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Developing a psychometric scale to measure motherhood stress among newly working mothers in India's IT sector

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ABSTRACT

While becoming a mother is an incredible blessing, it can also be a very stressful time for women. India has a unique cultural and economic diversity, with women facing distinct challenges in their role as new mothers, including family obligations and a tendency toward a patriarchal mindset. This research aims to identify the unique stress factors related to motherhood stress for a new working mother in the IT sector and to create a scale to measure these factors. The study employed a mix of qualitative methods, such as focus group discussions, and quantitative research methods, including a pilot survey among 115 mothers, to develop a new scale for motherhood stress. Four main factors were identified through exploratory factor analysis: career-related stress, adequacy of support systems, maternal guilt, and self-efficacy. A new 31-item scale is proposed. Internal consistency, reliability, and validity were established for all items on the scale, with a KMO value of 0.826 and a Cronbach's alpha of 0.840. This new scale will be a useful tool for organizations to understand motherhood stress among newly working mothers and to adopt practices that reduce stress and address prejudices through interventions such as anti-discrimination policies, managerial sensitization, flexible work options, career counseling, and peer support. For policymakers, this study highlights the need for an industrial policy that recognizes the cultural setting and the unique challenges faced by Indian working mothers, as well as the importance of rigorous enforcement of maternity policies to ensure equitable treatment for them.

Contribution/ Originality: This study adds depth to existing literature by evaluating motherhood stress through focus group discussions and thematic analysis to identify key themes. It further involves creating a unique instrument for newly working mothers in India by combining existing global scales with insights derived from an Indian socio-cultural perspective.

1. INTRODUCTION

Though organizations introduce initiatives to help women have better career opportunities post-motherhood, the penalty persists. Along with maternity leave, caregiving responsibilities during early motherhood also affect a woman's career progression [1]. Women with children are often overlooked in promotions because they perceive that they are less capable [2]. Among studies, the one by Beham et al. [3] established that the gender gap was higher in more gender-egalitarian countries (study on eight European nations). When choosing between family and work, women mostly select family [4]. This means that, compared to their male counterparts, female workers face much more mental and physical stress, as well as a greater degree of friction between their jobs and their families [5]. The

ideology of a woman may also influence the level of stress she feels as a mother. Compared to their Western counterparts, working women in India are traditional homemakers. They face more obstacles and disputes between their personal and professional lives and experience strain while attempting to fulfill both responsibilities [6]. Working mothers in India try to meet the expectations of being both the ideal worker and an ideal mother, but can never fully achieve them [7]. Inadequate childcare support and rigid work circumstances also cause working mothers in India a great deal of stress, both before and after work. According to a study by the Social Development Foundation of Assocham, Shenoy [8], 25% of new mothers in India left their jobs to care for their children. There is a significant gap in the implementation of maternity benefit legislation such as the Maternity Benefit Amendment Bill 2016, as the effective enforcement of policies often depends on judicial interpretation and execution [9].

In light of the existing literature and the evident research gaps in measuring motherhood stress specific to the Indian IT industry, this study sets out with three core objectives.

- To identify the key dimensions of motherhood stress that newly working mothers experience within India's dynamic and competitive information technology sector.
- To develop and validate a psychometric scale that captures the multidimensional nature of motherhood stress, including career-related, familial, and psychological components.
- To assess the reliability and construct validity of the proposed scale using exploratory factor analysis and internal consistency measures.

The previous scales generally follow the usual measures of parental role restriction, social support, perceived competence, and work-family balance. There is no single scale that combines work-related stress, social support, guilt, self-perception, and self-efficacy to measure stress levels of a new working mother. This study thus aims to explore the various contributors to motherhood stress through a mixed approach to generate a refined scale through valuable insights and further test the validity and reliability of the scale empirically. This study builds on and extends prior research in two important ways. First, unlike earlier stress or parenting scales developed in Western contexts, the present research integrates cultural, occupational, and gendered realities unique to India's IT workforce, thus contributing to the cross-cultural adaptation of psychometric instruments. Second, it introduces an evidence-based tool that bridges the gap between organizational psychology, gender studies, and occupational health, enabling more contextually grounded research and HR interventions. Thus, this study operationalizes motherhood stress as a multi-dimensional construct influenced by cognitive, emotional, and structural factors, extending traditional stress theories into a contemporary organizational setting.

2. LITERATURE REVIEW

Parenting stress refers to the mental and emotional responses to child-rearing responsibilities, which can often become overwhelming [10]. Motherhood stress is found to be related to emotional exhaustion, self-efficacy, anxiety, and guilt [11]. It has also been found to be affected by the attempt to balance the role of motherhood while meeting societal expectations with available resources [12]. This stress refers to the adverse emotional reaction to the difficulties of parenting when accessible resources such as time, family support, and coping skills are insufficient. Parents can additionally feel stressed due to daily responsibilities directly linked to parenting, such as coordinating schedules and organizing childcare [13]. Caretaking hassles and workload have been shown to add to parenting stress [14].

