

Original Research Article

Workload and Burnout among Nursing Staff in Intensive Care Units of Hospitals in Conakry

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Abstract: Objective: To describe the workload and burnout among intensive care nurses in hospitals in Conakry. **Methods:** This was a descriptive, multicenter, cross-sectional study conducted from November 1, 2025, to January 31, 2026, in the Anesthesia and Intensive Care Units of Donka University Hospital, Ignace-Deen University Hospital, and the Sino-Guinean Hospital. Nurses working in intensive care for at least six months, present during data collection, and who provided informed consent were included. **Results:** The study included 92 nurses, most of whom were under 30 years of age, with a mean age of 32.3 ± 6.8 years and a female predominance (sex ratio: 0.38). State-registered nurses (IDE) accounted for 91% of participants, while State-registered nurse anesthetists (IADE) accounted for 9%. A weekly working time exceeding 48 hours was reported by 66.3% of participants, and 76.1% considered staffing levels insufficient. Perceived workload was high among 77.2% of nurses. Hierarchical support was considered moderate or insufficient by 93.5% of participants. Job satisfaction was low among 60.9%, while 56.5% considered leaving the intensive care unit. An impact of work on mental health was reported by 95.7% of nurses. Burnout was present in 46.7% of participants, with high emotional exhaustion in 30.54%, high depersonalization in 26.78%, and low personal accomplishment in 24.69%. The overall NASA-TLX score was 15.95 ± 1.97 . **Conclusion:** Workload and burnout are substantial among intensive care nurses in Conakry, highlighting the need to improve staffing levels, working conditions, and professional support.

Keywords: Burnout, Workload, Nurses, Intensive Care, Conakry.

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INTRODUCTION

Burnout, or occupational burnout syndrome, is a state of psychological distress related to chronic work-related stress and characterized by emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach & Jackson, 1981). It particularly affects professions exposed to high emotional demands, including nursing. Workload refers to the combination of physical, cognitive, organizational, and emotional demands that may exceed an individual's available resources (Carayon & Gürses, 2005). In intensive care units (ICUs), nurses work in a complex environment characterized by emergencies, critically ill patients, continuous monitoring, and the need for rapid decision-making.

Globally, burnout among healthcare professionals is a major public health concern. Studies have reported a high prevalence of burnout among healthcare workers, particularly among professionals

working in critical care settings (Moss *et al.*, 2016; Embriaco *et al.*, 2007). High levels of burnout have also been reported among nurses working in emergency departments and intensive care units (Gómez-Urquiza *et al.*, 2017; Lin *et al.*, 2025). This situation may have important consequences, including reduced quality of care, increased risk of errors, absenteeism, and staff turnover (Tawfik *et al.*, 2019; Hall *et al.*, 2016).

Burnout results from the interaction of organizational, emotional, and individual factors and may adversely affect both healthcare workers' well-being and patient safety (Friganović *et al.*, 2019; Tawfik *et al.*, 2019). In Africa, studies have reported concerning levels of burnout among nurses, including in sub-Saharan Africa (Owuor *et al.*, 2020; Gundo *et al.*, 2024). In Guinea, despite substantial resource constraints, data on burnout among ICU nurses remain limited. This lack of information may hinder the development of appropriate prevention and intervention strategies. The objective of this study was to describe workload and burnout among

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nursing staff working in intensive care units in hospitals in Conakry.

METHODS

This was a descriptive, multicenter, cross-sectional study conducted in the Anesthesia and Intensive Care Units of Donka National Hospital, Ignace Deen National Hospital, and the Sino-Guinean Hospital over a three-month period, from November 1, 2025, to January 31, 2026.

Nurses who were qualified nursing professionals working in the intensive care units of Donka, Ignace Deen, or the Sino-Guinean Hospital were included if they had at least six months of professional experience in the unit, were present during data collection, and provided informed consent to participate.

