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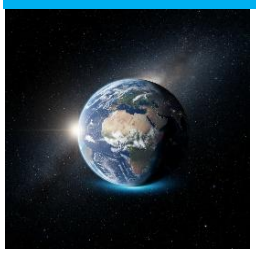

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Short Article

Burnout among medical students in Poland – a review article

Patryk Cegiełka[1], ORCID http://orcid.org/0009-0007-8311-3279
E-mail patryk.cegielka@onet.pl
[1]Centralny Szpital Kliniczny, Lodz, Poland

Adrian Pal[1], ORCID http://orcid.org/0009-0004-0518-3923
E-mail adrian.b.pal@gmail.com
[1]Centralny Szpital Kliniczny, Lodz, Poland

Krzysztof Cienkowski[1], ORCID https://orcid.org/0009-0006-3887-3511
E-mail k.cienkowski@outlook.com
[1]Centralny Szpital Kliniczny, Lodz, Poland

Małgorzata Katra[2], ORCID https://orcid.org/0009-0007-3772-3455
E-mail katramalgorzata@gmail.com
[2]Samodzielny Publiczny Zakład Opieki Zdrowotnej
Ministerstwa Spraw Wewnętrznych i Administracji w Krakowie, Cracow, Poland

Mikołaj Szczęsny[2], ORCID https://orcid.org/0009-0003-1010-9712
E-mail mikolaj.szczesny@poczta.fm
[2]Samodzielny Publiczny Zakład Opieki Zdrowotnej
Ministerstwa Spraw Wewnętrznych i Administracji w Krakowie, Cracow, Poland

Karolina Żeżawska[1], ORCID https://orcid.org/0009-0007-9563-5576
E-mail karolina250700@gmail.com
[1]Centralny Szpital Kliniczny, Lodz, Poland

Izabella Głowacka[3], ORCID https://orcid.org/0009-0006-3645-2684
E-mail iza.glowacka@icloud.com
[3]Faculty of medicine, Medical University of Lodz, Lodz, Poland

Marcin Ślot[4] , ORCID https://orcid.org/0009-0002-9947-9957

E-mail marcin.slot.poczta@gmail.com

[4]Maria Skłodowska-Curie Voivodeship Specialist Hospital in Zgierz, Zgierz, Poland

Aleksandra Adamczyk[5], ORCID https://orcid.org/0009-0007-8002-385X

E-mail oolaadamczyk@gmail.com

[5]Wojewódzkie Wielospecjalistyczne Centrum Onkologii i Traumatologii im. M. Kopernika w Łodzi, Lodz, Poland

Maria Sicińska[6], ORCID https://orcid.org/0009-0005-3768-8405

E-mail maria.sicinska@stud.umed.lodz.pl

[6]Uniwersytecki Szpital Kliniczny nr 1 im. N. Barlickiego w Łodzi, Lodz, Poland

Corresponding Author

Patryk Cegiełka, E-mail patryk.cegielka@onet.pl

Abstract

Burnout, defined in the ICD-11 classification as a response to chronic stress, is characterized by feelings of exhaustion, mental distancing from work, and a reduced sense of professional efficacy. This paper summarizes previous publications regarding the scale of this phenomenon, its symptoms, and coping strategies among medical students in Poland, compared with international data. The review indicates that the problem is global and increasing in magnitude— in Poland, up to 53% of students may exhibit symptoms of exhaustion, and 42% struggle with burnout, with higher rates observed among women and senior students. The article discusses the symptomatology of the syndrome, including somatic symptoms such as headaches and fatigue, as well as psychological manifestations, including cynicism, depersonalization, and impostor syndrome. Coping strategies are also presented, contrasting destructive methods (substance use, social isolation) with effective preventive techniques such as mindfulness training, cognitive reinterpretation of mistakes, and peer support.

Background

Occupational burnout, defined by the ICD-11 classification as a response to chronic stress, is affecting an increasing number of healthcare professionals. Data from Poland are particularly alarming, as the problem affects 70% of residents and 50% of physicians overall. Research indicates that deteriorating mental health and depressive symptoms are prevalent among future medical professionals, raising questions about the onset of burnout as early as the undergraduate medical education stage.

