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PHYSICIAN BURNOUT: PREDICTORS AND MECHANISMS OF DEVELOPMENT

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Abstract: Physician burnout is a critical issue in healthcare, reducing care quality and system efficiency. This study examines predictors and mechanisms of burnout among surgeons and anesthesiologists, general practitioners, and early-career physicians. Results reveal distinct predominant mechanisms: emotional exhaustion among hospital-based physicians, depersonalization among general practitioners, and reduced personal accomplishment among early-career doctors. These findings underscore the need for tailored preventive strategies that address the specific professional risk profiles of each group.

Keywords: physician burnout, predictors, emotional exhaustion, depersonalization, reduced personal accomplishment.

1. INTRODUCTION

Physician burnout represents one of the key factors undermining the effectiveness of medical practice and the sustainability of healthcare systems. Operating under conditions of continuous patient contact, high professional responsibility, and resource scarcity, physicians are exposed to chronic stress that progressively transforms into burnout syndrome. In the context of ongoing healthcare reforms, growing patient loads, and increasing administrative burdens, burnout has emerged as a matter of particular urgency—one that extends beyond individual professional hardship to constitute a systemic threat to the entire healthcare infrastructure.

Burnout is conceptualized as a multilevel process encompassing three core dimensions: (1) emotional exhaustion, characterized by the depletion of emotional resources and diminished work satisfaction; (2) depersonalization, defined as the development of emotional distance and reduced empathy toward patients; and (3) reduced personal accomplishment, involving the erosion of perceived competence and professional self-efficacy.

Kovaleva and Nikolaeva (2025) investigated methods for preventing burnout among healthcare workers exhibiting elevated professional stress indicators. The authors advocate for the implementation of psychological support programs and stress management training as effective preventive interventions [1].

Despite an extensive body of research on this topic, the complex interplay of predictors and developmental mechanisms underlying burnout within the medical professional context remains insufficiently understood. The majority of existing studies focus on isolated risk factors or provide only broad phenomenological descriptions, thereby limiting the practical applicability of their findings.

Emerging neurological evidence confirms that burnout is not exclusively a psychological phenomenon but also a neurological process affecting cognitive functioning, neurophysiology, and neurochemistry of the brain.

The scientific novelty of the present study lies in the systematic analysis of burnout predictors and the elucidation of its developmental mechanisms across three distinct physician categories: hospital-based surgeons and anesthesiologists, outpatient general practitioners, and early-career physicians. This approach enables not only the identification of shared patterns but also the characterization of group-specific features.

The aim of this study was to identify the key predictors of physician burnout and to elucidate the mechanisms underlying its development.

2. MATERIALS AND METHODS

A total of 79 physicians participated in the study, distributed across three groups: (1) hospital-based surgeons and anesthesiologists (n = 26); (2) outpatient general practitioners/internists (n = 28); and (3) early-career physicians, including residents and practitioners with up to five years of experience (n = 25).

Inclusion criteria were: current active medical practice, written informed consent to participate, and absence of severe psychiatric conditions that could confound the results. Burnout was assessed using the Maslach Burnout Inventory (MBI), a validated psychometric tool widely employed in occupational health research.

3. RESULTS AND DISCUSSION

Analysis of burnout scores across the three physician groups revealed substantial differences in the structure and severity of the syndrome.

3.1. Surgeons and Anesthesiologists

The highest level of emotional exhaustion (mean score: 32.4) in this group reflects chronic overload associated with intensive surgical workloads, overnight duty shifts, and sustained engagement with critically ill patients. Depersonalization was present at a moderate level (mean score: 11.2), suggesting a tendency toward emotional distancing without reaching critical thresholds. Reduced personal accomplishment was relatively low (mean score: 9.8), which may be explained by the high professional competency and strong sense of occupational significance within this specialty. The predominant mechanism in this group is therefore emotional exhaustion, driven by cumulative physical and psychoemotional strain.