Globally, working mothers, especially those with young children, find it difficult to strike a balance between work and family [15]. Stress is also influenced by the mother's socioeconomic conditions and marital satisfaction Xu et al. [16]; Johansen et al. [17] and Ekmen et al. [18] stated that higher social support was associated with lower levels of mental distress among women. Furthermore, motherhood prejudice negatively affects women seeking employment in male-dominated sectors and contributes to unrealistic performance expectations, thereby limiting career advancement [2]. It is a common belief among managers that women have family obligations that prevent their

success and that they have to work hard to be acknowledged [19]. The interplay of class, religion, and family ethics, as well as socio-cultural processes including patriarchy, influences motherhood practices in India [20]. In India, women no longer have to be limited to the roles of homemakers; they also play a major part in society and the labor market [21]. Working women experience higher stress levels at home and in the workplace, where they face gender biases and limitations to career advancement [22]. However, there is also a perception among colleagues that a working mother may not be as efficient at the workplace after childbirth [23].

2.1. Working Mothers in India's IT Sector

As per NASSCOM's report published in 2019, women constituted around 34% of the total workforce in the IT and IT-enabled services (ITES) sector in India. The Indian female workforce fell drastically to 23.5% in 2017-18, which was a global concern and placed India in the bottom 12th that year [24]. These declines were highest among women in the age bracket 35-39, with the majority reporting to retain domestic duties. The IT sector, in particular, is known for its severe work schedules, global time zones requiring around-the-clock availability, and stringent performance standards [25]. This environment can be very stressful for a returning mother to the workforce. Gender stereotypes are also prevalent in the Indian setting, with the belief that children of working mothers suffer negatively being widespread, despite evidence to the contrary [26]. When required to combine maternal duties with professional responsibilities, working mothers in India often identify with middle-class ideals that are modern yet entrenched in patriarchy [27]. Organizations have increasingly introduced flexible work options, which are associated with more time available for mothers to care for their children [28]. However, despite rhetoric supporting gender equality, traditional gender norms and responsibilities can hinder women's professional growth, especially in countries where these customs are deeply rooted [29]. Moreover, Dadhich [30] found that societal expectations create guilt in mothers and negatively impact their mental wellbeing. Bose and Chatterjee [31] further state that extension of maternity leave in India enforces a motherhood penalty and affects mothers' employment opportunities.

This attempt at balancing the dual roles of a mother and a worker creates stress in a newly working mother, which is different from the general stress encountered in parenting and needs focus and evaluation related to the Indian IT sector.

2.2. Theoretical Perspectives on Motherhood Stress

2.2.1. Role Strain Theory

According to Goode's Role Strain Theory, individuals attempt to overcompensate in one activity within the role relationship to compensate for poor performance in another. Additionally, as per role bargaining, family takes precedence, and withdrawal from the role causes guilt feelings and pressures. The multiple role demands create conflict as they consume much of an individual's scarce resources such as time, energy, and emotions. They cannot fully meet all demands, which results in distress and feelings of failure Goode [32]. Sharma [33] emphasized that the need to be financially independent and to experience fulfillment in motherhood is a dual one, while Dugan et al. [34] states that working mothers spend most of their time and efforts managing their careers and families, which is often a cause of burnout.

2.2.2. Conservation of Resources (COR) Theory

Grounded in employment literature, Conservation of Resources (COR) theory [35] outlines that resources aid in the acquisition of time, money, knowledge, and provide feelings of accomplishment and support. When individuals perceive a threat to any of these resources, they could experience stress. Since newly working mothers are heavily dependent on resources such as childcare options, flexible work arrangements, and societal support, the absence or scarcity of these resources could lead to stress.

2.2.3. Transactional Theory

The conceptual foundation of this study is rooted in the Transactional Model of Stress and Coping proposed by Lazarus and Folkman [10], which conceptualizes stress as depending on the person's beliefs, environment, and personality. According to this theory, individuals constantly appraise what is happening to them from the perspective of its consequences for a loved one's welfare. The effectiveness of coping and the level of emotional response are outcomes of this appraisal. The model states that stress arises not solely from external pressures but from an individual's cognitive appraisal of those pressures, specifically, how threatening they are (primary appraisal) and whether adequate coping resources are available to manage them (secondary appraisal). In the context of working mothers, this appraisal process becomes particularly complex, as women continuously evaluate their ability to fulfill professional responsibilities while simultaneously managing family and societal expectations.