Aim

The aim of this study is to summarize available scientific publications regarding the scale of occupational burnout, its specific symptomatology, and implemented coping strategies among medical students in Poland, compared with international data.

Material and methods

This paper is a review based on the analysis of literature published within the last seven years. Ten original Polish studies were analyzed, alongside selected reports and meta-analyses from Europe (including Greece, Germany, Spain, the United Kingdom, and Portugal) and the United States. AI tools were utilized during the editorial process for linguistic pattern analysis and stylistic refinement of the manuscript.

Results

a) Scale of the phenomenon: In Poland, up to 53% of students exhibit symptoms of exhaustion, and 42% struggle with full-blown burnout; these rates are higher among women and students in senior years.

b) International comparison: The problem is global in nature—burnout affects 47.8% of students in Germany, nearly 85% in the United Kingdom report some degree of burnout, and in the US, these symptoms affect over 45% of young physicians and students.

c) **Polish specificity:** Students in Polish-language programs exhibit 15% higher stress levels than those in English Division programs. Critical periods include the third year of study (clinical transition) and the period immediately preceding entry into the labor market.

d) **Symptoms:** Dominant manifestations include emotional exhaustion, depersonalization (affecting nearly 40% of students in Poland), "imposter syndrome," apathy, and somatic complaints such as headaches and digital eye strain.

e) **Coping strategies:** Effective techniques include mindfulness training, sleep hygiene, peer support, and cognitive reappraisal of mistakes. Destructive methods, such as substance use or social isolation, further exacerbate the problem.

Conclusions

a) **Early Onset:** Burnout among medical professionals originates during undergraduate studies, reaching alarming levels with up to 53% of students exhibiting exhaustion and 42% suffering from full burnout.

b) **Critical Phases:** The third year (clinical transition) and the final year of study are the most high-risk periods for the development of the syndrome.

c) **Systemic Factors:** Higher stress levels in Polish-language programs compared to international ones suggest that curriculum overload and hierarchy are significant local risk factors.

d) **Psychological Impact:** Burnout manifests through emotional drainage, depersonalization, and "imposter syndrome," potentially leading to a long-term loss of empathy.

e) **Preventive Priority:** Effective intervention requires replacing destructive habits with systemic support focused on mindfulness, sleep hygiene, and peer-support networks.

Key words: medical students, stress, burnout

1. INTRODUCTION

Burnout is a serious problem affecting many employed individuals, including healthcare professionals. According to the ICD-11 classification, burnout is defined as a response to a stressful work environment that has not been successfully managed [1]. The definition highlights three dimensions: feelings of exhaustion or energy depletion, increased mental distance from work, and reduced professional efficacy [1].

A 2016 study conducted among medical residents in Portugal showed that 52% presented symptoms of burnout [2]. A more recent international study conducted in, among others, Germany and Switzerland demonstrated that 40% of primary care physicians experience burnout [3]. In Poland, 70% of residents and 50% of physicians overall are affected by burnout.

Given these alarming European data, including those from Poland, we decided to examine whether burnout may begin earlier—during medical studies. This direction seems justified, as recent research conducted by the Medical University of Silesia showed poor mental health among future physicians in Poland. Nearly half of respondents scored in the moderate depression range on the BDI scale, and 10% met criteria for severe depression [4]. Depression remains strongly associated with burnout, as does chronic stress. A report by SWPS University and the Ministry of Science indicates that 50% of medical students experience daily stress [5].

Figure 1. The figure presents the key features of burnout

2. METHODS

This review was conducted by analyzing scientific literature published between 2018 and 2025. The search was performed across electronic databases, including PubMed, Scopus, and Google Scholar, using keywords such as: "medical students", "burnout","Poland", and "medical education". The primary material for analysis consisted of ten original Polish studies and selected international reports and meta-analyses from Europe (Greece, Germany, Spain,UK, Portugal) and the USA. The selection criteria focused on original research involving medical students and describing the prevalence,symptoms, or coping mechanisms of burnout. AI tools were utilized during the editorial process for linguistic pattern analysis and stylistic refinement of the manuscript.

