

Mental Workload and Burnout Among Midwives at Primary Healthcare Centers in Muna and West Muna Districts

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ABSTRACT

Midwives at primary healthcare centers face substantial cognitive and organizational demands that may contribute to burnout; evidence from Muna and West Muna Districts is limited. Objective: To examine the association between mental workload and burnout and to assess demographic factors associated with burnout among midwives at primary healthcare centers. A quantitative analytic cross-sectional study was conducted among 100 actively practicing midwives selected by total sampling from ten primary healthcare centers in Muna and West Muna Districts (March–May 2026). Mental workload was assessed using a context-adapted NASA-TLX (Cronbach's $\alpha = 0.87$), and burnout using a context-adapted MBI-HSS ($\alpha = 0.89$). Spearman correlation and simple and multiple linear regression were performed. Mental workload averaged 20.32 ± 2.84 ; according to the study's categorical thresholds, 31% of midwives had high mental workload, 38% moderate, and 31% low workload. Burnout averaged 21.99 ± 3.82 , with 27% classified as high burnout, 29% moderate, and 44% low. Mental workload was strongly associated with burnout ($r = 0.897$, $p < 0.001$; $R^2 = 0.805$) and remained the strongest predictor in the adjusted model ($B = 1.242$, $p < 0.001$). Permanent employment status was associated with lower burnout ($B = -1.084$, $p = 0.002$). Higher mental workload was strongly associated with greater burnout. Public Health Center-level interventions should prioritize workload redistribution, administrative support, staffing review, and structured burnout prevention.

Keywords : Burnout Syndrome, MBI-HSS, Mental Workload, Midwives, NASA-TLX, Primary Healthcare Center

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INTRODUCTION

Midwifery services are a primary pillar in Indonesia's efforts to reduce maternal and neonatal mortality. Midwives at primary healthcare centers (Public Health Center) serve as the frontline providers of antenatal, intrapartum, postnatal, and family planning services. High occupational demands, however, are frequently mismatched with available resources, generating considerable mental workload.

Mental workload is defined as the gap between the cognitive demands imposed by an organization and a worker's maximum cognitive capacity (Hart & Staveland, 1988). In the midwifery profession, this gap arises from high patient volume, complex administrative requirements, 24-hour duty rosters, and simultaneous moral responsibility for the safety of both mother and neonate (Utama, 2025). These pressures are compounded by post-pandemic occupational dynamics and the adaptation demands of digital reporting systems (Islamiyah et al., 2023). The World Health Organization has confirmed a global deficit in the midwifery workforce that forces remaining midwives to carry workloads exceeding their normal capacity (UNFPA, 2021), further amplifying individual burden.

According to Provinsi Sulawesi Tenggara Dalam Angka 2024 (BPS, based on data from the Southeast Sulawesi Provincial Health Office), the number of midwifery personnel in 2023 was 960 in Muna District and 323 in West Muna District, totaling 1,283 midwives across the two districts. Despite this absolute number, the distribution and workload of midwives at the Public Health Center level remain uneven, and official data on the number of midwives required according to current service-volume standards were not available for direct gap calculation. This workforce context underscores the relevance of examining mental workload and burnout among practicing Public Health Center midwives.

When mental workload persists without adequate management, midwives are vulnerable to burnout syndrome, a psychological state of physical, mental, and emotional exhaustion resulting from prolonged, unresolved occupational stress (Maslach & Jackson, 1981). Burnout manifests across three dimensions: emotional exhaustion, depersonalization, and reduced personal accomplishment. It is particularly prevalent in human-services professions, including midwifery, where practitioners work with constrained resources (Alemu et al., 2024; Suleiman-Martos et al., 2020). When midwives experience burnout, consequences include declining quality of clinical care, increased risk of procedural errors, and diminished empathy toward patients, thus threatening maternal and neonatal safety (Girleanu, 2024; Kurniawati et al., 2023).