Applying this framework, the present study interprets motherhood stress as a multi-dimensional construct influenced by both situational demands and perceived coping resources. The career-related stress dimension corresponds to the primary appraisal phase, where mothers evaluate workplace pressures such as limited flexibility, career concerns, and performance bias as potential threats to their professional identity. The support-related stress dimension reflects the secondary appraisal process, where individuals assess the adequacy of external resources, including spousal, family, and organizational support, in mitigating these pressures. The motherhood guilt and self-perception dimension represents the internalized emotional and cognitive responses that arise when mothers perceive a mismatch between societal ideals of motherhood and their professional obligations. Finally, the self-efficacy dimension reflects the individual's belief in their capacity to cope effectively with these competing demands, aligning closely with Lazarus and Folkman's emphasis on problem-focused and emotion-focused coping strategies.

By situating the scale's structure within this transactional model, the study offers a theoretically grounded understanding of motherhood stress that captures both external role-related stressors and internal cognitive-emotional processes. This theoretical integration ensures that the newly developed scale is not only psychometrically sound but also conceptually coherent, linking measurable factors to a well-established psychological framework. Thus, the scale advances prior research by operationalizing stress appraisal theory within the sociocultural and occupational context of Indian working mothers, bridging classical stress theory with contemporary organizational and gender research.

2.3. Stress Scales

A major turning point in stress research involved redefining the stress construct, shifting the focus from solely an individual's reaction to major life events to include everyday minor hassles [13]. The Daily Hassles Scale, however, briefly covers financial concerns, time pressures, and work hassles but does not elaborate on stress related to caregiving for children. The Parenting Stress Index (PSI) by Abidin [12] the most widely used instrument focuses more on general parental distress and child behavior but does not address career-related aspects. Similarly, the Parental Stress Scale (PSS) [36] captures aspects related to parenting experiences but again does not touch upon occupational stress. Moreover, these existing instruments are not tailored for socio-cultural expectations around motherhood in India. Indian studies that have attempted to adopt the existing Western scales are limited in scope [5] and are not designed to operationalize the various, multidimensional burdens that first-time working mothers bear in the context of the Indian information technology industry, as they do not provide an all-encompassing view of the various stress factors such as financial concerns, guilt, or societal expectations faced by newly working mothers.

2.4. Existing Dimensions of Motherhood Stress

From previous studies, maternal exhaustion has been found to be often linked to the maternal role as well as pressure exerted by society, [37] conflict due to work overload, where working women feel that their career goals are often in conflict with expectations around the motherhood role, [38] social support, where mothering experiences

are affected by lack of support, [39] maternal guilt, which surfaces due to women being primarily responsible for childcare and feelings of inadequacy, [40, 41] and work-related stress, where the rigid workplace with high workloads, constant on-call connectivity, and long hours causes increased stress among working mothers who have to balance work and caregiving for children [42].

The above statements show that while extensive research exists on parental and occupational stress, there is limited understanding of the stressors for a newly working mother in spite of availing maternity benefits in India. Existing instruments do not fully address the aspects of motherhood penalty, prejudice, guilt, and available support to meet the demands of the workplace in the Indian context, particularly in the demanding IT sector. This underscores the urgency to have a new and context-specific instrument to accurately measure motherhood stress among such a group.

3. MATERIAL AND METHOD

3.1. Research Design

This study used an exploratory mixed research design conducted in two phases, with qualitative research involving focus group discussions and thematic analysis to identify key themes for generating a new scale. Quantitative validation employed statistical methods, including exploratory factor analysis, to establish the factor structure and assess the validity and reliability of the new instrument. This approach ensured that the scale was based on the real-life insights of working mothers and validated the robustness through statistical means. Although the approach followed is consistent with previous well-researched papers and established methods for new scale generation and validation, the insights, data, and items generated are unique to the study.

3.2. Phase 1: Qualitative Item Generation

3.2.1. Conceptualization of the Construct

The development of the scale begins with the conceptualization of the construct. Exhaustive literature research to define the concept is necessary for this, according to Churchill Jr [43]. The idea of mom stress is characterized as a succession of unpleasant psychological and physical responses in attempting to adjust to the expectations of the parental role, according to an extensive literature analysis. The mother's capacity to fulfill her parenting duties, the resources at her disposal, and the expectations placed on her by the position of parent all play a part in this [44].

3.2.2. Research Population

The participants in the study included a total of 15 working mothers employed in the IT industry across various domains such as telecom, insurance, and IT-enabled services. Convenience sampling was utilized, relying on referrals from acquaintances and colleagues to ensure sufficient participation and diversity in terms of departments, companies, ages, and tenure. The demographic details are provided below in Table 1. The majority of women belonged to the age group of 31-35 years (54%), and all of them were married, with the majority having a tenure of over 10 years.

