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Shame and guilt scales for fathers of children with developmental disabilities: Development and validation

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Abstract

Shame and guilt are powerful moral emotions that profoundly influence how fathers perceive themselves and engage with their children, particularly when raising a child with a developmental disability. Yet brief, culturally attuned measures assessing these emotions in this population remain scarce. Guided by established distinctions between shame and guilt and informed by contemporary fatherhood models, we employed a sequential mixed-methods design to develop and validate the Shame Scale and Guilt Scale for Chinese fathers of children with developmental disabilities. Item pools derived from hermeneutic interviews with 31 fathers were refined through expert review and cognitive pre-testing. A community sample of 437 fathers of children aged 2–12 years completed the draft scales and demographic items. The dataset was randomly split for exploratory (n = 219) and confirmatory (n = 218) factor analyses. Two-factor solutions emerged for each scale: shame comprised internal inadequacy and public devaluation; guilt comprised cognitive wrongdoing and emotional remorse. Confirmatory models demonstrated satisfactory fit (CFI and TLI>.93, RMSEA < .08, SRMR < .05) and high reliability (α= .89 for shame, α= .88 for guilt). These findings contribute to understanding how moral emotions shape paternal involvement within the cultural context of Chinese families navigating developmental disabilities. The validated scales offer reliable tools for advancing research and informing interventions aimed at supporting father-child relationships and family well-being.

Keywords Shame · Guilt · Fathers · Developmental disabilities · Scale validation

Introduction

Father involvement, defined as the quantity and quality of engagement, responsibility, and accessibility a father provides to his child (Lamb, 2010), is a recognized determinant of a child's socio-emotional development and overall family well-being (Yogman & Eppel, 2022). Yet, the paternal role becomes substantially more complex when parenting a child with a developmental disability, which refers to conditions with onset in the developmental period that are typically long-term and cause substantial functional limitations, spanning neurodevelopmental diagnoses (e.g., intellectual developmental disorder, autism spectrum disorder, specific learning disorder) and certain physical conditions (e.g., cerebral palsy; Reiss, 2009). Fathers must manage specialized caregiving demands, navigate fragmented service systems, and confront disability-related stigma, all while striving to uphold culturally sanctioned ideals of competence and emotional restraint (Cheng & Lai, 2023; Holroyd, 2003). A recent epidemiological survey in Hong Kong estimates that 11% of children meet the criteria for special educational needs (Legislative Council Secretariat, 2022); in these families, parents of children with developmental disabilities report elevated psychological distress compared to parents of typically developing children (Ye et al., 2021). Indeed, disability functions as a contextual risk factor because sustained care intensity, fragmented services, and ableist social arrangements, rather than the impairment itself, elevate parental stress and limit paternal role opportunities (Hayes & Watson, 2013). In this context, ableism

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is defined as the systemic privileging of nondisabled norms that devalue disabled people and their families and create access barriers, discrimination, and internalized status loss, conditions that recur across settings (Campbell, 2009). Comparable trends have been observed worldwide (Cheng & Lai, 2023), indicating a pressing need to examine the underlying emotional mechanisms that shape father engagement in disability contexts. Against this backdrop, self-conscious moral emotions, particularly shame and guilt, are emerging as pivotal yet understudied drivers of paternal behavior.

Moral emotions in fathering: shame and guilt

Guided by self-conscious emotion theory (Lewis, 2019), we conceptualize shame and guilt as discrete, self-conscious emotions that arise from self-evaluation against internalized standards. Shame involves a global negative self-evaluation (e.g., *"I am a bad father"*), typically triggering withdrawal or avoidance, whereas guilt involves a specific appraisal of wrongdoing (e.g., *"I made a mistake"*), often motivating reparative actions and approach-oriented caregiving (Tangney & Dearing, 2002). In collectivist cultures like Hong Kong, these emotions are especially salient, as notions of "face," filial obligation, and public evaluation amplify fathers' emotional experiences. Yet, little is known about how shame and guilt manifest among fathers of children with disabilities or how they shape paternal behavior. This study addresses that gap by developing and validating culturally grounded Shame and Guilt Scales for Chinese fathers navigating disability-related caregiving challenges.

Recent qualitative research further supports the importance of differentiating these emotions (Lo et al., 2025). Studies conducted with Chinese fathers raising neurodiverse children found that shame often stems from public scrutiny or perceived failure to meet societal expectations, triggering social withdrawal, whereas guilt arises from perceived lapses in caregiving and can motivate more attentive parenting (Lo, 2025; Lo et al., 2025). Other findings also suggest that shame may hinder father–child interactions, while guilt can foster compensatory or reparative behaviors (Hu, 2022; Marsh et al., 2020). Empirically, high levels of shame predict disengagement from therapeutic and social supports, while moderate levels of guilt predict greater involvement in adaptive coping and a strong parent-child bond (Tangney et al., 2007).