The relationship between workload and burnout is theoretically grounded in the Job Demands-Resources (JD-R) model, which posits that high job demands without adequate resources consistently generate work exhaustion (Daneshvar & Otterbach, 2025). Multiple empirical studies in Indonesia have confirmed this association among healthcare workers (Mardhiyah et al., 2026; Noviani et al., 2024; Yuniar, 2025). Employment status also moderates burnout: contract (honorar) midwives demonstrate higher burnout than permanent (PNS/PPPK) counterparts owing to career uncertainty and limited welfare guarantees (Dari et al., 2025; Syahputra et al., 2024).

Although the workload–burnout relationship has been examined broadly among healthcare workers, evidence specifically addressing mental workload measured with NASA-TLX among midwives at Public Health Center in Muna and West Muna Districts remains scarce. This study therefore aimed to examine the association between mental workload and burnout among Public Health Center midwives and to determine whether age, work experience, and employment status were associated with burnout.

METHOD

This quantitative analytic study used a cross-sectional design. Mental workload and burnout were assessed during the same study period. The study setting comprised registered primary healthcare centers (Public Health Center) in Muna and West Muna Districts, Southeast Sulawesi, Indonesia. Based on 2024 administrative health-facility statistics, Muna Regency had 34 registered Public Health Center and Muna Barat had 16, giving 50 Public Health Center across the two districts. The present analysis included 100 actively practicing midwives from

ten participating Public Health Center who met the eligibility criteria.

The target population comprised actively practicing midwives assigned to Public Health Center in Muna and West Muna Districts. Total sampling (census sampling) was applied to the accessible eligible population, yielding $n = 100$ respondents. Eligible participants had been assigned to a Public Health Center for at least three months and provided informed consent. Midwives on leave or enrolled in further education during data collection were excluded. Participants included both permanent public employees (PNS/PPPK) and non-permanent/contract personnel (Honorar), allowing employment status to be examined as a covariate. Participating Public Health Center in Muna District were Katobu, Sugi Laende, Batalaiworu, Tampo, and Watopute; those in West Muna District were Maginti, Lawa, Sawerigadi, Barangka, and Kusambi.

Mental workload was assessed with a context-adapted NASA-Task Load Index (NASA-TLX) scale (Hart & Staveland, 1988). The adaptation was performed to improve contextual relevance to Public Health Center midwifery work: the original six NASA-TLX dimensions (mental demand, physical demand, temporal demand, performance, effort, and frustration) were retained, while item wording was contextualized to routine midwifery activities, patient volume, emergency duties, administrative reporting, and time pressure. The adapted items were reviewed for content relevance before pilot testing. A pilot test involving 30 respondents was used to examine item validity; item-total Pearson correlations ranged from $r = 0.42$ to 0.79 , exceeding the stated critical value of 0.361 . Internal consistency was acceptable (Cronbach's $\alpha = 0.87$). The scoring procedure was standardized across respondents, with a maximum total score of 25. Categorical interpretation followed the thresholds presented in Table 3.

Burnout was assessed using a context-adapted Maslach Burnout Inventory-Human Services Survey (MBI-HSS) (Maslach & Jackson, 1981). The adaptation preserved the conceptual domains of emotional exhaustion, depersonalization/cynicism, and reduced personal accomplishment, while selected item wording was contextualized to midwifery work in Public Health Center, including administrative-clinical demands and pre-shift fatigue. The adapted items underwent content review and pilot testing before field administration. Item-total Pearson correlations ranged from $r = 0.38$ to 0.81 , and internal consistency was high (Cronbach's $\alpha = 0.89$). Because the instrument was adapted for this study, the reported dimension labels in Table 4 represent the study's contextualized item groupings rather than an unmodified proprietary MBI-HSS scoring structure. The maximum total score was 30, and categorical interpretation followed Table 5.

Data were collected after institutional ethics approval and written permission from the Muna and West Muna District Health Offices. Questionnaires were administered digitally through Google Forms after electronic informed consent. The survey link was distributed through Indonesian Midwives Association (IBI) WhatsApp coordination groups and monitored until all 100 eligible responses were obtained. Fieldwork was conducted from March to May 2026.