Table 1. Demographic profile of respondents.

Demographic variable	Category	Frequency (N)	Percentage (%)
Age group (Years)	26–30	5	33
	31–35	8	54
	36–40	2	13
Educational qualification	Graduate	6	40
	Postgraduate	2	13
	Professional	7	47
Marital status	Married	15	100
Tenure in the IT industry	0-5 years	3	20
	6–10 years	5	33
	Above 10 years	7	47

3.2.3. Data Collection and Analysis

To understand the phenomenon of motherhood stress, we adopted a grounded theory approach [45]. Two focus group discussions were conducted with working mothers on an online meeting platform for participants' convenience. Each session lasted around 45 minutes to an hour with 7-8 participants per session. Written and verbal informed consent was obtained. The discussion included open-ended questions regarding aspects such as flexible work arrangements, the effect of work and family environment on stress, feelings experienced by new mothers while working, and self-respect and dignity experienced when returning to work after maternity leave. The discussions were tape-recorded during each session, then transcribed verbatim into English and anonymized before coding and analysis.

The data were analyzed using thematic analysis [46] which followed six recommended steps: familiarization, coding, theme generation, review, definition, and reporting. NVivo 14 software was used for coding and theme generation. It yielded key themes such as coping mechanisms and family support, maternal guilt, self-perception, fear of judgment, physical and emotional exhaustion, and work-related stress. Afterward, the authors compiled a comprehensive list of existing parenting stress scale items and evaluated their usefulness for the pilot project [43].

3.2.4. Item Generation

The motherhood stress scale was developed through a combination of adopting existing parental stress scales and themes from focus group discussions. The scale aims to measure aspects such as family support, self-efficacy, motherhood guilt, motherhood penalty, fear of judgment, impact of flexible working options, work-to-family enrichment, and support. Some items from earlier stress scales, including the Parenting Stress Index Scale, DASS 21, Berry and Jones [36], and Sharma and Dhir [5], and Daily Hassles, were also adopted, modified, and incorporated into the developed scale. The final version consists of 46 items.

3.2.5. Content Validity

When a set of items is content-valid, it means they accurately reflect the construct being measured [47]. To establish this, the items in the scale were vetted by two industry experts and four participants from the target group. They identified redundant and duplicate items and provided feedback on the language. Items with a CVR less than 0.8 were discarded. After incorporating the feedback, 11 items were removed. The pilot research used a five-point Likert scale with 35 statements, ranging from Strongly Agree to Strongly Disagree.

3.3. Phase 2: Quantitative Validation

3.3.1. Sample

A structured questionnaire was sent to mothers in Bangalore who belong to the IT field and have toddlers (aged 0 to 2 years) to test the psychometric properties of the new instrument. The sampling method was a hybrid of convenience and snowball sampling. Inclusion criteria were similar to phase 1, including newly working mothers in IT firms within two years of returning from maternity leave. All respondents were married, with an age range from 18 to 44 years, 58% belonging to the 18 to 29 age group, and a minimum tenure of 3 years. The study utilized a snowball sampling technique, deemed appropriate due to the relatively hard-to-reach nature of newly working mothers employed in India's IT industry. These participants often constitute a dispersed and privacy-conscious population, making traditional random sampling infeasible. Initial respondents were identified through professional and social networks, who then referred other eligible participants. As there is a potential for sampling bias, as respondents might selectively refer peers with whom they share positive workplace experiences or similar attitudes toward motherhood and stress, efforts were made to reduce this bias by ensuring heterogeneous representation across multiple IT organizations, covering both large multinational corporations and mid-sized firms located in Bangalore.

This approach ensured diversity in terms of company size, work experience, and socio-demographic backgrounds while maintaining feasibility within the study's time and resource constraints.

There were 115 full entries out of a total of 132 data points, which is considered adequate for EFA according to Fabrigar et al. [48]. All statistical analyses were conducted using IBM SPSS Statistics, Version 24.0, employing Principal Component Analysis (PCA) with Varimax rotation to extract and validate the underlying factor structure of the new scale. PCA was selected because it effectively identifies interrelated dimensions from large sets of variables, thereby assisting in establishing the construct validity of newly developed psychometric instruments. The choice of Varimax rotation was based on its capacity to maximize the variance of loadings within factors, ensuring clear interpretability and independence among extracted components.

The demographic representativeness and internal consistency of the sample were subsequently evaluated through the Kaiser-Meyer-Olkin (KMO) and Bartlett's tests of sphericity to determine sampling adequacy for factor analysis.

4. RESULTS

4.1. Sampling Adequacy

In the study of 35 statements, the KMO value is close to 0.826, which is higher than the recognized criterion of 0.50 [49], suggesting that the sample size is sufficient for a factor analysis. Ref. Table 2.