Cultural amplification of moral emotions in Chinese fathers

Cross-cultural research underscores that the elicitors, expression, and regulation of shame and guilt are deeply shaped by sociocultural norms and values (Markus & Kitayama, 1991). In Confucian-heritage societies, paternal identity is intertwined with filial piety (*xiao*) and face (*mianzi*), two social constructs that stipulate a father's duty to raise children who reflect family honor (Holroyd, 2003). A child's disability can therefore threaten the father's public image and perceived lineage continuity, intensifying shame. Simultaneously, patriarchal norms value stoicism and self-control (Bedford & Hwang, 2003), producing an internal conflict where fathers are expected to maintain stoicism and emotional restraint, even as they privately internalize blame for their child's condition and caregiving outcomes (Wang et al., 2023). Qualitative evidence from Hong Kong shows that many fathers internalize blame for "genetic transmission," which feeds covert cycles of shame and self-directed anger (Liong, 2017). Conversely, culturally contextualized guilt, manifested as remorse over harsh discipline or inadequate advocacy, can energize constructive caregiving if channeled appropriately.

Bridging the gap: assessing shame and guilt in Disability-Specific fathering

Despite increasing acknowledgment of the importance of father involvement in families of children with disabilities, empirical research remains constrained by a lack of culturally and contextually valid assessment tools for paternal moral emotions. Existing generic instruments, such as the Test of Self-Conscious Affect (TOSCA-3; Tangney & Dearing, 2002) or the Personal Feelings Questionnaire-2 (Harder & Zalma, 1990), were normed primarily on Western college samples. Parenting-focused measures, for example, the Parental Guilt and Shame Proneness scale (PGASP: Li et al., 2024) or The Guilt about Parenting Scale (GAPS: Haslam et al., 2020), omit disability-related stigma and public-exposure scenarios.

Two primary limitations characterize existing measures:

1. **Content validity gaps.** Existing instruments rarely capture father-specific scenarios such as public behavioral outbursts, therapy non-compliance, or sacrifices in occupational functioning, those situations frequently cited by fathers as emotionally distressing (Hu, 2022; Marsh et al., 2018). Instruments must reflect the lived realities of these fathers by assessing shame (both intra-personal and inter-personal forms) and guilt (both cognitive and emotional components) within relevant caregiving contexts.
2. **Cultural inequivalence.** Western-based instruments often suffer from semantic and conceptual mismatches when applied to East Asian contexts. For instance, English terms like "regret" or "embarrassment" may fail to map onto culturally distinct constructs such as *nei kui*

(inner shame) or *diu lian* (loss of face). Furthermore, few studies have assessed measurement invariance in Chinese father samples, limiting cross-cultural generalizability and the development of evidence-based practice.

Purpose of the study

To address the identified gaps in culturally valid assessment of paternal moral emotions, this study developed and validated two novel psychometric instruments, the Shame Scale and the Guilt Scale, specifically designed for Chinese fathers of children with developmental disabilities. Item content was derived from in-depth phenomenological interviews and subsequently refined through expert review and cognitive pre-testing prior to quantitative validation. This study pursued four primary aims:

1. To develop culturally grounded scale items by drawing on qualitative insights from the lived experiences of Chinese fathers raising children with developmental disabilities.
2. To establish the underlying factor structure of the Shame and Guilt Scales through rigorous exploratory and confirmatory factor analyses.
3. To evaluate the psychometric properties of the scales, including internal consistency, factorial validity, and measurement reliability.
4. To evaluate internal structure and reliability of the scales, providing tools for future research on father involvement.

By integrating culturally informed qualitative methods with robust psychometric validation, the Shame and Guilt Scales aim to fill a critical gap in father-focused parenting research. These instruments are expected to enhance the detection of maladaptive moral-emotion profiles and inform culturally responsive interventions that promote paternal well-being and more effective caregiving.

Method

Participants and procedures

This study employed a two-phase mixed-methods design. In Phase I, a qualitative inquiry was conducted to explore the moral emotions of fathers of children with developmental disabilities. While full details are reported elsewhere, insights from in-depth interviews with 31 biological fathers were used to generate culturally grounded and contextually relevant items for the Shame and Guilt Scales. Item development and refinement proceeded in two steps. First, expert review by five specialists (clinical/counselling psychology, special education, cultural psychology) evaluated content relevance, clarity, and cultural resonance; items were revised or removed by consensus. Second, cognitive pre-testing with 10 fathers using think-aloud followed by brief debriefing interviews assessed comprehensibility and emotional appropriateness. Items with unclear meaning or emotional ambiguity were reworded, standardized in tone/reading level, and supplemented with concrete public-context examples (e.g., transport, restaurants, playgrounds). These qualitative and pre-testing steps provided the conceptual and linguistic foundation for subsequent scale validation (Streiner & Kottner, 2014).

In Phase II, the quantitative validation phase, data were collected between November 2022 and March 2023 via an online survey distributed through parent organizations, special education institutions, and online communities in Hong Kong. A total of 470 responses were initially gathered; after removing 33 cases where the child exceeded the age criterion (older than 12 years), the final sample comprised 437 fathers (see Table 1 for demographic characteristics). Eligible participants were biological fathers of children aged 2 to 12 years with a formal diagnosis of a developmental disability, including autism spectrum disorder (ASD), attention deficit/hyperactivity disorder (AD/HD), intellectual disability (ID), or related neurodevelopmental conditions. Mainly, these neurodevelopmental conditions are often accompanied by behaviors (e.g., sensory-driven outbursts, communication differences) that can draw public attention, potentially intensifying fathers' self-conscious emotions in community settings.