The variables analyzed included sociodemographic and professional characteristics (age, sex, length of professional experience, and qualification), organizational and workload-related variables (working hours, shifts, staffing levels, nurse-to-patient ratio, and working conditions), workload variables assessed using the NASA Task Load Index (NASA-TLX), including mental demand, physical demand, temporal demand, performance, effort, and frustration, as well as psychological variables related to burnout, namely emotional exhaustion, depersonalization, and reduced personal accomplishment.

Data were analyzed using R version 4.4.1, Epi Info, or SPSS, while Microsoft Office 2021 (Word and Excel) was used to design tables and figures. Quantitative variables were described using means and standard deviations, whereas qualitative variables were expressed as frequencies and percentages. The prevalence of burnout and its individual dimensions was calculated.

RESULTS

A total of 92 nurses working in the intensive care units of three referral hospitals in Conakry were included: Donka University Hospital, Ignace Deen University Hospital, and Sino-Guinean Hospital.

The nurses working in intensive care were predominantly young, with a predominance of those aged under 30 years. The mean age was 32.3 ± 8.3 years, with ages ranging from 25 to 55 years. The sex ratio was 0.38, indicating a predominance of female participants.

Regarding professional qualifications, 91% of participants were state-registered nurses (IDE), whereas 9% were state-registered nurse anesthetists (IADE). Most nurses had between 2 and 10 years of professional experience (Table I).

The majority of nurses (66.3%) worked more than 48 hours per week. A further 32.6% worked between 40 and 48 hours per week, while 1.1% worked fewer than 40 hours per week.

A large proportion of nurses (76.1%) considered staffing levels insufficient, whereas 23.9% considered them sufficient. Perceived workload was high among 77.2% of nurses, while 22.8% considered it moderate.

The availability of care equipment was considered intermittent by 76.1% of nurses, rare by 9.8%, and consistently available by 14.1%. Hierarchical support was considered moderate by 53.3% of nurses, insufficient by 40.2%, and satisfactory by 6.5%.

Relationships with medical staff were considered acceptable by 68.5% of nurses, very good by 15.2%, and conflictual by 16.3%. Professional satisfaction was low among 60.9% of nurses, satisfactory among 34.8%, and unsatisfactory among 4.3%.

The intention to leave the intensive care unit was reported by 56.5% of nurses, while 43.5% had no such intention. An impact of work on mental health was perceived by 95.7% of nurses, whereas 4.3% reported no perceived impact.

Burnout was absent in 53.3% of nurses and present in 46.7%. High emotional exhaustion (≥ 15) was observed in 28 nurses (30.5%), high depersonalization (≥ 10) in 25 nurses (26.8%), and low personal accomplishment (≤ 20) in 23 nurses (24.7%). Burnout meeting all three criteria was observed in 17 nurses (18.0%).

The overall mean NASA-TLX score was 15.95 ± 1.97 , with values ranging from 10.00 to 19.17.

Mental demand and effort had the highest mean scores (16.96 ± 3.23 and 16.96 ± 3.05 , respectively), followed by physical demand (16.81 ± 3.12) and temporal demand (16.09 ± 3.84). Frustration had a mean score of 15.49 ± 4.26 , whereas performance had the lowest mean score (13.37 ± 3.93), with scores ranging from 5.00 to 20.00 across the different dimensions (Table II).

Table I: Sociodemographic characteristics of participants

Characteristic	n	%
Sex		
Masculine	26	28
Feminine	66	72
Mean age	32,3 ans $\pm$ 8,3 ans	
Professional qualification		
IDE	84	91
IADE	8	9
Length of professional experience		
< 2 years	7	7,6
2 – 5 years	43	46,7
6-10 years	33	35,9
>10 years	9	9,8

Table II: Perceived workload scores assessed using the NASA-TLX

Dimension	Mean $\pm$ SD	Min – Max
Overall NASA-TLX	15.95 $\pm$ 1.97	10.00 – 19.17
Mental demand	16.96 $\pm$ 3.23	10.00 – 20.00
Physical demand	16.81 $\pm$ 3.12	10.00 – 20.00
Temporal demand	16.09 $\pm$ 3.84	5.00 – 20.00
Performance	13.37 $\pm$ 3.93	5.00 – 20.00
Effort	16.96 $\pm$ 3.05	10.00 – 20.00
Frustration	15.49 $\pm$ 4.26	0.00 – 20.00

Table III: Prevalence of burnout among ICU nurses in hospitals in Conakry

Burnout	n	%
Absent	49	53.3
Present	43	46.7
Total	92	100.0

DISCUSSION

This descriptive, multicenter, cross-sectional study included 92 nurses working in the intensive care units of Donka University Hospital, Ignace Deen University Hospital, and Sino-Guinean Hospital in Conakry. Its objective was to describe workload and burnout among ICU nurses.

