Proceedings of the 5th International Conference on Social Psychology and Humanity Studies
DOI: 10.54254/2753-7048/2027.39218

Postpartum Experiences, Subjective Cognitive Difficulties, and Support Needs in a Cross-Sectional Questionnaire Study in China

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Abstract. The postpartum period is often discussed in terms of separate problems—sleep, mood, caregiving, cognition, or return to work—but in daily life these experiences occur together. This study examined how postpartum women in several regions of China described these overlapping demands, with a particular focus on fatigue, maternal identity, subjective cognitive difficulty, support, and everyday needs. We analyzed data from a cross-sectional online questionnaire using descriptive item-level results, exploratory correlations, sleep-group comparisons, open-response coding, post hoc cross-tabulations, and individual response profiles. Fatigue, self-sacrifice, and concerns about being a good-enough mother were common, but they did not consistently occur with higher sadness or guilt. Women could also report feeling restricted by motherhood while at the same time recognizing new capabilities. In the open responses, changes in the sense of self were often tied to very concrete experiences, including changes in the body, loss of uninterrupted time, and everyday decisions increasingly organized around the infant. Cognitive difficulty was most noticeable when participants tried to return to a task after being interrupted. Support showed a similar lack of uniformity: having another person involved, or feeling understood, did not always mean that care could be fully handed over or that final responsibility was reduced. Immediate requests focused mostly on rest and short breaks from caregiving, whereas return-to-work preparation remained widely selected as a future-oriented need. Overall, the findings suggest that postpartum adjustment is not well captured by a single measure of burden or distress. It involved different combinations of physical strain, identity change, interrupted daily functioning, caregiving responsibility, and plans for returning to nonmaternal roles.

Keywords: postpartum, maternal identity, subjective cognition, caregiving, support needs

1. Introduction

Postpartum adaptation brings bodily recovery, fragmented sleep, intensive infant care, and changes in family roles and personal identity into the same period. These experiences vary across women, and pleasure, growing competence, and personal growth can coexist with fatigue or uncertainty [1]. Expectations of continuous maternal availability may also make rest or personal time feel selfish

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DOI: 10.54254/2753-7048/2027.39218

and constrain identities extending beyond care. Qualitative studies describe guilt about self-care and asking for help, supporting examination of fatigue, sacrifice, and personal-time guilt while leaving room for positive identity change and newly acquired capabilities [2, 3].

Postpartum-specific worry commonly concerns infant health and safety, feeding, sleep, caregiving competence, and confidence in responding to the infant. These domains appear in the PSAS, its research short form, and the Chinese Maternal Postpartum Stress Scale; the present study used them to inform study-specific agreement items rather than administering those complete measures [4-6]. Worry may be expressed through checking, reassurance seeking, sensitivity to crying, and health concerns [7]. Structured items compare specified experiences, while prompted open responses show the concrete moments through which women recognize change and express immediate needs.

Subjective cognitive difficulty can affect everyday functioning through forgotten intentions, loss of task continuity after interruption, reduced attention, or difficulty prioritizing. Behavioral, neuroimaging, and longitudinal studies report domain- and timing-specific patterns, including occasions when subjective complaints and objective performance diverge [8-11]. This variation supports item-level examination of perceived memory, concentration, interruption, and planning rather than a global assumption of cognitive deficit.

Returning to work or study provides a concrete context for these functional concerns. Preparation may involve concentration, missed obligations, care arrangements, and competing family demands, while occupational participation can also preserve continuity and competence. Work-life imbalance, child-related concerns, and lack of enrichment are distinct dimensions of maternal work-resumption stress [12].

Daily conditions and social resources add information beyond a distress score. Continuous sleep, uninterrupted personal time, and care arrangements describe opportunities for recovery, while practical help differs from feeling understood or being able to entrust care and step out of monitoring and final decisions [13]. Research with Chinese postpartum women also links relational context, sleep, and emotional experience, supporting separate attention to care participation, perceived support, and responsibility transfer [14].

Personal regulatory resources offer a possible explanation for individual variation. Emotion regulation, psychological flexibility, self-efficacy, and executive self-regulation concern how people manage emotion, maintain goals, shift between tasks, and judge their capacity to meet role demands [15]. Intervention studies have examined these processes in web-based postpartum support and return-to-work programs, identifying candidates for future direct measurement rather than variables assessed in the present questionnaire [16, 17].

The present cross-sectional study brings bodily and psychological experiences, maternal identity and self-evaluation, infant-related worry and checking, subjective cognition, daily conditions, work-related concerns, support needs, and prompted open responses into one questionnaire-based analysis. It examines whether concrete burden aligns with explicit emotional distress, how women identify change in everyday moments, whether reported help coincides with relief from continued responsibility, and how immediate requests relate to forward-looking support preferences. De-identified profiles identify combinations obscured by sample summaries, while personal regulatory resources and digital-support features remain topics for future evaluation.

Three principal hypotheses guided the quantitative association analyses: (H1) greater physical fatigue, self-sacrifice, and parenting worry would be positively associated with emotional burden; (H2) greater parenting worry would be associated with more frequent checking, searching, or reassurance seeking; and (H3) greater post-interruption cognitive difficulty would be associated with

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stronger return-to-work concern. Open-response themes, sleep-group descriptions, support combinations, and individual profiles were examined exploratorily.

2. Methods

2.1. Study design, recruitment and participants

This cross-sectional study used a structured online questionnaire, short open-response prompts, and an exploratory analysis of individual response profiles. The survey was published on the Jianshu Data online survey platform and obtained responses from women in several regions of China. Recruitment proceeded in two stages. An initial survey directed to women collected 100 responses and used questions on childbirth history and time since delivery to screen for the postpartum study. Women who had not given birth did not proceed to the formal questionnaire. Seventy-two women participated in the second-stage questionnaire, whose introduction contained an informed-consent statement. The available records do not give a complete disposition of the other 28 initial respondents. Manual response-quality review excluded two questionnaires completed in under 300 seconds and one questionnaire that failed a platform-provided screening item. The analytic sample comprised 69 retained questionnaires. These stages were screening and quality control, not random or probability sampling.

The formal questionnaire included postpartum-duration categories from 0-2 weeks through more than 12 months. Accordingly, the analytic sample was not restricted to the first postpartum year; 10 retained respondents selected the category 'more than 12 months.' The final data export contained response timestamps from 9 to 11 September 2026. The study did not administer a cognitive task or an intervention. Participant characteristics are summarized in Table S1.

2.2. Questionnaire development and measures

The questionnaire brought together experiences that could plausibly affect postpartum daily life: physical recovery and fatigue; sleep and personal time; infant-related worry and emotional experience; maternal identity, self-evaluation, and perceived sacrifice; subjective attention and memory difficulty; care arrangements and family support; occupational demands and return-related concerns; and directly expressed support needs. This description reconstructs the content of the completed instrument and analyses; it does not imply that the exploratory indices or comparisons were preregistered. The full Chinese questionnaire can be supplied as an appendix.