Participants completed a self-administered questionnaire that included the Shame and Guilt items derived from the qualitative phase, along with demographic information. Each item was rated using a 5-point Likert scale ranging from "*Strongly Disagree*" to "*Strongly Agree*." Ethical approval was obtained from the Human Research Ethics Committee of the University of Hong Kong, and all participants provided informed consent prior to data collection.

To rigorously assess the psychometric properties of the scales, the full sample was randomly split into two independent subsamples: Sample 1 ($n=219$) for Exploratory Factor Analysis (EFA) and Sample 2 ($n=218$) for Confirmatory Factor Analysis (CFA). EFA was performed using principal axis factoring and oblimin rotation, with factor retention based on parallel analysis, scree plot inspection, and theoretical interpretability. Items were retained based on a pattern coefficient threshold of ≥ 0.37 and minimal cross-loadings. CFA, conducted in the R package lavaan (version 2025.04.0), used maximum likelihood estimation to validate

Table 1 Descriptive statistics of respondents in the quantitative phase (N=437)

Variables	Frequency (%)/Mean (SD)
Age of Father	
18–29	11 (2.5%)
30–39	145 (33.2%)
40–49	214 (49.0%)
50–59	56 (12.8%)
60–65	11 (2.5%)
Marriage status	
Married	397 (90.8%)
Unmarried Non-cohabitant couples	4 (0.9%)
Unmarried cohabitant couples	6 (1.4%)
Separated or Divorce	28 (6.4%)
Others	2 (0.5%)
Family Income (HKD)	
<$10,000 per month	17 (3.9%)
$10,000 - $19,999 per month	94 (21.5%)
$20,000 - $29,999 per month	91 (20.8%)
$30,000 - $39,999 per month	78 (17.8%)
$ More than $39,999 per month	148 (34%)
Unknown	9 (2%)
Education level	
Secondary or below	191 (43.7%)
Tertiary level	71 (16.2%)
Bachelor or above	175 (40.1%)
Work status	
Employed (Full-time)	359 (82%)
Employed (Part-time)	36 (8%)
Family caregiver	18 (3.5%)
Unemployed	13 (3%)
Others	11 (2.5%)
Number of children	
1	205 (46.9%)
2	198 (45.3%)
3 or more	34 (7.8%)
Number of children with developmental disabilities	
1	365 (83.5%)
2	65 (14.9%)
3 or more	7 (1.6%)
Sex of children with developmental disabilities (Female)	103 (24%)
Types of developmental disabilities of children (1 or more)	
AD/HD	95 (21.7%)
ASD	96 (22.0%)
SpLD	6 (1.4%)
ID	7 (1.6%)
Other type	11 (2.5%)
More than one type of special needs in development and learning disabilities	138 (31.6%)
More than one type of special needs in both physical, sensory, mental health and/or development and learning disabilities	84 (19.2%)

the factor structures. Model fit was evaluated using multiple indices, including CFI, TLI, RMSEA, and SRMR.

Data analysis

Phase I

We analyzed interviews using a systematic, multi-stage codebook thematic analysis (Braun & Clarke, 2006; Kim, 2015). Audio-recorded Zoom interviews were transcribed verbatim and imported into NVivo 12 for management. An inductive codebook was developed from initial open coding and iteratively refined through team discussions. Two trained analysts independently coded an initial subset and then proceeded with consensus coding; discrepancies were resolved in adjudication meetings, and an audit trail and analytic memos were maintained to enhance dependability. To strengthen analyst triangulation, the team included clinical/counselling psychology and social work expertise; brief peer-consultation with experienced fathers (not coding their own transcripts) informed clarity of theme labels. Member checking with a small subset of participants (n=6) confirmed the accuracy of summaries and thematic interpretations.

Full qualitative procedures, the finalized codebook, and exemplar quotations for the 31-father interview sample are reported elsewhere; here we summarize only elements essential to measurement development (see Lo, 2025; Lo et al., 2025). Those studies showed that shame was commonly linked to avoidance/withdrawal (e.g., limiting public outings under scrutiny), whereas guilt tended to motivate compensatory/reparative caregiving, with triggers spanning public scrutiny, family criticism, and personal regret. These published patterns directly informed item writing and our hypothesized two-factor structures for shame (Public Devaluation, Internalized Inadequacy) and guilt (Cognitive Wrongdoing, Emotional Remorse). The final codebook is summarized in Supplementary Material S1.

Phase II

To validate the factor structure of the Shame and Guilt Scales, we employed a two-stage approach using exploratory factor analysis (EFA) followed by confirmatory factor analysis (CFA). The total sample (N=437) was randomly split into Sample 1 (n=219) for EFA and Sample 2 (n=218) for CFA. This split-half method is widely recommended for scale development as it allows for independent validation of the factor structure (Boateng et al., 2018). Analyses were conducted with the R statistical package (Macintosh

Version 2025.04.0; R Core Team, 2025) and its *psych* package (v2.4.12).

Prior to conducting EFA, we confirmed the appropriateness of the data by applying Bartlett's test of sphericity (Bartlett, 1950) and assessing the Kaiser–Meyer–Olkin (KMO) statistic (Kaiser, 1974), with a KMO value of at least 0.50 considered acceptable (MacCallum et al., 1999). Once confirmed, the correlation matrix was subjected to common factor analysis—selected over principal component analysis (PCA) to identify latent constructs (Fabrigar et al., 2011). We employed an iterated principal axis extraction method, with initial communalities estimated via squared multiple correlations, due to its robustness in handling non-normal data and its ability to recover weak factors (Briggs & MacCallum, 2003).