Data were analyzed using SPSS version 26. Univariate analysis described the frequency distribution of demographic characteristics, mental workload levels, and burnout levels. Bivariate analysis used Spearman rank correlation (ordinal data; significance level $p < 0.05$). Simple linear regression estimated the magnitude of the effect of mental workload on burnout, followed by multiple linear regression to control for demographic covariates. Regression assumptions (residual normality via Shapiro-Wilk, linearity, and homoscedasticity via Breusch-Pagan test) were verified before model interpretation. All procedures conformed to institutional ethical standards.

RESULTS

A total of 100 midwives from ten participating Public Health Center in Muna and West Muna Districts were included. Participants comprised 55 permanent PNS/PPPK midwives and 45 contract/honorer midwives. The majority of respondents were under 30 years of age (46%), followed by 30–40 years (36%); 41% had fewer than five years of work experience. The participating centers in Muna District were Katobu, Sugi Laende, Batalaiworu, Tampo, and Watopute; those in West Muna District were Maginti, Lawa, Sawerigadi, Barangka, and Kusambi. Full demographic characteristics are presented in Table 1.

Table. 1 Respondent Characteristics (N = 100)

Characteristic	Category	n	Percentage (%)
Age	< 30 years	46	46.0
	30–40 years	36	36.0
	> 40 years	18	18.0
Work Experience	< 5 years	41	41.0
	5–10 years	35	35.0
	> 10 years	24	24.0
Employment Status	Permanent (PNS/PPPK)	55	55.0
	Contract (Honorer/TKS)	45	45.0
District / Public Health Center	Muna: Katobu, Sugi Laende, Batalaiworu, Tampo, Watopute	—	—
	West Muna: Maginti, Lawa, Sawerigadi, Barangka, Kusambi	—	—
Total (10 Public Health Center)		100	100.0

Source: Primary data, 2026.

The total mental workload score ranged from 15 to 25, with a mean of 20.32 ± 2.84 . According to the categorical thresholds in Table 3, 31% of midwives were classified as having high mental workload, 38% moderate workload, and 31% low workload. Effort (4.40 ± 0.58) and Temporal Demand (4.15 ± 0.65) were the highest-scoring dimensions, indicating that time pressure and sustained effort were prominent components of perceived workload (Table 2). Overall, 31% of midwives were classified in the high mental workload category (Table 3).

Table.2 Descriptive Statistics of Mental Workload Dimensions (NASA-TLX)

NASA-TLX Dimension	Mean	SD
Mental Demand	3.99	0.71
Physical Demand	3.82	0.68
Temporal Demand	4.15	0.65
Performance	4.00	0.63
Effort	4.40	0.58
Frustration	3.78	0.74
Total Score (max. 25)	20.32	2.84

Source: Primary data, 2026

Table. 3 Frequency Distribution of Mental Workload Categories (N = 100)

Category	n	Percentage (%)
Low (≤ 18)	31	31.0
Moderate (19–22)	38	38.0
High (≥ 23)	31	31.0
Total	100	100.0

Source: Primary data, 2026.

The total burnout score ranged from 15 to 29, with a mean of 21.99 ± 3.82 . According to Table 5, 27% of midwives were classified as having high burnout, 29% moderate burnout, and 44% low burnout. The highest-scoring contextualized dimensions were Administrative Stress (4.27 ± 0.69) and Emotional Exhaustion (4.12 ± 0.77) (Table 4). These findings indicate that administrative-clinical demands and emotional exhaustion were prominent components of the adapted burnout measure.

Table .4 Descriptive Statistics of Burnout Dimensions (MBI-HSS)

MBI-HSS Dimension	Mean	SD
Emotional Exhaustion	4.12	0.77
Administrative Stress	4.27	0.69
Pre-shift Fatigue	3.50	0.81
Reduced Personal Accomplishment	3.72	0.79
Cynicism/Diminished Empathy	3.07	0.88
Emotional Concern	3.31	0.85
Total Score (max. 30)	21.99	3.82

Source: Primary data, 2026.