Single-choice questions recorded time since birth (Q1), reported nighttime infant-care arrangement (Q5), the average duration of continuous sleep per night (Q6), uninterrupted personal time per day (Q7), return-to-work or study plans (Q8), and current work or study status (Q11), among other contextual variables. The response categories for sleep and personal time were kept as ordered categories rather than converted to estimated hours or minutes. Q12 asked which abilities participants considered important for their work or study; each option was exported as a separate binary selection. Related agreement items in Q23_13-Q23_16 described occupational demands and concerns and could contextualize Q12 responses, but these questions were not combined into an occupational cognitive-demand scale.

Most experiential item grids asked about the preceding seven days and used agreement responses from 0 ('completely disagree') to 5 ('completely agree'). Q13 addressed physical recovery and fatigue; Q14 sleep and daily rhythm; Q15 infant-related worries, checking, and maternal self-appraisal; Q17-Q19 emotional experiences; Q20 subjective memory, attention, task interruption,

DOI: 10.54254/2753-7048/2027.39218

planning, and perceived work impact; Q21 available support and less visible care responsibilities; Q22 maternal identity, personal-time guilt, and sacrifice; and Q23 occupational concerns and possible capabilities gained through motherhood. These modules contained different constructs and some proposed product features. Their complete item sets were therefore not averaged or treated as validated scales. In particular, Q20_15-Q20_17 and Q24-Q27 asked about desired task support or willingness to try possible training activities; they did not record performance on Go/No-Go, N-back, or prospective-memory tasks.

Q28 recorded directly selected support needs as separate binary options, including sleep, an emotional outlet, parenting support, physical recovery, return-to-work preparation, and family communication. Q29-Q33 addressed preferred time commitment and digital interaction features. Five open-response fields available in the analytic export asked for a brief complaint (Q34), a small task for which help was desired (Q41), preferred use of ten minutes of personal time (Q42), a moment of feeling unlike one's former self (Q44), and the main obstacle to returning to work or study (Q46). Safety-screening responses concerning self or infant safety were retained separately from the ordinary emotional-experience items.

2.3. Data preparation and quality checks

The analysis workbook contained two header rows followed by 69 retained responses across 230 columns. The first row held question wording and annotations; the second held item identifiers. Analysis scripts used the second row to name variables and assigned a sequential, nonidentifying S2 code to each retained record for profile displays. Platform identifiers, timestamps, and location/device metadata were not used as substantive variables in the figures. The export used Q49 for two different questions; the individual-level extraction script distinguished the attention item from the later safety item by their position and wording.

Selected 0-5 agreement items and binary selections were converted to numeric values, with nonnumeric entries coerced to missing for the analyses that used them. Item-level distributions excluded missing responses from each item's denominator. Exploratory multi-item summaries were arithmetic means of the specified available items for each participant, as implemented in the analysis code; no missing-value imputation or minimum-item threshold was applied. The selected items used in the principal exploratory means had no missing or out-of-range values in the retained export. No whole-module reverse scoring, diagnostic cutoffs, or psychometric validation was performed. Q23_17, a positively worded item about capabilities developed through motherhood, was displayed separately rather than reverse-scored into an identity-burden total. For the profile's 'insufficient support' direction, the mean of positively framed Q21 support items was subtracted from five.

The 72-to-69 reduction described above was completed during manual quality review. In the retained export, the consent field (Q54) was coded affirmatively and the two available attention checks, including a simple statement and an arithmetic question, had the intended answers for all 69 records; the final figure scripts made no further exclusions on those checks. For the flagged-profile review, safety responses were extracted into a separate individual-level table; no safety item entered the emotional-burden summary or correlation matrix.

2.4. Quantitative statistical analysis

Analyses were descriptive and exploratory. For selected 0-5 items, distributions were calculated as the percentage of valid answers at each response level (Figures 1A, 1C, and 3B). A 6 x 6 count table described the joint distribution of physical fatigue (Q13_3) and self-sacrifice (Q22_10; Figure 1B).

DOI: 10.54254/2753-7048/2027.39218

Additional item-level cross-tabulations were used to clarify concordant and discordant response combinations across conceptually related items. For these descriptive comparisons, scores of 4 or 5 were classified as higher agreement and scores of 0-3 as lower agreement. The comparisons included concrete burden versus explicit distress, identity constraint versus positive capability, sacrifice versus personal-time guilt, cognitive interruption versus planning difficulty, anticipated work concern versus current performance doubt, and perceived support versus the ability to hand over care. These were post hoc exploratory descriptions rather than confirmatory tests or new scales.

For association analyses, parenting worry was the participant-level mean of Q15_1, Q15_4, Q15_5, and Q15_14; emotional burden was the mean of Q17_4, Q17_5, and Q19_4; interruption-related cognitive difficulty was the mean of Q20_5 and Q20_6; and return-to-work concern was the mean of Q20_13, Q20_14, Q23_2, and Q23_4. Self-sacrifice (Q22_10) and physical fatigue (Q13_3) were single items. Spearman rank correlations among these six variables formed Figure 3A. These means are item-defined exploratory summaries, not scores from the PSAS, Maternal Postpartum Stress Scale, or a validated work-resumption scale. Correlations were calculated from available paired observations without regression adjustment or causal modeling.

Q16 asked how often participants had checked, searched, or sought reassurance about infant safety, health, or feeding in the preceding seven days. Its six ordered response categories (0, 1-2, 3-5, 6-10, more than 10, and several times per day) were mapped to ranks 0-5 for the Spearman association with the parenting-worry mean in Figure 2B. The original categories, individual observations, and category means were displayed; category midpoints were not assigned as numerical frequencies. Because two components of the parenting-worry mean (Q15_4 and Q15_5) themselves concern checking, the association describes related response domains rather than wholly independent constructs.

To compare daily conditions, Figure 4A displayed the mean of parenting worry, emotional burden, and self-sacrifice within each original Q6 category for average continuous sleep per night. Horizontal intervals were percentile-based 95% bootstrap intervals for each group mean, using 4,000 resamples with a fixed random-number seed; they were descriptive, not tests of between-group differences. For Figure 4B, Q1 categories were combined as 3-12 weeks, 3-6 months, and more than 6 months postpartum. The last group included respondents more than 12 months postpartum. For each of six Q28 need options, the numerator was the number selecting the option and the denominator was the number with a valid 0/1 response in that postpartum group. Options were calculated separately, so percentages were not expected to total 100%.