To determine the optimal number of factors to retain, we used a combination of parallel analysis (Horn, 1965), the minimum average partial (MAP) test (Velicer, 1976), and visual inspection of the scree plot (Cattell, 1966), along with considerations of parsimony and theoretical convergence. Given that the constructs were expected to be correlated, we applied an oblimin rotation (Jennrich & Sampson, 1966) to achieve the simplest and interpretable structure.

A priori criteria for factor adequacy were established. Pattern coefficients of ≥0.37 were considered salient (Norman & Streiner, 2014), and items with significant cross-loadings were excluded to honor the principle of simple structure (Thurstone, 1947). Factors were retained if they included at least three salient items, demonstrated internal consistency reliability of ≥0.70, and were conceptually coherent.

Results

Qualitative analysis

The thematic analysis of the interview transcripts revealed rich, multifaceted dimensions underlying the moral emotions of shame and guilt among fathers of children with developmental disabilities. For the Shame Scale, three key themes emerged:

1. ***Individual Perceived Failure*** (4 items): Reflecting personal self-criticism and internalized feelings of inadequacy.
2. ***Perceived Failure from Family Members/Relatives*** (4 items): Capturing the sense of not meeting familial expectations and feeling judged by significant others.
3. ***Perceived Negative Reactions from Others*** (5 items): Denoting the impact of external judgment and social stigma on self-worth.

Similarly, the analysis of guilt-related narratives yielded three principal themes:

1. ***Intrinsic Wrongdoing*** (4 items): Encompassing self-directed evaluative judgments regarding one's actions.
2. ***Emotional Remorse*** (4 items): Highlighting the affective responses (e.g., remorse, regret) following perceived transgressions.
3. ***Cognitive Wrongdoing*** (4 items): Involving reflective, evaluative thought processes that scrutinize one's behavior.

Drawing on these themes, an initial pool of scale items was developed directly from participants' language and expressions, ensuring that the items were both content valid and culturally appropriate. In total, 13 items were generated for the Shame Scale and 12 items for the Guilt Scale. Each item was formatted using a 5-point Likert scale (ranging from 1= *"Strongly Disagree"* to 5 = *"Strongly Agree"*) to capture the intensity of fathers' emotional experiences. These qualitative findings not only underscore the complex nature of moral emotions in this population but also provided a robust foundation for the subsequent quantitative validation of the scales.

Quantitative analysis and scale validation

Exploratory factor analysis *Bartlett's test of sphericity confirmed that the correlation matrices for both the Shame and Guilt Scales were significantly different from an identity matrix (Guilt: $\chi^2(66) = 1{,}034$, $p < .001$; Shame: $\chi^2(78) = 1{,}325$, $p < .001$). The Kaiser–Meyer–Olkin (KMO) measures were robust (0.86 for Guilt and 0.89 for Shame), indicating that the samples were adequate for factor analysis (Kaiser, 1974). Although initial thematic analysis suggested a potential three-dimensional structure, subsequent quantitative analyses favored a more parsimonious two-factor solution (see Table 2).*

For the Shame Scale, after excluding one item due to low loadings, a two-factor model emerged with seven items loading on Factor 1 and five items on Factor 2, collectively explaining 54.48% of the total variance (Cronbach's α = 0.89, 95% CI [0.89, 0.91]). In parallel, the Guilt Scale also yielded a two-factor structure after removing one poorly performing item, with six items loading on Factor 1 and five on Factor 2, accounting for 45.45% of the variance (Cronbach's α = 0.88). Although initial analyses indicated a potential three-factor solution for both scales, the third factor contributed minimally (6.94% for Shame; 5.89% for Guilt) and was therefore not retained due to its limited theoretical and practical significance.

Table 2 Descriptive statistics and pattern coefficients for 219 participants on items of the shame and guilt scales

	Shame			Descriptive statistics			
Items	Factor 1	Factor 2	h2	Mean	*SD*	Skew	Kurtosis
S1	**0.596**	−0.116	0.29	4.04	1.27	−0.46	−0.13
S2	**0.462**	0.217	0.38	2.63	1.4	0.38	−0.91
S3	**0.856**	0.022	0.76	3.47	1.39	−0.16	−0.7
S4	**0.911**	−0.071	0.76	3.44	1.38	−0.07	−0.65
S5	**0.797**	0.095	0.74	3.21	1.43	0.05	−0.84
S6	**0.424**	0.161	0.29	3.72	1.55	−0.24	−1
S7	0.369	**0.452**	0.54	3.32	1.45	−0.14	−1.01
S8	**0.713**	0.106	0.61	3.5	1.32	−0.17	−0.63
S9	0.046	**0.541**	0.33	3.37	1.35	−0.16	−0.67
S10	0.302	0.365	0.36	3.77	1.44	−0.36	−0.74
S11	−0.053	**0.441**	0.17	3.86	1.35	−0.31	−0.4
S12	−0.026	**0.719**	0.49	2.61	1.36	0.48	−0.59
S13	0.129	**0.508**	0.35	3.31	1.41	−0.01	−0.8
	Guilt			Descriptive statistics			
Items	Factor 1	Factor 2	h2	Mean	*SD*	Skew	Kurtosis
G1	0.284	0.395	0.37	3.82	1.32	−0.36	−0.31
G2	**0.415**	0.158	0.28	3.43	1.43	−0.11	−0.76
G3	0.055	**0.594**	0.40	2.95	1.58	0.26	−1
G4	**0.571**	0.239	0.55	3.95	1.24	−0.36	0.06
G5	−0.043	**0.797**	0.59	3.16	1.41	0.13	−0.7
G6	**0.714**	0.091	0.60	3.7	1.29	−0.16	−0.5
G7	**0.564**	−0.026	0.30	3.98	1.22	−0.37	−0.13
G8	**0.913**	−0.206	0.64	3.95	1.27	−0.32	−0.12
G9	0.311	**0.41**	0.42	3.67	1.24	−0.04	−0.42
G10	0.28	0.268	0.24	3.52	1.19	−0.17	−0.18
G11	−0.04	**0.782**	0.58	3.67	1.4	−0.22	−0.55
G12	**0.557**	0.191	0.48	3.52	1.24	−0.15	−0.36