Table 2. Kaiser-Meyer-Olkin measure of sampling adequacy and Bartlett's test of sphericity.

Kaiser-Meyer-Olkin measure of sampling adequacy.		**0.826**
	Approximate Chi-Square	3178.409
Bartlett's test of sphericity	df	595
	Sig.	0.000

4.2. Reliability

As a measure of the instrument's internal consistency, reliability was determined by measuring Cronbach's alpha for each item (Table 3). Overall, the scale showed a Cronbach's alpha value of 0.840 (Table 4), which exceeds the threshold of 0.70 and thus indicates robust reliability [50], signifying that the items in the study are highly associated and accurately assess the desired construct.

Table 3. Reliability statistics - item-wise mean, standard deviation, and Cronbach's alpha values.

Statements	**Mean ± Std.**	**Cronbach's Alpha**
Car-2 I need to put in more effort to be effective at work.	3.10 ± 1.18	0.838
Car-4 Lack of flexible options at work makes me worried.	3.03 ± 1.28	0.838
Car-7 I worry about missing out on career growth opportunities.	3.15 ± 1.19	0.836
Car-8 I feel inferior at work due to a break in career.	3.27 ± 1.18	0.836
Car-9 I feel undervalued at work because I am a mother.	3.23 ± 1.28	0.835
Car-10: Work pressure takes away my joy of being a parent.	3.08 ± 1.23	0.835
Car-11 My achievements at work give me less joy	3.21 ± 1.25	0.839
MS-1 I have an overwhelming sense of guilt when I leave my child to go to work.	2.22 ± 1.22	0.836
MS-2 I feel the need to be a perfect mother at all times.	2.31 ± 1.14	0.837
MS-4 I fear I may be neglecting my child.	2.39 ± 1.16	0.838
MS-5 I worry about my child's health and safety	2.35 ± 1.29	0.837
MS-7 I worry about not conforming to societal expectations.	2.09 ± 1.05	0.834
MS-9 I constantly worry about being judged as a mother.	2.29 ± 1.13	0.837
SUP-1 I lack family support to care for my child	2.94 ± 1.24	0.835
SUP-2 I am unable to sacrifice my career due to financial responsibilities.	2.89 ± 1.34	0.835
SUP-3 I feel there are problems in my relationship with my spouse	3.18 ± 1.19	0.838
SUP-4 I feel I am expected by my spouse to be a perfect mother and also contribute financially.	3.03 ± 1.26	0.839
SUP-5 My work never ends as I have to take care of my child once I'm home.	3.18 ± 1.23	0.837

Statements	Mean ± Std.	Cronbach's Alpha
SUP-6 Keeping track of vaccinations and hospital visits feels like solely my responsibility.	3.12 ± 1.33	0.839
SUP-7 Dependency on caregivers stresses me	3.13 ± 1.23	0.837
SUP-8 I have to juggle full-time parenting even when working from home.	3.01 ± 1.22	0.837
SE-1 I find it difficult to find energy to do new things.	3.07 ± 1.29	0.831
SE-2 I tend to overreact to normal situations.	3.00 ± 1.37	0.831
SE-3 I am unable to manage my time well.	2.93 ± 1.30	0.832
SE-4 Change in sleeping habits affects me greatly	3.18 ± 1.34	0.831
SE-5 I do not exercise as often as I should.	3.13 ± 1.31	0.832
SE-6 Being a mother is a burden that I cannot bear.	3.10 ± 1.32	0.832
SE-7 I feel upset when I am unable to perform my role as a mother.	3.00 ± 1.26	0.833
SE-8 I feel taken for granted	3.14 ± 1.29	0.832
SE-9 I am ready to make sacrifices to be a good mother.	3.02 ± 1.25	0.833
SE-11 I have lost interest in spending time with friends.	2.33 ± 1.35	0.844
SE-12 I have less patience in dealing with difficult situations.	2.96 ± 1.28	0.833
SE-13 I feel anxious most of the time.	3.05 ± 1.31	0.842
SE-14 I have very few avenues to relax.	3.00 ± 1.25	0.831
SE-16 I am unable to find time for myself.	3.13 ± 1.26	0.834

Table 4. Overview of case processing and general reliability data.

Case processing summary				Reliability statistics	
		N	%	Cronbach's alpha	N of items
Cases	Valid	115	100.0	0.840	35
	Excluded	0	0.0		
	Total	115	100.0		

4.3. Correlations Among Factors

Examination of the correlations among factors (Table 5) for the new motherhood stress questionnaire showed that all the inter-factor correlations are low to moderate and acceptable. No multicollinearity exists, as all Pearson and Spearman correlations between factors were weak or negligible (e.g., $r < 0.20$).