2.5. Open-response analysis

The implemented open-response analysis used rule-assisted, multiple-label thematic classification. For stressor themes, Q34, Q44, and Q46 were combined at the participant level; for need themes, Q41 and Q42 were combined. The Chinese dictionaries used literal substring rules for themes such as sleep disruption, concentrated caregiving, limited personal time, work-family conflict, attention or memory disruption, physical recovery, emotional strain, and identity change. Each participant contributed at most once to a theme across the relevant prompts, although one response could match several themes. In addition, Q44 was reviewed separately at the prompt level because it asked for a recent moment of feeling unlike one's former self. Responses were organized descriptively into three nonexclusive forms: embodied change, disruption of time or functional continuity, and child-centred caregiving or decision-making. Emotional reactions were treated as a cross-cutting feature. This focused organization was used to interpret recurring forms and examples rather than to estimate validated qualitative prevalence.

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Figure 2A counted participants mentioning each stressor theme, using the 66 participants with at least one rule-matched stressor as the proportion denominator. This was the matched-theme subset, not all open-prompt respondents: Q44 contained text for all 69 participants, and nonempty responses that matched no stressor rule contributed no theme. A nonmatch was not interpreted as a report of no stressor. Figure 5 selected the eight most frequent stressor themes and seven most frequent need themes and counted, for each cell, participants whose own responses matched both labels. Additional individual-profile review linked flagged participants' open text back to their item responses. The recorded processing path contains no independent human coding of every response, formal adjudication, or interrater reliability calculation, so these outputs are described as rule-assisted exploratory themes rather than a completed manual thematic analysis.

2.6. Individual profile analysis

Figure S1 summarized ten participant-level indicators, all oriented so that larger values represented more constraint or difficulty: sleep restriction from the ordered Q6 category for average duration of continuous sleep per night (1 for more than five hours to 5 for less than two hours), personal-time restriction from Q7 (1 for more than one hour to 5 for almost none), insufficient support (5 minus the mean of Q21_1, Q21_2, Q21_3, Q21_4, and Q21_8), invisible care load (mean of Q21_6 and Q21_7), physical fatigue (Q13_3), parenting worry, emotional burden, self-sacrifice (Q22_10), post-interruption difficulty (mean of Q20_5 and Q20_6), and return-to-work concern. The four exploratory multi-item summaries shared their item definitions with the analyses above.

Each indicator was standardized across all 69 retained participants using its sample-column mean and population-standard-deviation convention (ddof = 0). Standardization was not repeated within postpartum groups. Profiles were displayed by postpartum-stage group and then by their largest absolute z value. An exploratory flag was assigned if any indicator had an absolute z score of at least 2.0, or if at least three indicators had absolute z scores of at least 1.5. The flags selected profiles for closer examination of original items, reported daily conditions, and available open responses; they were not clinical classifications or tests of a person's unmeasured regulatory capacities.

2.7. Ethics and consent status

An informed-consent statement appeared in the introduction to the formal questionnaire, and all 69 retained records had an affirmative consent code. Safety-related responses were stored separately from the ordinary emotional items and were excluded from the psychological summaries reported in this manuscript.

3. Results

3.1. Core postpartum experiences

The analytic sample comprised 69 respondents: 19 at 3-12 weeks, 20 at 3-6 months, and 30 at more than 6 months postpartum. The last group included 10 respondents more than 12 months postpartum. Participant characteristics are summarized in Table S1. Each item shown in Figures 1A, 1C, and 3B had 69 valid 0-5 responses. On the core items (Figure 1A), 42 women (60.9%) scored physical fatigue at 4 or 5, 43 (62.3%) gave a 4 or 5 to sacrificing personal development or interests, and 36 (52.2%) did so for concern about being a good-enough mother. The corresponding counts were 19

DOI: 10.54254/2753-7048/2027.39218

(27.5%) for guilt about personal time, 20 (29.0%) for sadness, emptiness, numbness, or distress, and 33 (47.8%) for difficulty resuming a task after interruption.

Building on the item distributions in Figure 1A, post hoc cross-tabulations showed that 25 of the 42 respondents with higher physical fatigue did not report higher sadness, emptiness, numbness, or distress. The corresponding counts were 27 of 43 respondents with higher self-sacrifice and 19 of 36 with higher concern about being a good-enough mother. These contrasts describe response combinations and are not clinical classifications.

Fatigue and self-sacrifice often appeared together, but the responses were not interchangeable (Figure 1B). Thirty-two of 69 participants (46.4%) rated both items at 4 or 5. Ten rated fatigue at 4 or 5 but self-sacrifice below 4, while 11 showed the reverse pattern; 16 rated both below 4. The full 6 × 6 count table is supplied in the statistical audit.

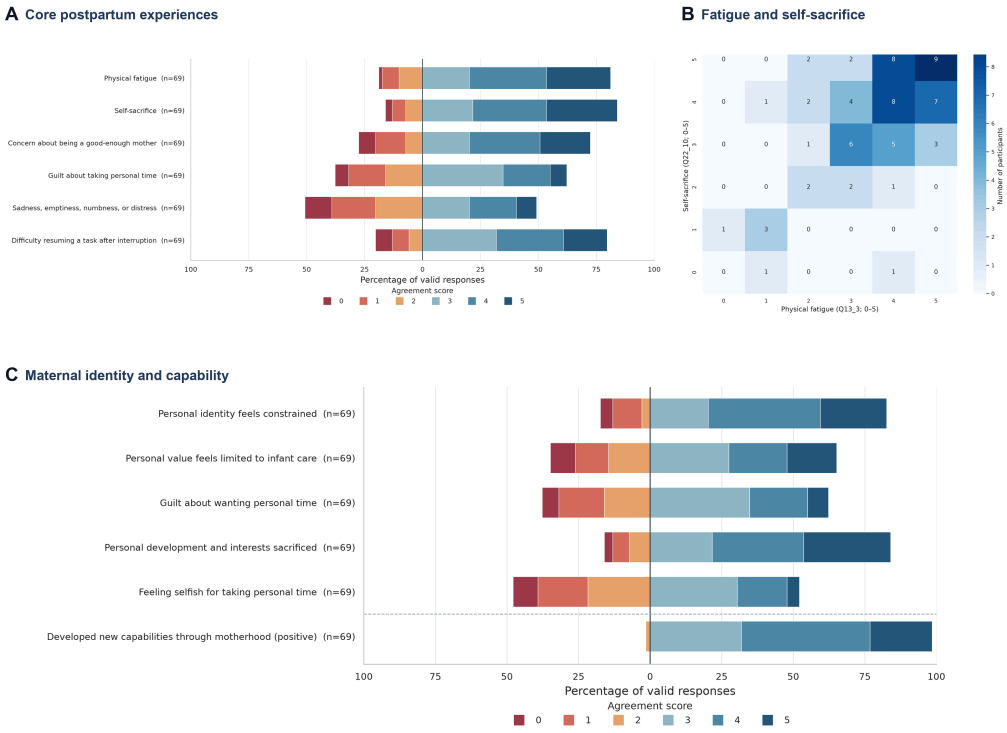

Figure 1. Core postpartum experiences and maternal identity. (A) Distribution of selected core psychological and physical experiences. (B) Joint distribution of physical fatigue and self-sacrifice; cells show participant counts. (C) Maternal identity, personal-time guilt, self-sacrifice, and perceived capability. All item panels use n = 69