Remarks: Values in bold indicate the maximum factor loading for each item

Items with pattern coefficients ≥ 0.37 were deemed salient, and those with significant cross-loadings were removed to ensure a simple structure (Norman & Streiner, 2014; Thurstone, 1947). Based on these findings, the two-factor model was accepted as the most appropriate representation for both scales. The Shame Scale's dimensions were subsequently relabeled as *"Public Devaluation"* (Factor 1) and *"Internalized Inadequacy"* (Factor 2); similar refinements applied to the Guilt Scale, with the factors relabeled as *"Cognitive Wrongdoing"* (Factor 1) and *"Emotional Remorse"* (Factor 2). This final structure was found to be robust across alternative extraction and rotation methods.

Confirmatory Factor Analysis *Using Maximum Likelihood Estimation in the lavaan package (Rosseel, 2012), CFA was performed on Sample 2 (n = 218) after confirming approximate normality (skewness between − 0.46 and 0.48; kurtosis between − 1.01 and − 0.13).*

For the Shame Scale, the two-factor model (Fig. 1) — comprising *"Public Devaluation"* (8 items) and *"Internalized Inadequacy"* (4 items)—demonstrated acceptable model fit ($\chi^2(52) = 124.54$, $p < .001$; CFI = 0.947; TLI = 0.934; RMSEA = 0.079; SRMR = 0.048; $\chi^2/df = 2.18$) (Table 3). Standardized factor loadings ranged from 0.39 to 0.88, all surpassing the 0.37 threshold (Brown, 2006; Table 4). Reliability was strong: Public Devaluation $\alpha = 0.91$, CR = 0.91 ($\Omega = 0.90$); Internalized Inadequacy $\alpha = 0.70$, CR = 0.70. Similarly, the Guilt Scale's two-factor model (Fig. 2), comprising *"Cognitive Wrongdoing"* (5 items) and *"Emotional Remorse"* (5 items), also fit the data well ($\chi^2(30) = 67.13$, $p < .001$; CFI = 0.955; TLI = 0.932; RMSEA = 0.075; SRMR = 0.047; $\chi^2/df = 2.24$) (Table 3). Standardized loadings ranged from 0.49 to 0.8, and reliability indices were satisfactory (Cronbach's alphas of 0.81 and 0.78; CR of 0.81 and 0.75; $\Omega t = 0.86$).

These results confirm that the hypothesized two-factor structures for both the Shame and Guilt Scales provide robust and reliable measures of the underlying dimensions of moral emotions among fathers of children with developmental disabilities.