The study population was relatively young, with 47.8% of participants aged under 30 years and relatively limited professional experience, with nearly half having between 2 and 5 years of experience. This predominance of younger nurses has also been reported in several studies investigating burnout among nursing professionals. Moya-Salazar *et al.*, (2023) reported a substantial frequency of burnout among young nurses, particularly in highly demanding care settings. Similarly, Gómez-Urquiza *et al.*, (2017), in a meta-analysis focusing on emergency nurses, reported a high prevalence of burnout in this population. These findings are particularly relevant to intensive care settings, where nurses are exposed daily to complex clinical situations, continuous patient monitoring, and decisions requiring a high degree of responsiveness.

In the African context, available data also highlight the importance of burnout among nurses. Owuor *et al.*, (2020), in a systematic review of nurses in

sub-Saharan Africa, reported substantial levels of burnout in several countries in the region. Gundo *et al.*, (2024) also found moderate to high levels of burnout among nurses working in critical care units in Africa. In Mali, Kamissoko *et al.*, (2024) reported a notable frequency of burnout among healthcare workers working in emergency and intensive care settings. Thus, the findings of our study are consistent with a regional context in which critical care professionals are exposed to substantial professional demands.

Workload was another important characteristic of our study population. In our study, 76.1% of nurses considered staffing levels insufficient, while 77.2% reported a high workload. This perception was consistent with the assessment using the NASA-TLX, for which the overall mean score was 15.95 $\pm$ 1.97. Mental demand (16.96 $\pm$ 3.23), physical demand (16.81 $\pm$ 3.12), effort (16.96 $\pm$ 3.05), and temporal demand (16.09 $\pm$ 3.84) were among the highest-rated dimensions. These findings indicate a substantial workload, both subjectively perceived by professionals and assessed using a standardized instrument.

The NASA-TLX was developed by Hart and Staveland to measure subjective workload through several dimensions, including mental, physical, and temporal demands, as well as effort, performance, and

frustration (Hart & Staveland, 1988). Its usefulness in critical care settings lies in its ability to capture the complexity of nursing work beyond the simple number of patients cared for. The literature confirms the importance of this issue among ICU nurses. Bruyneel *et al.*, (2021) reported a high prevalence of burnout risk among ICU nurses and emphasized the importance of occupational constraints in these environments. Aiken *et al.*, (2002) also demonstrated the importance of nurse staffing levels and the work environment in hospitals.

Workload in intensive care is not limited to the quantity of care delivered. It also includes cognitive demands, time constraints, interruptions, patient complexity, and work organization. Carayon and Gürses (2005) proposed a conceptual framework incorporating human and organizational factors into the assessment of nursing workload in intensive care units. In our context, the findings can therefore be considered in relation to the organizational characteristics of the three hospitals studied.

The descriptive analysis by hospital showed that the NASA-TLX score was highest at Sino-Guinean Hospital (16.73 ± 1.48), followed by Donka University Hospital (15.83 ± 2.32) and Ignace Deen University Hospital (15.57 ± 1.77). At Sino-Guinean Hospital, the absence of nursing assistants means that nurses are required to perform, in addition to technical care, several hygiene, comfort, and patient-handling activities. This organization may contribute to the high physical and temporal workload observed in this hospital.

At Donka University Hospital, workload should be considered in the context of a referral center receiving patients with often complex clinical conditions requiring close monitoring. At Ignace Deen University Hospital, the level of workload also remained substantial, although the mean NASA-TLX score was slightly lower than those observed in the other two institutions.