Table 5. Inter-factor Correlations Matrix.

Correlations					
		Total career score	Total Motherhood Self Perception score	Total support score	Total self-efficacy score
Total career score	Pearson Correlation	1	0.064	-0.116	0.022
	Sig. (2-tailed)		0.498	0.219	0.814
	N	115	115	115	115
Total Motherhood Self Perception score	Pearson Correlation	0.064	1	0.198*	-0.033
	Sig. (2-tailed)	0.498		0.034	0.729
	N	115	115	115	115
Total support score	Pearson Correlation	-0.116	0.198*	1	-0.089
	Sig. (2-tailed)	0.219	0.034		0.345
	N	115	115	115	115
Total self-efficacy score	Pearson Correlation	0.022	-0.033	-0.089	1
	Sig. (2-tailed)	0.814	0.729	0.345	
	N	115	115	115	115

Note: * Indicates Correlation is significant at the 0.05 level for a 2-tailed test.

4.4. Construct Validity

Asserting a test's construct validity is a good way to ensure it assesses the correct aspects [51].

4.4.1. Convergent Validity

A measure is considered to have convergent validity if it correlates strongly with other tests designed to assess the same or a related concept. One way to quantify it is by using Exploratory Factor Analysis (EFA) to evaluate the average factor loadings of each factor. When creating a psychometric scale, EFA is a crucial technique [52]. Used Principal Component Analysis with Varimax Rotation on 35 items since the factors weren't connected, an orthogonal method that assumes factors are uncorrelated. The choice of Varimax was supported both conceptually and empirically [53]. Convergent validity may be demonstrated if the average factor loading exceeds 0.7 (Table 6).

Table 6. Communalities - Initial and Extraction Values.

Statements	Initial	Extraction
Car-2 I need to put in more effort to be effective at work.	1.000	0.802
Car-4 Lack of flexible options at work makes me worried.	1.000	0.758
Car-7 I worry about missing out on career growth opportunities.	1.000	0.795
Car-8 I feel inferior at work due to a break in career.	1.000	0.757
Car-9 I feel undervalued at work because I am a mother.	1.000	0.810
Car-11 My achievements at work give me less joy.	1.000	0.810
MS-1 I have an overwhelming sense of guilt when I leave my child to go to work.	1.000	0.691
MS-2 I feel the need to be a perfect mother at all times.	1.000	0.655
MS-4 I fear I may be neglecting my child.	1.000	0.736
MS-5 I worry about my child's health and safety.	1.000	0.761
MS-7 I worry about not conforming to societal expectations.	1.000	0.659
MS-9 I constantly worry about being judged as a mother.	1.000	0.754
SUP-1 I lack family support to care for my child.	1.000	0.811
SUP-2 I am unable to sacrifice my career due to financial responsibilities.	1.000	0.785
SUP-4 I feel I am expected by my spouse to be a perfect mother and also contribute financially.	1.000	0.819
SUP-5 My work never ends as I have to take care of my child once I'm home.	1.000	0.774
SUP-6 Keeping track of vaccinations and hospital visits feels like solely my responsibility.	1.000	0.809
SUP-7 Dependency on caregivers stresses me.	1.000	0.731
SUP-8 I have to juggle full-time parenting even when working from home.	1.000	0.862
SE-1 I find it difficult to find energy to do new things.	1.000	0.678
SE-2 I tend to overreact to normal situations.	1.000	0.690
SE-3 I am unable to manage my time well.	1.000	0.613
SE-4 Changes in sleeping habits affect me greatly.	1.000	0.644
SE-5 I do not exercise as often as I should.	1.000	0.624
SE-6 I feel overwhelmed by the responsibility of being a mother	1.000	0.686
SE-7 I feel upset when I am unable to perform my role as a mother.	1.000	0.615
SE-8 I feel taken for granted.	1.000	0.618
SE-9 I am ready to make sacrifices to be a good mother.	1.000	0.666
SE-12 I have less patience in dealing with difficult situations.	1.000	0.649
SE-14 I have very few avenues to relax.	1.000	0.696
SE-16 I am unable to find time for myself.	1.000	0.630

4.4.2. Communalities

In principal component analysis, communalities indicate the degree to which the variance of each item is explained by the extracted components. Out of 35 items, four items are removed from the original scale based on principal component factor analysis of the items due to insufficient factor loadings. Thus, the final scale has a total of 31 items with four dimensions. The results from EFA are presented in Table 7.

Table 7. Summary of variance explanation.