3.2. General Practitioners

Emotional exhaustion was moderate in this group (mean score: 27.1), attributable to high patient volume and administrative workload. The most pronounced dimension was depersonalization (mean score: 14.7), reflecting emotional detachment, diminished empathy, and reduced quality of physician-patient communication. Reduced personal accomplishment was at an intermediate level (mean score: 12.3), indicative of perceived insufficiency in professional effectiveness. The predominant mechanism in this group is depersonalization, driven by occupational monotony and constrained resources for patient care.

3.3. Early-Career Physicians

Emotional exhaustion was present at a mild level (mean score: 24.6), consistent with comparatively lower workloads relative to the other groups. Depersonalization was low (mean score: 8.9), reflecting high motivational engagement and a strong drive for professional self-actualization. The most elevated dimension was reduced personal accomplishment (mean score: 18.2), indicative of a professional identity crisis, self-doubt, and insufficient practical experience. The predominant mechanism in this group is reduced personal accomplishment, linked to anxiety and perceived low competence.

Table 1. Burnout Scores Across Three Physician Groups (Maslach Burnout Inventory)

Physician Group	Emotional Exhaustion (mean score)	Depersonalization (mean score)	Reduced Personal Accomplishment (mean score)	Predominant Mechanism
Surgeons & Anesthesiologists (n=26)	32.4 (high)	11.2 (moderate)	9.8 (low)	Chronic Exhaustion
General Practitioners (n=28)	27.1 (moderate)	14.7 (high)	12.3 (moderate)	Depersonalization
Early-Career Physicians (n=25)	24.6 (mild)	8.9 (low)	18.2 (high)	Reduced Accomplishment

3.4. Correlation Analysis

Correlation analysis identified significant associations between burnout dimensions and occupational factors (Table 2):

Emotional exhaustion and weekly working hours ($r = 0.62$; $p < 0.05$).

A direct positive relationship was observed between weekly working hours and emotional exhaustion levels. This association was most pronounced among surgeons and anesthesiologists, whose workloads routinely exceed normative standards.

Emotional exhaustion and night shift work ($r = 0.57$; $p < 0.05$).

Regular overnight shifts were found to exacerbate exhaustion by disrupting circadian rhythms and depleting physiological recovery resources, representing one of the key burnout predictors among hospital-based physicians.

Depersonalization and daily patient volume ($r = 0.54$; $p < 0.05$).

Increased daily patient volume was associated with the development of emotional distancing and reduced empathy. This relationship was most pronounced among general practitioners, who encounter high patient throughput on a daily basis.

Reduced personal accomplishment and years of experience ($r = -0.48$; $p < 0.05$).

An inverse relationship was identified between professional experience and the degree of reduced personal accomplishment. Early-career physicians more frequently reported feelings of insecurity and perceived incompetence, whereas experienced practitioners demonstrated greater professional confidence and resilience.

Table 2. Correlations Between Burnout Dimensions and Occupational Factors

Burnout Dimension	Associated Factor	Correlation Coefficient (r)	Nature of Relationship
Emotional Exhaustion	Weekly working hours	0.62	Positive, significant ($p < 0.05$)
Depersonalization	Daily patient volume	0.54	Positive, significant ($p < 0.05$)
Reduced Personal Accomplishment	Years of professional experience	−0.48	Negative, significant ($p < 0.05$)
Emotional Exhaustion	Night shift work	0.57	Positive, significant ($p < 0.05$)

Overall, burnout manifested differently across physician groups. Hospital-based physicians were predominantly affected by exhaustion, general practitioners by depersonalization, and early-career physicians by reduced personal accomplishment. These findings confirm the necessity of differentiated preventive programs tailored to the specific professional risk profiles of each group.

4. CONCLUSIONS

1. Physician burnout constitutes a systemic problem with far-reaching implications for the quality and efficiency of healthcare delivery.
2. Distinct predominant mechanisms were identified across groups: emotional exhaustion among surgeons and anesthesiologists, depersonalization among general practitioners, and reduced personal accomplishment among early-career physicians.
3. Correlation analysis confirmed significant associations between burnout and occupational factors, including workload intensity, night shift frequency, patient volume, and years of professional experience.

4. Effective prevention must integrate organizational interventions, psychological support structures, and individualized coping strategies tailored to each professional group.

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