However, these differences between hospitals should be interpreted cautiously. Since our study was descriptive and cross-sectional, it can describe observed variations but cannot establish that a particular organizational characteristic caused a higher workload. These results should therefore be viewed as a snapshot of working conditions among nurses in the three intensive care units.

Regarding burnout, the overall prevalence observed was 46.7%. Emotional exhaustion affected 30.5% of nurses, depersonalization 26.8%, and reduced personal accomplishment 24.7%. This frequency indicates a substantial burden of occupational burnout in the study population. Similar findings have been reported in various critical care settings. Embriaco *et al.*, (2007) demonstrated substantial exposure to burnout among critical care healthcare professionals. Van Mol *et al.*, (2015), in a systematic review of healthcare

professionals working in intensive care units, also reported considerable levels of burnout and compassion fatigue.

Burnout is traditionally described through three main dimensions: emotional exhaustion, depersonalization, and reduced personal accomplishment (Maslach & Jackson, 1981). In our study, emotional exhaustion was the most frequently observed dimension. This predominance may be related to the characteristics of intensive care work, which involve repeated exposure to suffering, severe illness, and death. However, this interpretation should remain cautious because our study cannot establish a causal relationship between working conditions and each individual dimension of burnout.

The prevalence observed in our study can also be compared with African data. Owuor *et al.*, (2020) reported a substantial prevalence of burnout among nurses in sub-Saharan Africa, while Gundo *et al.*, (2024) emphasized the importance of the phenomenon among nurses working in African critical care units. Differences in prevalence between studies should nevertheless be interpreted in light of differences in study populations, assessment instruments, diagnostic thresholds, and professional contexts.

In our study, burnout prevalence also varied according to the hospital of employment. It was highest at Sino-Guinean Hospital, intermediate at Ignace Deen University Hospital, and lowest at Donka University Hospital. This finding may reflect differences in professional contexts between institutions, but it cannot, by itself, identify the reasons for these variations. Further analytical studies are therefore needed to investigate the factors potentially associated with these differences.

Professional satisfaction was also an important dimension of nurses' professional experience. A substantial proportion of participants reported low or unsatisfactory job satisfaction. The literature highlights the importance of working conditions, professional relationships, and the organizational environment in nurses' job satisfaction. McVicar (2016) demonstrated that several characteristics of the work environment are closely associated with occupational stress and job satisfaction among nurses. In our study, however, this observation should be considered a descriptive characteristic of professional experience rather than evidence of a causal relationship with burnout.

Finally, the intention to leave the intensive care unit or the nursing profession was frequently reported by participants. This finding represents an important aspect of professional experience in the studied units. Nurse turnover is a widely described problem resulting from multiple professional and organizational factors (Hayes *et al.*, 2012). Burnout has also been associated in several studies with reduced professional engagement and an

intention to leave the profession (Lee & Ashforth, 1996). In our study, the intention to leave can therefore be considered an additional descriptive indicator of the professional context experienced by ICU nurses.

Overall, these findings highlight a professional environment characterized by a relatively young nursing workforce, substantial workload, and a high prevalence of burnout. The predominance of mental, physical, and temporal demands reflects the complexity of work performed in intensive care units. Low job satisfaction and the frequently expressed intention to leave the service are also important indicators of the professional experience of these nurses.

Several limitations should nevertheless be considered when interpreting these findings. First, the cross-sectional design does not allow changes in workload or burnout over time to be assessed. Second, some data were self-reported and may therefore have been influenced by participants' individual perceptions of their working conditions. Finally, the relatively small sample size and limited number of hospitals included may restrict the generalizability of the findings to all ICU nurses in Conakry.

CONCLUSION

This study demonstrated a substantial workload and a high prevalence of burnout among ICU nurses in Conakry. The nursing workforce was relatively young, with emotional exhaustion representing the most prominent burnout dimension. Low professional satisfaction and a frequent intention to leave the intensive care unit were also observed. These findings highlight the need to improve staffing levels, working conditions, organizational support, and measures aimed at preventing burnout among ICU nurses.

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