3.2. Parenting worries, maternal identity, and checking

Rule-assisted coding of the prompted open responses assigned at least one stressor theme to 66 participants (Figure 2A). The most frequent matches were physical recovery or discomfort (46/66, 69.7%), concentrated caregiving load (34/66, 51.5%), attention or memory disruption (33/66, 50.0%), identity change or loss of self (32/66, 48.5%), and emotional strain (32/66, 48.5%). Sleep loss or disruption matched 20 participants (30.3%). A participant could contribute to several themes. The three participants without a matched stressor theme supplied text in at least one open prompt; a rule nonmatch did not indicate absence of difficulty.

DOI: 10.54254/2753-7048/2027.39218

A prompt-specific review of Q44, one source for the open-response themes summarized in Figure 2A, showed that feeling unlike one's former self was grounded in concrete moments. Embodied changes included altered body shape or weight, a haggard appearance, hair loss, reduced energy, and urinary incontinence. Disruption of time or functional continuity appeared through fragmented sleep, feeding schedules, loss of personal time, interrupted reading or work, forgetfulness, and difficulty sustaining attention. Child-centred changes appeared in checking an infant's breathing, reorganizing purchases or food choices around the infant, placing the infant's needs before personal interests, and reacting differently to crying. Emotional reactions cut across these forms, while a few responses described increased responsibility or reduced alarm in response to crying.

The maternal-identity items showed both restriction and growth (Figure 1C). A score of 4 or 5 was given by 43 respondents (62.3%) for constrained personal identity, 26 (37.7%) for personal value feeling limited to infant care, 19 (27.5%) for guilt about personal time, 43 (62.3%) for self-sacrifice, and 15 (21.7%) for feeling selfish when taking personal time. On the separately displayed positive item, 46 participants (66.7%) agreed that motherhood had developed new capabilities.

Cross-tabulations of the items displayed in Figure 1C showed that restriction and growth occurred within the same participants: 24 women reported both constrained identity and new capabilities, and 23 reported both self-sacrifice and new capabilities. Among the 43 respondents with higher self-sacrifice, 25 did not report higher personal-time guilt and 30 did not report higher selfishness. Fifty-one wanted reassurance that rest did not mean they loved their infant less; 35 of them had lower guilt and 37 had lower selfishness.

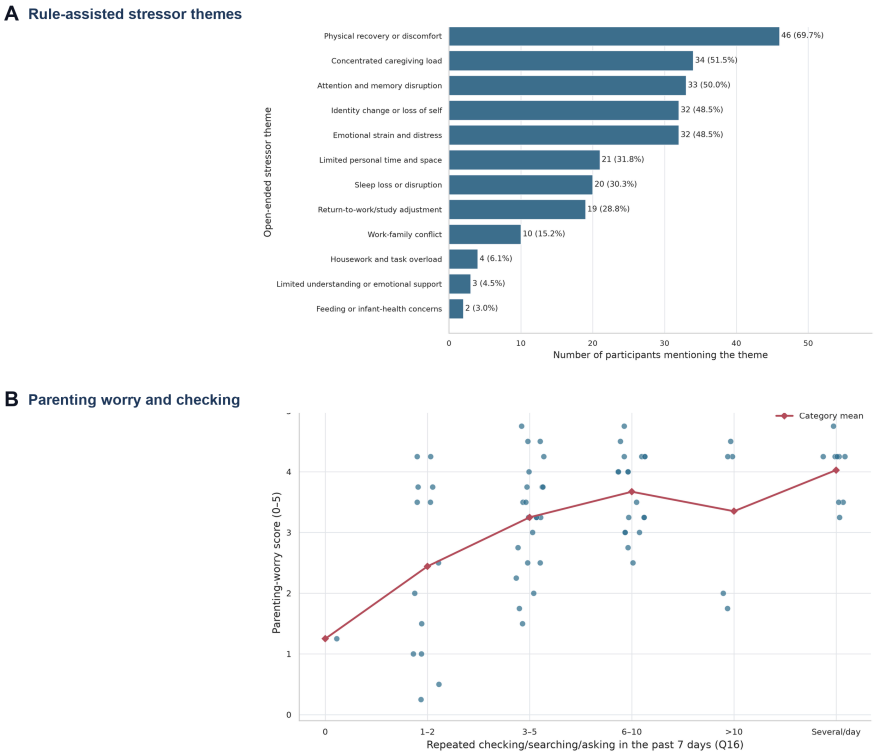

Figure 2. Parenting worry and rule-assisted open-response themes. (A) Stressor themes among the 66 participants matched to at least one rule theme. (B) Parenting-worry mean by ordered checking, searching, or reassurance-seeking frequency; two worry items also concern checking

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The exploratory parenting-worry mean was positively associated with the ordered frequency of checking, searching, or asking about infant safety, health, or feeding (Figure 2B; Spearman's $\rho = 0.413$, $n = 69$, two-sided $p = .000417$). The six checking categories contained 1, 13, 22, 19, 5, and 9 participants in ascending code order. Their respective worry means were 1.25, 2.44, 3.25, 3.67, 3.35, and 4.03, so the category means were not strictly monotonic. Two items in the worry mean (Q15_4 and Q15_5) also concern checking tendencies, making this an association between related response domains.

3.3. Emotional burden, subjective cognition, and everyday functioning

The six item-defined summaries in Figure 3A had means of 3.29 for parenting worry, 2.82 for emotional burden, 3.65 for self-sacrifice, 3.59 for physical fatigue, 3.19 for post-interruption cognitive difficulty, and 3.22 for return-to-work concern. All 15 pairwise Spearman correlations were positive, with 69 valid pairs for each comparison ($\rho = .449$–$.727$; all unadjusted two-sided $p \leq .000108$). Parenting worry and emotional burden had the largest coefficient ($\rho = .727$, $p = 1.51 \times 10^{-12}$). Emotional burden correlated with post-interruption difficulty ($\rho = .723$, $p = 2.21 \times 10^{-12}$), and post-interruption difficulty correlated with return-to-work concern ($\rho = .695$, $p = 3.44 \times 10^{-11}$). The smallest coefficient was between fatigue and self-sacrifice ($\rho = .449$, $p = .000108$). The audit table reports every pair, including its item definitions, coefficient, paired sample size, and p value.

