	8.
1. Age	-.02	.11	.06	-.12	-.18*	.22**
2. Gender	-.20**	.003	-.02	.01	.12	-.13
3. Pride		.50***	-.08	.09	.01	.47***
4. Guilt			-.09	-.05	-.14	.38***
5. Shame				.17*	.23**	-.12
6. Internalizing Behaviors					.36***	-.23**
7. Externalizing Behaviors						-.22**
8. Social Competence						-

Note. \*  $p \leq .05$ ; \*\*  $p \leq .01$ ; \*\*\*  $p \leq .001$ .

**TABLE D1** Group differences of means of moral emotions across Gender and Age groups

	Gender			Age		
	df	t	p	df	t	p
Configural test						
Pride	179	-2.52	.01	179	-.42	.67
Guilt	179	.05	.96	179	-1.82	.07
Shame	179	-.41	.68	179	-.07	.95
Partial Metric test <sup>a, b</sup>						
Pride	179	-2.62	.01	179	-.42	.67
Guilt	179	.16	.87	179	-1.82	.07
Shame	179	-.41	.68	179	.33	.74
Partial Scalar test <sup>c</sup>						
Pride	179	-2.62	.01	179	.35	.72
Guilt	179	.16	.87	179	-.89	.38
Shame	179	-.41	.68	179	.34	.73

<sup>a</sup>For the partial metric model across gender, equality constraints on the factor loadings of Item 14 and 16 were freed.

<sup>b</sup>For the partial metric model across age, equality constraint on the factor loading of Items 4 was freed from the model.

<sup>c</sup>For the partial scalar model across age, equality constraints on the intercepts of Items 9 and 17 were freed from the model.