Component	Initial eigen values			Rotation sum of squared loadings		
	Total	% of variance	Cumulative %	Total	% of variance	Cumulative %
1	8.197	26.441	26.441	7.708	24.863	24.863
2	5.807	18.734	45.175	5.591	18.036	42.899
3	4.799	15.479	60.654	4.831	15.583	58.483
4	3.585	11.564	72.218	4.258	13.735	72.218

The preliminary eigenvalues suggest that the first four components account for a substantial share of the overall variation. The initial eigenvalue of the first component is 26.441, representing 26.44% of the variance, whilst the second component accounts for 18.734%, resulting in a cumulative variance of 45.17%. The third and fourth components account for 15.48% and 11.56%, respectively, yielding a cumulative variance of 72.22% before rotation. Post-rotation, the variance is reallocated, with the initial four components accounting for 24.86%, 18.04%, 15.58%, and 13.73%, respectively, resulting in a total cumulative variance of 72.22%. This signifies that these four components efficiently encapsulate the majority of the variance in the dataset, rendering them crucial for subsequent interpretation.

Furthermore, the rotated component matrix, produced using varimax rotation with Kaiser normalization, classifies 31 statements into four principal factors: self-efficacy, support, career and motherhood style, and self-perception, with factor loadings of 0.796, 0.880, 0.883, and 0.829, as seen (Table 8).

Table 8. Rotated Component Matrix - Factor Loadings via Varimax Rotation.

	Components/Factors			
Factor loading	**0.796**	**0.880**	**0.883**	**0.829**
Statements	**Self-efficacy**	**Support**	**Career**	**Motherhood self-perception**
SE-6 I feel overwhelmed by the responsibility of being a mother.	0.825			
SE-2 I tend to overreact to normal situations.	0.824			
SE-14 I have very few avenues to relax.	0.822			
SE-1 I find it difficult to find energy to do new things.	0.815			
SE-12 I have less patience in dealing with difficult situations.	0.800			
SE-4 Changes in sleeping habits affect me greatly	0.799			
SE-9 I am ready to make sacrifices to be a good mother.	0.793			
SE-5 I do not exercise as often as I should.	0.783			
SE-16 I am unable to find time for myself.	0.780			
SE-3 I am unable to manage my time well.	0.778			
SE-7 I feel upset when I am unable to perform my role as a mother.	0.777			
SE-8 I feel taken for granted	0.751			
SUP-8 I have to juggle full-time parenting even when working from home.		0.918		
SUP-1 I lack family support to care for my child		0.891		
SUP-2 I am unable to sacrifice my career due to financial responsibilities.		0.885		
SUP-4 I feel I am expected by my spouse to be a perfect mother and also contribute financially.		0.882		
SUP-6 Keeping track of vaccinations and hospital visits feels like solely my responsibility.		0.881		
SUP-5 My work never ends as I have to take care of my child once I'm home.		0.857		
SUP-7 Dependency on caregivers stresses me		0.845		
Car-11 My achievements at work give me less joy			0.894	

	Components/Factors			
Factor loading	**0.796**	**0.880**	**0.883**	**0.829**
Statements	**Self-efficacy**	**Support**	**Career**	**Motherhood self-perception**
Car-7 I worry about missing out on career growth opportunities.			0.890	
Car-9 I feel undervalued at work because I am a mother.			0.890	
Car-2 I need to put in more effort to be effective at work.			0.889	
Car-4 Lack of flexible options at work makes me worried.			0.870	
Car-8 I feel inferior at work due to a break in career.			0.865	
MS-5 I worry about my child's health and safety				0.862
MS-9 I constantly worry about being judged as a mother.				0.854
MS-4 I fear I may be neglecting my child.				0.852
MS-1 I have an overwhelming sense of guilt when I leave my child to go to work.				0.825
MS-2 I feel the need to be a perfect mother at all times.				0.802
MS-7 I worry about not conforming to societal expectations.				0.781
Extraction method: Principal component analysis. Rotation method: Varimax with Kaiser normalization.				

Among all the first and foremost factors, as per the sample data, is career/job stress with a loading of 88.3%. The second factor is support, with a factor loading of 88.0%. The third factor is motherhood style and self-perception, with a factor loading of 82.9%. The last factor in the study is self-efficacy, with a factor loading of 79.6%.

5. DISCUSSION

The development of this motherhood stress scale successfully identified four distinct factors that explain the stress experiences among new working mothers in the Indian IT sector. The factor structure provides empirical evidence to support that motherhood stress exists as a multidimensional construct in a professional setting. Career-related stress was identified as the first dimension, incorporating discrimination in the workplace, fears of advancement in their careers, and the motherhood penalty. This finding supports the current literature that working mothers may have lower opportunities for their careers [2] but also points to specific gender uncertainties in the competitive IT field. Once again, the concern raised about career trajectories clearly indicates that, despite progressive organizational policies, systemic barriers and prejudiced attitudes still exist against women.