Self-reported cognitive and everyday difficulties varied by domain (Figure 3B). Scores of 4 or 5 occurred for difficulty resuming a task after interruption in 33 respondents (47.8%), forgetting an intended action in 30 (43.5%), and difficulty finishing a passage in 26 (37.7%). The daily-management items were less frequently endorsed at this level: 19 (27.5%) for breaking a large task into steps and 17 (24.6%) for prioritizing the day. Of the 33 respondents reporting higher difficulty resuming after interruption, 18 did not report higher difficulty breaking a task into steps and 21 did not report higher difficulty prioritizing the day. The pattern suggests a distinction between difficulty preserving continuity across interruption and difficulty organizing a task in the first place.

The work-impact items in Figure 3B distinguished anticipated difficulty from a current global judgment of ability. Current work-performance doubt received a 4 or 5 from 27 respondents (39.1%), whereas concern about performance after return did so from 41 (59.4%); 16 showed the latter without higher current doubt, while two showed the reverse. In related identity items, work identity remained important to 64 respondents (92.8%), 62 (89.9%) wanted to restore interests, work, or study, and 60 (87.0%) wanted activities affirming an identity beyond motherhood.

The wish for expression was also broader than the subgroup reporting higher explicit sadness. Forty-five respondents (65.2%) wanted a nonjudgmental outlet and 55 (79.7%) wanted a safe space for thoughts that might feel socially unacceptable, compared with 20 (29.0%) who reported higher sadness, emptiness, numbness, or distress. Twenty-six wanted a nonjudgmental outlet without higher sadness or distress, and 38 wanted a safe expressive space without higher sadness or distress.

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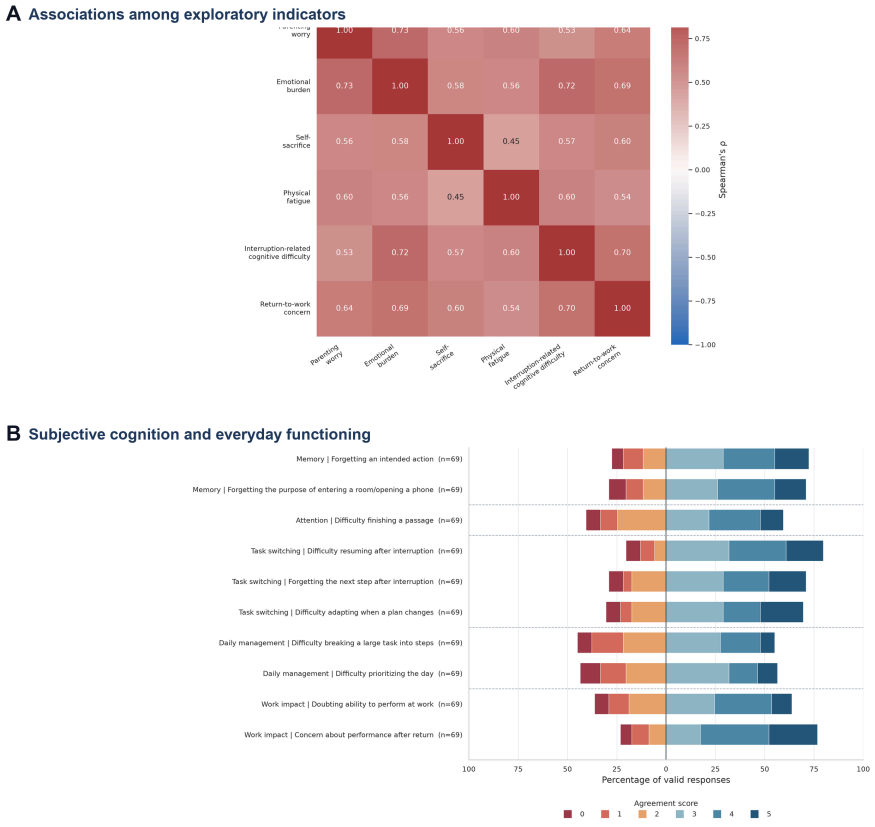

Figure 3. Associations and subjective cognitive functioning. (A) Spearman correlations among six item-defined exploratory summaries or single items (n = 69 paired observations for each coefficient). (B) Distributions of self-reported attention, memory, task-switching, daily-management, and work-impact items (n = 69 per item)

3.4. Daily conditions and individual heterogeneity

The five Q6 categories for average continuous sleep per night contained 9, 14, 22, 3, and 21 participants in the display order shown below (Figure 4A). The shortest-sleep category had higher observed means for each of the three experiences, but contained only three respondents. Intervals are percentile-bootstrap descriptions of each group mean; no between-group test was performed. Detailed group values are provided in Table S2.

Reported support did not always coincide with an ability to entrust care or with reduced invisible and final responsibility. Thirty-seven respondents reported alternating nighttime care with a partner; 19 of them nevertheless reported higher agreement that they still made final arrangements and decisions, and 22 reported higher invisible care load, continued final responsibility, or both. Across the sample, 41 reported that their partner understood their pressure, whereas 25 reported being able to entrust the infant to someone else when they needed rest. Eighteen reported partner understanding without higher ability to entrust care. Among the 36 respondents who wanted rest but found it difficult to relax when someone else cared for the infant, 29 did not report higher ability to hand over care.

Full-sample standardization of the ten Figure S1 profile indicators flagged 15 of 69 respondents under the stated two-sided exploratory rule: 13 had at least one $|z| >= 2$, and two were flagged only because at least three indicators reached $|z| >= 1.5$. Among the 15, 12 had only relatively low

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indicators at the +/-1.5 threshold, two had only relatively high indicators, and one combined both directions. The profile flag therefore identified departures from the sample pattern more often through unusually low difficulty than through uniformly high burden.

Profiles displayed in Figure S1 illustrated why daily conditions and subjective responses should be considered together. S2_001 combined almost no personal time and low perceived support with high emotional burden, worry, fatigue, and sacrifice. S2_006 also reported almost no personal time but lower emotional burden, worry, and post-interruption difficulty, alongside alternating nighttime care and relatively available support.

Other Figure S1 profiles differed across domains. S2_047 combined high sacrifice with low emotional and interruption-related difficulty, while S2_029 combined low sacrifice with fatigue and stronger return-to-work concern. Unflagged S2_013 showed higher emotional burden despite relatively favorable measured conditions. These descriptions use measured responses and do not assign unmeasured coping or regulatory mechanisms to individuals.