Table. 5 Frequency Distribution of Burnout Categories (N = 100)

Category	n	Percentage (%)
Low (≤ 20)	44	44.0
Moderate (21–25)	29	29.0
High (≥ 26)	27	27.0
Total	100	100.0

Source: Primary data, 2026.

Prior to regression analysis, all model assumptions were verified. The Shapiro-Wilk test confirmed normality of residuals ($W = 0.986$; $p = 0.348$). The Pearson correlation ($r = 0.897$) confirmed a linear relationship. The Breusch-Pagan test indicated homoscedasticity ($p = 0.333$). All assumptions were met, supporting valid interpretation of the regression models.

Simple linear regression yielded the equation: $\text{Burnout} = -2.583 + 1.209 \times \text{Mental_Workload}$. The coefficient of determination ($R^2 = 0.805$) indicates that mental workload explains 80.5% of the variance in burnout (Table 6).

Table.6 Simple Linear Regression Results

Variable	B	Std. Error	t	p-value	Note
Constant	-2.583	1.232	-2.097	0.039	Significant
Mental Workload	1.209	0.060	20.137	< 0.001	Highly

$r = 0.897$ | $R^2 = 0.805$ | $\text{Adjusted } R^2 = 0.803$ | $F = 405.5$ | $p < 0.001$

Multiple linear regression yielded the model: $\text{Burnout} = -3.831 + 1.242 \times \text{Mental_Workload} + 0.344 \times \text{Age} + 0.300 \times \text{Work_Experience} - 1.084 \times \text{PNS_Status}$. This model explains 82.9% of the variance in burnout ($R^2 = 0.829$), as detailed in Table 7.

Table 7. Multiple Linear Regression Results

Variable	B	Std. Error	t	p-value	Note
Constant	-3.831	1.382	-2.771	0.007	Significant
Mental Workload	1.242	0.059	21.176	< 0.001	Highly Significant
Age	0.344	0.230	1.500	0.137	Not Significant
Work Experience	0.300	0.208	1.443	0.152	Not Significant
PNS/PPPK Status	-1.084	0.335	-3.232	0.002	Significant

$R^2 = 0.829$ | $\text{Adjusted } R^2 = 0.822$ | $F = 115.3$ | $p < 0.001$

DISCUSSION

Mental workload was distributed across low (31%), moderate (38%), and high (31%) categories, with a mean score of 20.32 ± 2.84 . Effort and Temporal Demand were the most prominent dimensions. This pattern is consistent with evidence that Public Health Center midwives may experience substantial time pressure when patient volume, emergency responsibilities, and administrative requirements compete for limited working time (Jeniawaty et al., 2020). The finding should not be interpreted as evidence that all midwives have uniformly high workload; rather, the distribution indicates meaningful heterogeneity within the workforce. This distinction is important for management because workload redistribution should be based on service volume and task composition at individual Public Health Center rather than applied uniformly.

The result is consistent with Indonesian and international evidence linking excessive workload, limited organizational support, and occupational stress with burnout among healthcare professionals and midwives (Islamiyah et al., 2023; Amiri et al., 2024; Matthews et al., 2024; Paul et al., 2022; Taureng et al., 2024). Comparable patterns of administrative overload contributing to emotional exhaustion have also been reported among nurses and midwives (Faizah et al., 2023; Li et al., 2025).

According to Southeast Sulawesi Province in Figures 2024 (BPS, sourced from the Southeast Sulawesi Provincial Health Office), there were 960 midwifery personnel in Muna District and 323 in West Muna District in 2023 (total 1,283). While this absolute number provides important workforce context, official data on the number of midwives required at the Public Health Center level according to current service-volume or workload standards were not available. Consequently, a precise numerical gap between the existing workforce and the ideal staffing level could not be calculated. Nevertheless, the substantial absolute numbers combined with the high proportions of elevated mental workload and burnout observed in this sample suggest that distribution, task composition, and organizational support—rather than absolute headcount alone—are critical factors for future staffing reviews.