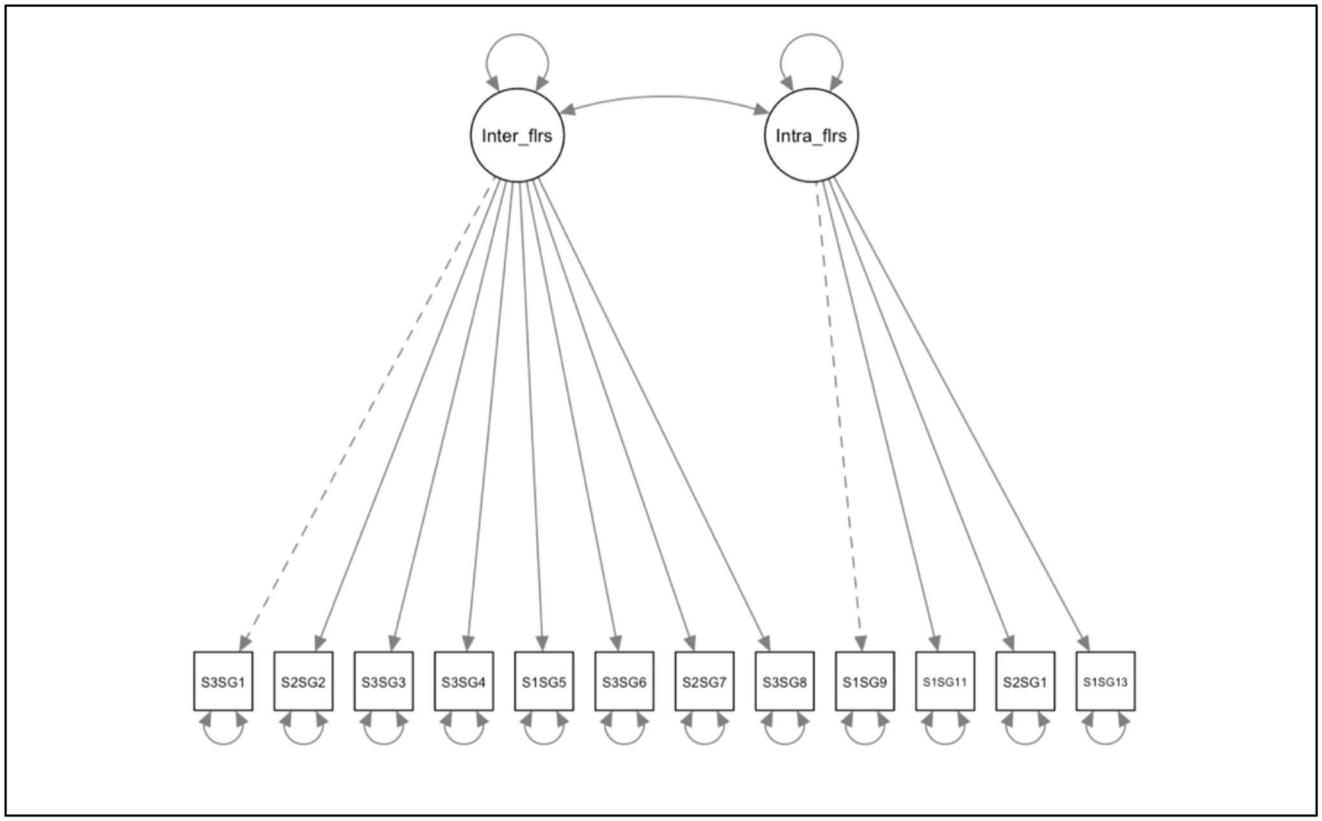

Fig. 1 Factor Structure of Shame Scale

Table 3 Major fitting degree indices of shame and guilt scale

Scale	$\chi 2$	df	$\chi 2$/df	SRMR	RMSEA	CFI	TLI
Shame	124.539	53	2.18	0.048	0.079	0.947	0.934
Guilt	67.133	30	2.24	0.047	0.075	0.955	0.932

SRMR standardized root mean square residual, *TLI* Tucker-Lewis index, *CFI* comparative fit index, *RMSEA* root mean square error of approximation

Discussion

Overview of findings

This study offers robust psychometric evidence for the Shame and Guilt Scales as culturally sensitive instruments measuring moral emotions in Chinese fathers of children with developmental disabilities. Exploratory and confirmatory factor analyses supported a coherent two-factor solution for each scale. The Shame Scale distinguishes Public Devaluation (perceived external judgment) and Internalized Inadequacy (self-directed evaluation), while the Guilt Scale differentiates Cognitive Wrongdoing and Emotional Remorse. These findings align with theoretical distinctions in self-conscious emotions (Tangney & Dearing, 2002) and reflect culturally specific emotional dynamics in Confucian-heritage societies.

Although initial qualitative coding suggested a potential three-factor model for each construct, the third factor contributed marginal variance (6.94% for Shame; 5.89% for Guilt) and lacked theoretical coherence. The final two-factor solutions exhibited moderate intercorrelations, supporting the conceptual relatedness of the subdimensions. This alignment with moral emotion theory confirms that the instruments validly capture distinct yet interconnected aspects of paternal shame and guilt.

Cultural interpretation of factor structures

The Shame Scale's intra-level component reflects deep self-evaluation and internalized inadequacy, often rooted in cultural expectations surrounding paternal competence and legacy. In Chinese culture, where face-saving and familial honor are central (Gabrenya & Kwang, 1996), fathers may interpret their child's disability as a personal failure or social burden. As

Table 4 Factor loadings in the final 2-factor model for guilt & shame

	Factors	Items	Standardized factor loadings
Shame	Public Devaluation (factor 1)	When my child exhibits unusual behaviour outside and it may affect others, I imagine negative reactions from people, for example, when taking public transportation, dining at restaurants, or playing in the park.	0.53
		In front of family or relatives, having a child with special needs makes me feel ashamed.	0.74
		When my child exhibits unusual behaviour outside and it may affect others, I am concerned about negative judgment from others.	0.86
		When my child exhibits unusual behaviour outside and it may affect others, I am concerned about negative evaluations from others.	0.86
		When my child exhibits unusual behaviour outside and it may affect others, it makes me feel awkward.	0.88
		I worry about my special needs child being abandoned because they cannot meet certain societal expectations, for example, being expelled from school or being rejected from participating in activities.	0.54
		Regardless of the opinions of family or relatives, I am bothered by their negative views towards my special needs child.	0.73
		When my child exhibits unusual behaviour outside and it may affect others, regardless of how others react, I feel embarrassed, for example, when taking public transportation, dining at restaurants, or playing in the park.	0.83
	Internalized Inadequacy (factor 2)	In front of others, I feel useless because I cannot properly take care of my special needs child.	0.70
		When I care for my special needs child, I have already set aside my dignity.	0.39
		When my child has special needs, the more my family or relatives try to help me, the more ashamed I feel.	0.71
		When I scold my child for exhibiting unusual behaviour outside, I feel like a lunatic.	0.61
Guilt	Cognitive Wrongdoing (factor 1)	When I handle inappropriate behaviour of my special needs child, I get angry at myself for using a harsh tone.	0.62
		When disciplining my special needs child, I feel frustrated with my short temper and inability to control my emotions.	0.67
		When disciplining my child, I worry that my special needs child may not understand why I am scolding him/her.	0.63
		When disciplining my child, I fear that I may yell too harshly and startle my special needs child.	0.62
		When disciplining my special needs child, I regret if I have gone too far.	0.86
	Emotional Remorse (factor 2)	When my child has special needs, I question the decision to bring him/her into this world.	0.56
		When my child has special needs, I feel guilty for past mistakes I made.	0.62
		I feel like I don't understand how to discipline my special needs child.	0.58
		When my child has special needs, I feel like I owe them something.	0.82
		I regret taking on responsibilities that should have been theirs for my special needs child. For example, completing their homework.	0.49