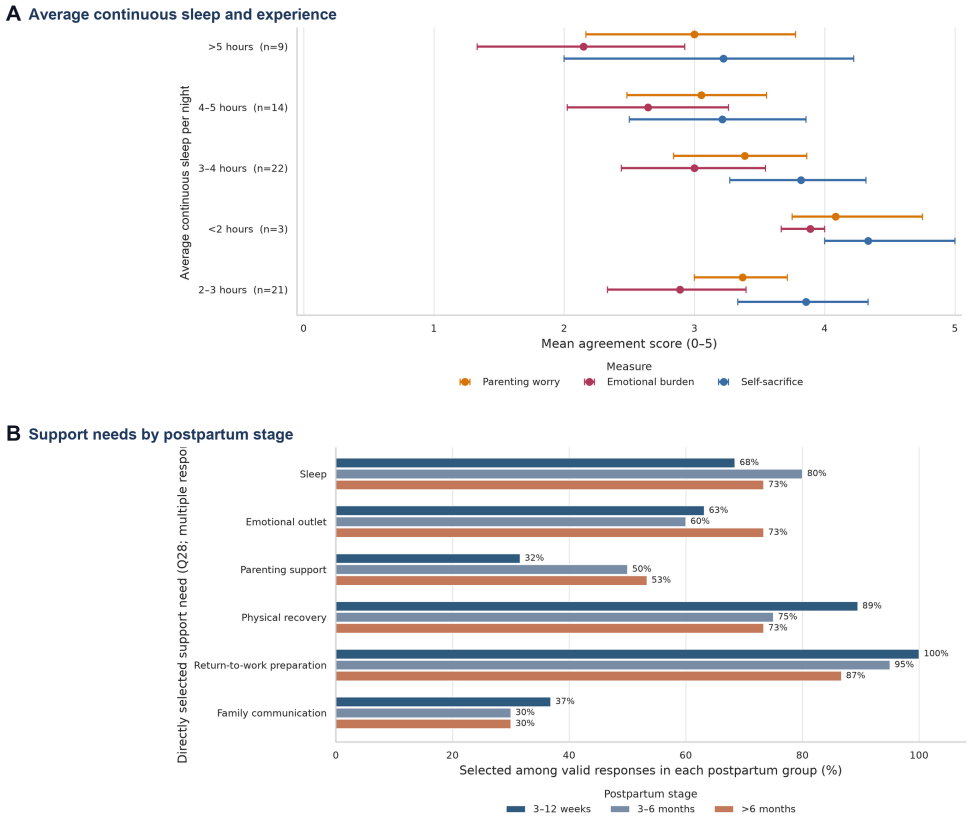

Figure 4. Daily conditions and selected support needs. (A) Parenting worry, emotional burden, and self-sacrifice by reported average continuous sleep per night; points are group means and lines are descriptive percentile-bootstrap 95% intervals. (B) Directly selected support needs by postpartum stage; each option was calculated independently, and the group above 6 months includes respondents more than 12 months postpartum

3.5. Expressed support needs

Directly selected Q28 support needs were calculated independently within the three postpartum-stage groups (Figure 4B). Return-to-work or study preparation was selected by 19/19 respondents at 3-12 weeks, 19/20 at 3-6 months, and 26/30 after 6 months. Physical recovery was selected by

DOI: 10.54254/2753-7048/2027.39218

17/19, 15/20, and 22/30, respectively. Parenting support was selected by 6/19, 10/20, and 16/30, while an emotional outlet was selected by 12/19, 12/20, and 22/30. Across the three postpartum-stage groups, the relative prominence of selected support needs differed, while several needs remained common in the latter group. The third group included respondents more than 12 months postpartum. Detailed counts and percentages are provided in Table S3.

Rule-matched need themes in the open responses added a different time horizon. Rest and sleep appeared in 49 of the 66 participants with at least one matched need theme, while time alone or personal space and shared infant care each appeared in 16. No response was classified as return-to-work or study preparation under the implemented need rules, despite 64/69 respondents selecting that option in Q28. The immediate prompts asked what help was needed today and how ten minutes alone would be used; their emphasis on rest and brief relief therefore complemented the forward-looking occupational preference rather than contradicting it. In Figure 5, rest or sleep coincided with concentrated caregiving load in 31 of the 34 participants matched to that stressor, whereas shared infant care coincided with it in nine. Rest or sleep also coincided with limited personal time in 20 of 21 participants, whereas explicit personal space coincided with it in eight. These counts show how immediate needs were expressed within the prompt context and do not establish that structural redistribution was unwanted or unavailable.

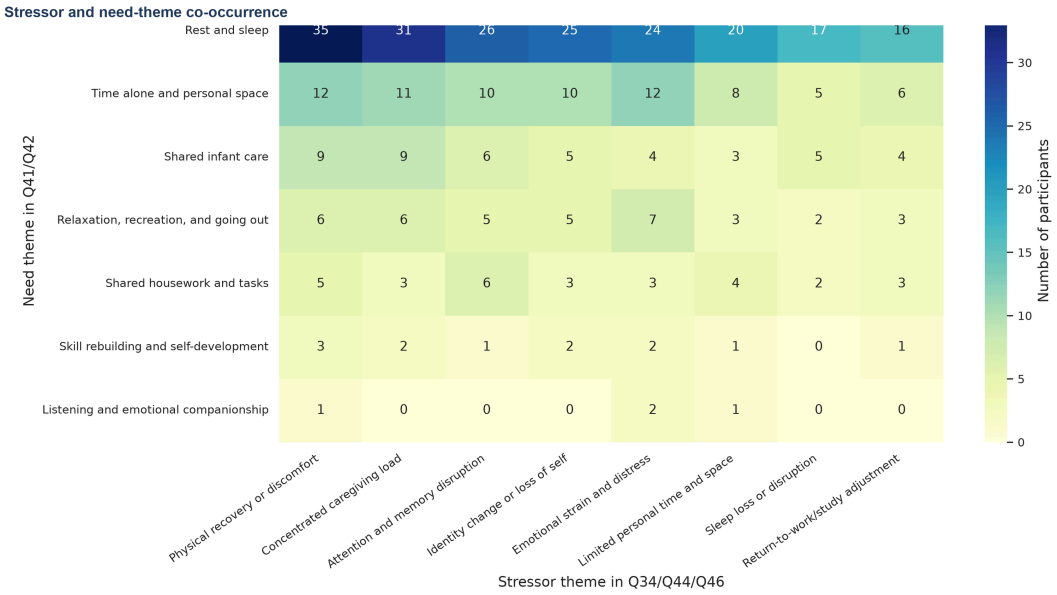

Figure 5. Within-participant co-occurrence counts for the most frequent rule-matched stressor and need themes

4. Discussion

Across structured items, open responses, daily conditions, and individual profiles, postpartum experience was heterogeneous. Concrete burden was more widely endorsed than explicit sadness or guilt; self-change involved body, time, and child-centred responsibility; restriction coexisted with growth; and reported help did not always coincide with entrusting care or reduced responsibility.