The magnitude of the association is higher than some previously reported estimates in broader healthcare samples (e.g., Mohd Balwi et al., 2021), which may partly reflect the relatively homogeneous occupational context of Public Health Center midwives. A recent meta-analysis further demonstrated that nurse burnout is consistently associated with poorer patient safety and quality of care (Li et al., 2024), reinforcing the importance of organizational strategies aimed at reducing excessive workload. Dual-role conflict and excessive workload have also been identified as primary predictors of fatigue among contract midwives in Indonesian primary care settings (Pradidta et al., 2025).

Permanent employment status was associated with lower burnout in the adjusted model ($B = -1.084$, $p = 0.002$), whereas age and work experience were not statistically significant. This finding is compatible with the JD-R framework because employment security may function as an organizational resource, potentially reducing uncertainty and improving access to institutional benefits and support. However, the study did not directly measure job insecurity, income adequacy, supervisory support, or organizational justice; therefore, the employment-status coefficient should not be interpreted as a definitive mechanism. The practical implication is that Public Health Center and district health authorities should examine whether contract status is accompanied by differences in workload allocation, scheduling, welfare protection, and access to support.

The findings have direct implications for Public Health Center management. First, workload assessment should be conducted periodically using service volume, duty rosters, administrative tasks, and mental-workload indicators rather than relying only on staff perceptions. Second, high-demand tasks should be redistributed where feasible, particularly

non-clinical reporting and administrative work that can be delegated to appropriate personnel. Third, staffing reviews should compare the number and composition of active midwives with service demand and the staffing requirements specified by applicable workforce standards, taking into account the 2023 midwifery workforce figures for the two districts. Fourth, Public Health Center should establish structured burnout prevention pathways, including supervisory check-ins, protected recovery time after demanding shifts, referral mechanisms for psychological support, and monitoring of workload hotspots. These measures operationalize the JD-R principle by reducing excessive job demands while strengthening available organizational resources.

Several limitations warrant consideration. First, the cross-sectional design precludes causal inference. Second, both main variables were self-reported, creating potential common-method and social-desirability bias. Third, although the ten participating Public Health Center (Katobu, Sugi Laende, Batalaiworu, Tampo, and Watopute in Muna; Maginti, Lawa, Sawerigadi, Barangka, and Kusambi in West Muna) are reported, workload and staffing may still vary between centers; center-level service-volume data were not available for multilevel analysis. Fourth, official data on the number of midwives required according to workload standards were not available, so a precise staffing gap could not be quantified. Fifth, social support, job satisfaction, organizational climate, and job insecurity were not directly measured, leaving potential residual confounding. Finally, the findings are most directly applicable to midwives Public Health Center in Muna and West Muna and should not be generalized to hospital-based or urban midwifery settings without further evidence.

CONCLUSION

Mental workload showed a mean score of 20.32 ± 2.84 , with 31% of midwives classified in the high category, 38% in the moderate category, and 31% in the low category. Effort and Temporal Demand were the dominant workload dimensions. Burnout averaged 21.99 ± 3.82 , with 27% classified as high, 29% moderate, and 44% low; Administrative Stress and Emotional Exhaustion were the most prominent contextualized dimensions. Mental workload was strongly associated with burnout ($r = 0.897$, $p < 0.001$; $R^2 = 0.805$) and remained the strongest predictor in the adjusted model ($B = 1.242$, $p < 0.001$), while PNS/PPPK status was associated with lower burnout ($B = -1.084$, $p = 0.002$). Against the backdrop of 1,283 midwifery personnel recorded in the two districts in 2023, Public Health Center managers and district health authorities should prioritize workload redistribution, administrative support, staffing review, and structured burnout-prevention programs.

Future studies should use longitudinal or multilevel designs, incorporate center-level staffing and service-volume indicators together with official required-staffing figures, and assess organizational resources such as social support, job insecurity, supervisory support, and job satisfaction.

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