Holroyd (2003) noted, fathers may feel their children deviate from the cultural ideal of filial success (e.g., "望子成龍, 望女成鳳"), leading to persistent self-blame and shame. On the other hand, the inter-level component captures fear of public judgment and perceived stigma, particularly in response to challenging behaviors in public. These experiences may lead fathers to withdraw socially or avoid help-seeking, reinforcing cycles of emotional suppression and disengagement from caregiving.

The Guilt Scale's cognitive subdimension represents evaluative rumination over past actions or perceived parenting errors, such as harsh discipline or low emotional attunement. Many fathers, particularly those with limited caregiving experience, express frustration over their inability to manage their child's behavioral difficulties, often comparing themselves unfavorably to mothers or other parents. The emotional subdimension reflects affective responses

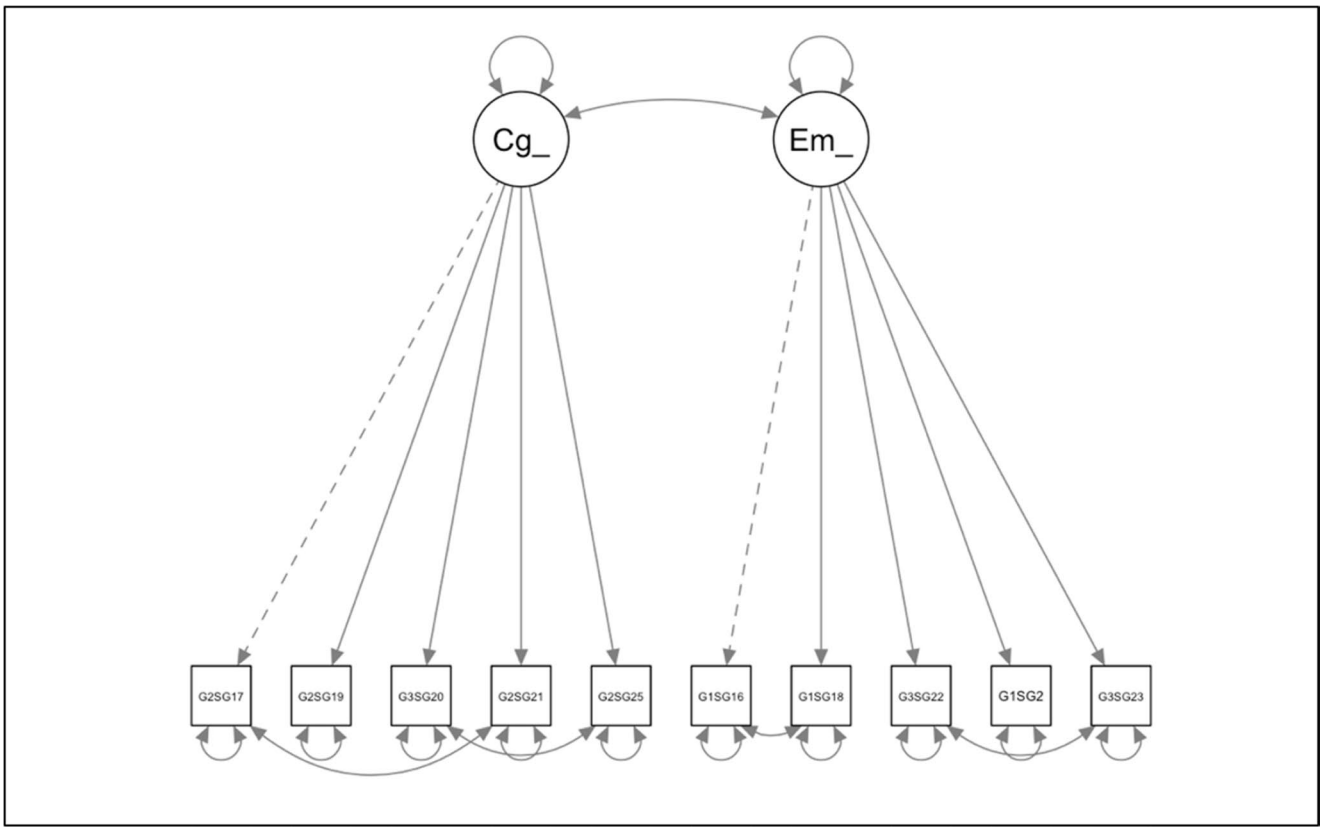

Fig. 2 Factor Structure of Guilt Scale

such as remorse, regret, or self-criticism, which may contribute to overcompensation or low parenting efficacy (Carbone et al., 2025). These patterns echo traditional gender roles in Chinese families, where fathers are often cast as providers rather than emotional caregivers (Wolf, 1968).