DOI: 10.54254/2753-7048/2027.39218

4.1. Concrete burden and explicit emotional distress

Fatigue, lost opportunities for personal development, and maternal-adequacy concerns were more common than explicit sadness, personal-time guilt, or selfishness. Many respondents with higher burden had lower endorsement of the explicit sadness/distress item, showing that bodily depletion, displaced activity, and caregiving demands did not form a uniform emotional symptom pattern. Fatigue and sacrifice also overlapped without being interchangeable, while the wish for reassurance about rest suggests that anticipated judgment may remain relevant even when personal guilt is less strongly endorsed [2, 3].

Parenting worry covaried with checking and reassurance seeking, consistent with infant-related worry appearing in both thought and care behavior [5, 7]. Because the worry index included checking-related items and category means were not strictly monotonic, this result describes related response domains rather than an independent pathway.

4.2. Maternal identity across body, time, and care

Q44 grounded identity change in bodily appearance and function, loss of uninterrupted time, and child-centred decisions. Mirrors, weight, sleep, feeding schedules, interrupted work, infant monitoring, and altered consumption choices became points at which participants evaluated continuity with their former selves. This descriptive organization shows how identity was experienced through embodied and temporal agency as well as maternal self-appraisal.

Restriction and growth coexisted: constrained identity and sacrifice often accompanied capabilities attributed to motherhood. The wish to restore interests, work, or study is consistent with retaining valued nonmaternal roles, while a few Q44 responses framed change positively through greater responsibility or reduced alarm in response to crying [1].

4.3. Cognitive continuity and return-to-work uncertainty

Subjective cognitive difficulty was concentrated in maintaining continuity across interruption. Resuming a task, remembering an intention, and sustaining attention were more often endorsed than task decomposition or prioritization, and Q44 described similar lapses in interrupted activities. These findings concern perceived functioning; prior research also shows that subjective complaints and objective performance may diverge across domains and postpartum timing [8-11].

Return-to-work concern was more common than current global doubt about work ability, while work identity and the wish to restore work, study, or interests were widely endorsed. The pattern is consistent with future performance concern occurring without a global judgment of incapacity and with immediate needs for rest coexisting with forward-looking occupational priorities [12].

4.4. Usable support, responsibility transfer, and individual heterogeneity

Support separated into participation, understanding, confidence in another person's care, and relief from monitoring or final decisions. Alternating nighttime care and perceived understanding sometimes coexisted with lower ability to entrust care or continued invisible responsibility, suggesting that practical help may offer more opportunity for recovery when monitoring and decisions can also be shared [13, 14].

Profiles likewise showed no single subjective response to similar constraints: restricted time or sacrifice accompanied high burden for some participants and relatively low emotional or

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interruption-related difficulty for others. Most exploratory flags reflected unusually low indicators rather than uniformly high burden. Personal resources may help explain this heterogeneity, but they were not measured; future work should assess them alongside opportunities for rest and responsibility transfer [15].

4.5. Immediate relief and forward-looking support needs

The group reporting less than two hours of continuous sleep had higher observed worry, emotional burden, and sacrifice, but included only three respondents and was not tested against other groups. Support needs also remained evident beyond six months postpartum; these cross-sectional groups describe different distributions rather than within-person change.

Prompt format shaped expressed needs. Questions about help needed today or ten minutes alone foregrounded rest, personal space, and brief relief, whereas return-to-work preparation was widely selected among structured current support options. This contrast distinguishes immediate requests from a forward-looking preference without establishing separate long-term trajectories.

4.6. Implications for future digital support

These findings identify candidates for later development: immediate-relief and return-preparation tools, family communication that makes invisible responsibility visible, nonjudgmental expression, and task-resumption support. Psychological flexibility, emotion regulation, self-compassion, and work-family self-efficacy remain candidate processes for later evaluation [16, 17]. No cognitive task, website feature, or intervention was implemented in the present study.

4.7. Strengths and limitations

Combining item-level responses, daily conditions, open-text themes, selected needs, and profiles revealed combinations that marginal distributions alone would miss, including burden with lower explicit distress, restriction with growth, and understanding without responsibility transfer. The Q44 review also retained concrete moments of identity change.

The cross-sectional nonprobability sample was small and uneven across stage and sleep groups. Measures were self-reported and study-specific; the parenting-worry mean overlapped partly with checking content, open responses used fixed rules, Q44 received a single-pass descriptive review, and the post hoc 4-5 versus 0-3 cross-tabs were descriptive. Larger longitudinal studies could validate these patterns and measure personal resources and responsibility transfer directly.

5. Conclusion

Postpartum adjustment in this sample was not represented adequately by a single burden score. Concrete fatigue, lost personal opportunities, and concern about maternal adequacy were more widely endorsed than explicit sadness or guilt. Participants recognized change through the body, disrupted time and activity, and child-centred everyday decisions, while restriction and perceived growth frequently coexisted. Subjective cognitive difficulty was concentrated in maintaining continuity across interruption, while the work-related item pattern was consistent with anticipated contextual uncertainty rather than a simple global judgment of current incapacity. Support appeared more usable when another person's involvement was accompanied by some ability to hand over care and reduce continued monitoring or final responsibility, while immediate requests for rest coexisted with forward-looking occupational and personal priorities. Individual profiles further showed that

DOI: 10.54254/2753-7048/2027.39218

similar constraints could accompany different subjective responses. These findings support postpartum services that attend to bodily recovery, temporal autonomy, responsibility distribution, identity integration, and individual variation while treating future digital features as hypotheses for evaluation.

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DOI: 10.54254/2753-7048/2027.39218