Support-related stress relates to the stress of lacking family support, having unequal domestic duties, and dependency on caregivers. This observation is consistent with those of Ozer [54] and Sharma [33], who point to the vital role of social support in mental health. Working women in India are in a position where traditional notions of gender roles continue to remain strong despite increasing female workforce participation. Motherhood guilt and self-perception are other key constructs, referring to the psychological costs faced in maternal ideals and societal norms, in an attempt to match existing literature on guilt as described by Constantinou et al. [55]. The inclusion of a culturally specific set of items related to social anticipations implies that the scale is relevant in the Indian context.

Stress self-efficacy encompasses the perceived ability to manage stressful situations across various roles, such as time management stresses and emotional stresses.

Unlike other generic parenting scales, this scale reflects the area of overlap between professional aspirations and cultural demands meaningful to educated and employed Indian mothers.

5.1. Practical Applications for Organizations

Organizations can use this scale to gauge policy effectiveness and pinpoint areas of stress that should be addressed through intervention. The four-factor model provides opportunities for specific interventions, such as flexible work schedules to reduce stress associated with one's career, expanding family support initiatives, culturally sensitive training to address feelings of guilt and judgment, and skill-based training aimed at developing self-efficacy.

5.2. Contributions to Research

This scale will lead to the advancement of research programs and will fill a major gap in culturally specific research on stress measurement. The validated stress measurement scale shall be an appropriate instrument for research teams interested in exploring the experience of being a working mother within the context of the Indian scenario. Moreover, the four-factor solution provides a framework for understanding the overlap that exists between the various stressors and the roles they play in contributing to maternal well-being.

5.3. Contributions to Policy

Lastly, this study highlights the need for an organizational policy that recognizes structural barriers and cultural expectations. In particular, two of the social-support factors, as well as career factors anticipated to affect performance, suggest that organizations need to carry out proactive actions to address the challenges they face. Here, preventive measures (in terms of addressing the problems relating to modes of functioning at the workplace/firms level), rather than only concentrating on individual factors as they always did to overcome these problems, may be one of the steps needed to effectively address this set of problems.

6. CONCLUSION

The current study developed and validated a 31-item scale of stress relating to motherhood for new working mothers employed in the Indian information technology sector. The instrument revealed a four-factor structure comprising career-related stress, adequacy of support systems, maternal guilt, and self-efficacy, which renders the model quite comprehensive in addressing the unique challenges faced by professional mothers in India. Psychometric evaluation demonstrated that the scale has strong reliability, confirming its suitability as an instrument for further research in academia and organizations. Empirical findings indicate that stress levels are primarily driven by career-related concerns, followed by deficiencies in support systems; these findings suggest that interventions should adopt a holistic approach at the organizational level. This investigation enriches a limited body of literature with culturally specific instruments to address motherhood-related stress and contributes to the evidence of the complex interaction between professional aspirations and traditional norms in contemporary India. For human resource practitioners, the results highlight the importance of implementing flexible work options free from prejudice, providing affordable and onsite childcare, establishing peer-support groups, and training managers to recognize and reduce bias against new mothers. Moreover, the scale offers a valuable framework for longitudinal research and intervention development aimed at improving the wellbeing and career sustainability of working mothers.

7. LIMITATIONS AND FUTURE DIRECTIONS

The current study is confined to parents who work in the information technology industry and are raising children aged 0-2 years in the city of Bangalore, thus allowing applicability to different industries, age groups, and geographical contexts. The cross-sectional design permits a measure of maternal stress at a single point in time but does not allow exploration of the dynamic, adaptive processes that occur over time in response to ongoing stressors. Sampling bias could occur due to the use of snowball sampling. Since all participants had access to heterogeneous subjective negotiated benefits, the sample may represent a privileged subgroup of employed mothers, which may influence the findings. Subsequent investigations using confirmatory factor analysis should establish the validity of

the overall instrument in different work conditions and geographic areas. Longitudinal designs are encouraged to establish the trajectory of stressors as children mature and mothers adapt to their dual roles. Cross-cultural adaptations would help to assess the scale's generalizability, and intervention research could provide important insights into whether it is an effective outcome measure.

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Institutional Review Board Statement: This study was approved by the Institutional Review Board of Christ University, India under protocol number (CU: RCEC/00354/11/24), dated (8 November 2024) Informed verbal and written consent was obtained from all participants, and all data were anonymized to protect participant confidentiality.
Transparency: The authors state that the manuscript is honest, truthful, and transparent, that no key aspects of the investigation have been omitted, and that any differences from the study as planned have been clarified. This study followed all writing ethics.
Competing Interests: The authors declare that they have no competing interests.
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