Robustness of the measurement model

Confirmatory factor analyses further confirmed the scales' structural integrity and psychometric soundness. Model fit indices met established thresholds (CFI and TLI > 0.93; RMSEA < 0.08; SRMR < 0.05), and internal consistency was high across constructs ($\Omega t = 0.91$ for Shame; $\Omega t = 0.86$ for Guilt). Importantly, the integration of qualitative insights into item development significantly enhanced content validity by ensuring the measures reflect culturally relevant and context-specific paternal experiences (Rowan & Wulff, 2007).

Implications for theory and practice

By developing culturally sensitive measures for shame and guilt in Chinese fathers of children with developmental disabilities, this study makes significant theoretical and practical contributions. Theoretically, the study deepens our understanding of moral emotions as central components of paternal adjustment and caregiving motivation. By building on Lewis's (2019) moral emotion framework and integrating Confucian-heritage values (e.g., social face, filial obligation), the scales offer a nuanced conceptualization of shame (public devaluation and internalized inadequacy) and guilt (cognitive wrongdoing and emotional remorse) in fathering contexts. These moral emotions help explain the complex emotional experiences that underlie paternal involvement, self-evaluation, and relational repair.

Furthermore, the findings highlight the importance of sociocultural framing in disability research. Rather than pathologizing disability, the scales help detect how culturally reinforced stigma and internalized ableism may shape fathers' emotional responses. Consistent with Keller and Sterling Honig (2004), fathers often struggle with reconciling expectations of masculinity and idealized parenting with the perceived "non-normative" behaviors of their children. Our findings echo Saloviita et al. (2003), suggesting that some fathers report lower social acceptability perceptions than mothers. In this context, shame and guilt are not only intrapsychic states but also reflect structural and cultural constraints.

Practically, these scales offer several applied uses in the context of paternal involvement and emotional regulation.

They can facilitate clinical screening to identify fathers at risk of maladaptive emotional responses, such as excessive shame leading to withdrawal (Liu et al., 2021). Additionally, the scales can be used in psychoeducation to promote normalizing conversations around moral emotions in parenting workshops, thereby reducing stigma (Liu et al., 2025). They also aid in designing targeted interventions that help fathers transform shame and guilt into constructive caregiving motivations. Furthermore, these scales support research by enabling hypothesis testing on the effects of moral emotions on caregiving quality, paternal mental health, and co-parenting satisfaction (Wang & Chi, 2025). Importantly, they are valuable in developing culturally sensitive interventions that enhance emotional resilience and engagement among fathers of children with developmental disabilities.

Limitations and future directions

Despite the methodological strengths of this study, several limitations warrant consideration. First, the cultural specificity of the sample (Chinese fathers in Hong Kong) limits generalizability. Cultural models of shame and guilt may differ significantly across regions. Future studies should test measurement invariance across other Chinese-speaking populations (e.g., Mainland China, Taiwan) and non-Chinese cultural groups (Haroz et al., 2022). Second, the cross-sectional design precludes conclusions about causality. Longitudinal studies are needed to explore the directionality of associations between moral emotions, paternal involvement, and child outcomes (Maxwell & Cole, 2007). Third, although our findings support the internal structure of the Shame and Guilt Scales through exploratory and confirmatory factor analyses, the current study did not include external validation measures such as the Parental Stress Index–Short Form (PSI-SF), PHQ-9 (Depressive Symptoms), or standardized indices of father–child engagement. As such, the absence of criterion-related validity testing limits our ability to draw conclusions about the associations between moral emotions and broader psychosocial functioning. Future research should incorporate these well-established measures to examine convergent and discriminant validity, thereby strengthening the psychometric foundation of the scales and clarifying their predictive utility in clinical and developmental contexts. Fourth, the current scales are designed to assess trait-like tendencies in moral emotions. However, future research may explore how state-level fluctuations in response to parenting stressors influence daily behavior, using ecological momentary assessment (EMA) or diary designs.

Conclusion

Overall, this study offers a novel, culturally grounded contribution to the growing body of literature on fathering and moral emotions. By validating the Shame and Guilt Scales specifically for fathers of children with developmental disabilities, we provide researchers and practitioners with reliable tools to assess the nuanced emotional experiences that often remain underexplored in parenting literature. These scales not only capture culturally embedded manifestations of shame and guilt (rooted in collectivist values, social face, and perceived parental expectations) but also address a significant measurement gap in psychosocial assessment for this population. Beyond applied use, the findings extend theoretical understanding of how moral emotions shape paternal adjustment and involvement. These insights support the development of more inclusive, emotion-responsive approaches to fathering in diverse cultural and disability contexts. Future research should explore how these emotional experiences interact with broader systemic factors (e.g., cultural narratives, social support, and internalized stigma) to better inform policy and practice in parenting and developmental support.

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Declarations

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