Appendix

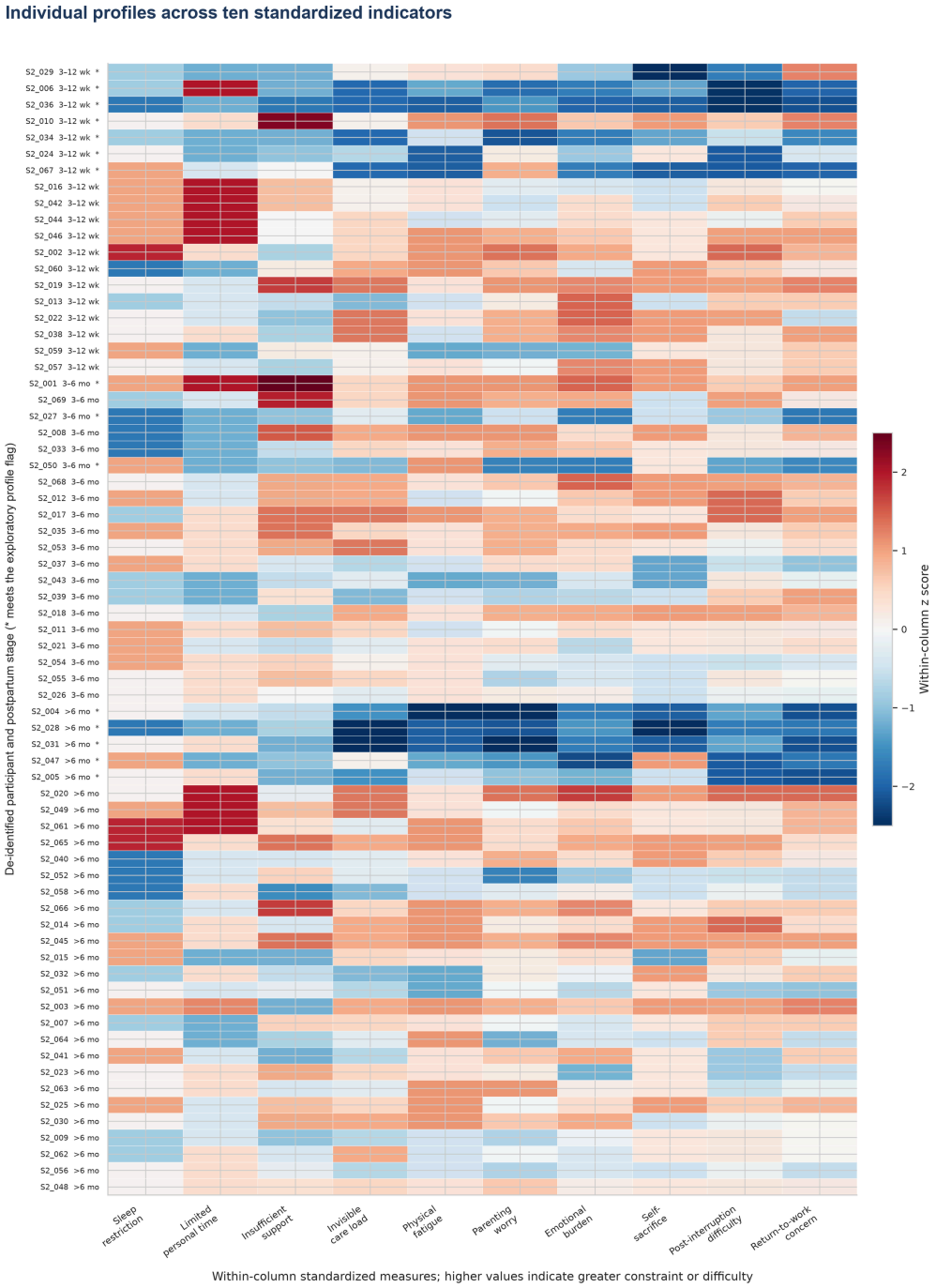

Figure S1. Full-sample standardized individual profiles across ten indicators. Asterisks indicate the exploratory profile flag and do not denote clinical classification

DOI: 10.54254/2753-7048/2027.39218

Table S1. Participant characteristics (N = 69)

Characteristic	Category	n	%
Postpartum stage (Q1)	0-2 weeks	0	0.0
	3-6 weeks	4	5.8
	7-12 weeks	15	21.7
	3-6 months	20	29.0
	6-12 months	20	29.0
	>12 months	10	14.5
Delivery mode (Q2)	Vaginal delivery	46	66.7
	Cesarean delivery	18	26.1
	Vaginal-to-cesarean delivery	5	7.2
Current place of recovery (Q3)	Home	56	81.2
	Public hospital	2	2.9
	Postpartum care center	9	13.0
	Postpartum rehabilitation center	1	1.4
	Parents' or relatives' home	1	1.4
Feeding method (Q4)	Exclusive breastfeeding	8	11.6
	Mixed feeding	52	75.4
	Formula feeding	9	13.0
Main nighttime caregiver (Q5)	Participant	17	24.6
	Participant and partner alternate	37	53.6
	Maternity caregiver or nursing aide	6	8.7
	Parents help	9	13.0
Average continuous sleep per night (Q6)	<2 hours	3	4.3
	2-3 hours	21	30.4
	3-4 hours	22	31.9
	4-5 hours	14	20.3
	>5 hours	9	13.0
Uninterrupted personal time per day (Q7)	Almost none	9	13.0
	<=10 minutes	1	1.4
	10-30 minutes	23	33.3
	30-60 minutes	19	27.5
	>1 hour	17	24.6
Plan to return to work or study within 12 months (Q8)	Yes	60	87.0

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Table S1. (continued)

	No	1	1.4
	Uncertain	2	2.9
	Already returned	6	8.7
Infant concerns requiring additional attention (Q9)	None	18	26.1
	Some	38	55.1
	Fairly evident	7	10.1
	Very evident	6	8.7
Current work or study status (Q11)	On maternity or study leave	21	30.4
	Returned to work or study	14	20.3
	Preparing to return	27	39.1
	No clear current plan	3	4.3
	Freelance or flexible work	4	5.8

Note. Values are n (%). Percentages use the 69 retained questionnaires and may not total 100.0% because of rounding. Each displayed variable had complete data. Q10 is omitted because it records sensitive prior mental-health history.

Table S2. Means and descriptive bootstrap 95% intervals by reported average continuous sleep per night

Q6 category	n	Parenting worry	Emotional burden	Self-sacrifice
>5 hours	9	3.00 [2.17, 3.78]	2.15 [1.33, 2.93]	3.22 [2.00, 4.22]
4–5 hours	14	3.05 [2.48, 3.55]	2.64 [2.02, 3.26]	3.21 [2.50, 3.86]
3–4 hours	22	3.39 [2.84, 3.86]	3.00 [2.44, 3.55]	3.82 [3.27, 4.32]
<2 hours	3	4.08 [3.75, 4.75]	3.89 [3.67, 4.00]	4.33 [4.00, 5.00]
2–3 hours	21	3.37 [3.00, 3.71]	2.89 [2.33, 3.40]	3.86 [3.33, 4.33]

Table S3. Directly selected support needs by postpartum stage, n (% of valid responses)

Need (Q28 item)	3–12 weeks (n = 19)	3–6 months (n = 20)	>6 months (n = 30)
Sleep (Q28_1)	13 (68.4%)	16 (80.0%)	22 (73.3%)
Emotional outlet (Q28_2)	12 (63.2%)	12 (60.0%)	22 (73.3%)
Parenting support (Q28_3)	6 (31.6%)	10 (50.0%)	16 (53.3%)
Physical recovery (Q28_4)	17 (89.5%)	15 (75.0%)	22 (73.3%)
Return preparation (Q28_5)	19 (100.0%)	19 (95.0%)	26 (86.7%)
Family communication (Q28_6)	7 (36.8%)	6 (30.0%)	9 (30.0%)