3. RESULTS

3.1. STATISTICAL DATA FROM EUROPE AND THE UNITED STATES

Burnout among medical students is not limited by geography. A 2025 study conducted at the Aristotle University of Thessaloniki found that 33.5% of over 400 medical students demonstrated high tendencies toward burnout, and over 10% suffered from full-blown burnout, particularly among fifth- and sixth-year students [6]. A Spanish study confirmed a linear increase in burnout prevalence in higher years of study [7].

A large meta-analysis from Germany covering 63 studies found a burnout prevalence of 47.8% among medical students, with 21.1% additionally exhibiting depressive symptoms [8]. In the United Kingdom, 29% of medical students experience mental disorders, and nearly 85% report some degree of burnout [9].

In the United States, a study by Shanafelt et al. including over 7,500 participants found that more than 45% of young physicians and medical students experience at least one core symptom of burnout [10]. The Healthy Minds Study reported high or very high burnout levels in 27% of students and medical staff [11].

3.2. STATISTICAL DATA FROM POLAND

In Poland, burnout among medical students is also common. A study by Kędra et al. conducted among 100 students in years IV–VI showed that 42% experienced burnout, with significantly higher levels among women [12]. A nationwide study found that nearly 40% of students met at least one burnout criterion—depersonalization [13,14]. Interestingly, burnout was more common among students living in dormitories [14].

Mazurek et al. demonstrated that 53% of students experienced high levels of exhaustion related to medical education, and 31% perceived low value in their academic achievements [15]. Another study involving 620 participants found that students in Polish-language programs exhibited 15% higher stress levels compared to those enrolled in English Division programs [16].

3.3. MAIN SYMPTOMS PRESENTED BY AFFECTED STUDENTS

Analysis of ten original Polish studies published in the last seven years revealed a broad spectrum of symptoms.

Academic-related symptoms included obsessive thinking about studying and guilt after rest periods [17], digital eye strain and frustration related to online learning during COVID-19 [18], apathy, headaches, and impostor syndrome [15].

Interpersonal disturbances included emotional coldness, cynicism toward the healthcare system, distancing from patients' suffering [14], irritability toward peers [16], excessive caffeine use, and lack of time for personal interests [16].

Kędra et al. described "emotional drainage" and reluctance to attend morning clinical classes due to emotional overload and responsibility toward patients [12]. Chronic stress was also linked to fear of criminal liability in medical practice [19].

Tomaszewski et al. identified the third year of studies as the highest-risk period due to curriculum overload and transition to clinical training [20].

3.4. COPING STRATEGIES

Coping strategies vary. Positive approaches include reorganizing study plans [12], improving diet and physical activity [15], and the use of black humor (with caution against developing cynicism) [21].

Negative coping mechanisms include psychoactive substance use and alcohol consumption [18], as well as excessive social competition [16].

3.5. RECOMMENDED EFFECTIVE STRATEGIES

Kotyra et al. recommend breathing exercises before clinical activities and short daily meditation sessions [18]. Other authors emphasize assertiveness and cognitive reinterpretation of mistakes as part of learning [17].

Sleep hygiene is crucial, as sleep deprivation reduces psychological resilience [22]. Moderate social activity lowers cortisol levels [22]. Peer-support meetings allow rationalization of stress and failure [23].

Figure 2. Coping strategies recommended by specialists

4. CONCLUSIONS

Burnout among physicians begins during medical studies and reaches alarming levels. Particularly critical periods include the third year and final years before entering the labor market.

Burnout leads to reduced empathy, cynicism toward patients, and deterioration of mental health. Effective prevention requires systemic solutions and promotion of assertiveness, sleep hygiene, and social support networks instead of harmful short-term coping mechanisms.

5. Limitations of studies

This review is primarily constrained by its reliance on a limited dataset, as it analyzes only **ten original Polish studies** published within the last seven years, which may not completely represent the entire student population across all medical universities in Poland. Additionally, the studies evaluating mental health and burnout often rely on **subjective self-reporting tools**, such as the BDI scale used for assessing depression, which can introduce reporting bias. Furthermore, much of the existing literature heavily emphasizes specific high-risk periods—namely the **third year (clinical transition) and the final years before entering the labor market**. This strong focus on the later, more demanding stages of education may limit our understanding of how early burnout symptoms develop during the initial years of medical studies.

6. Direction of future research

The findings from this review highlight several crucial areas that require further academic investigation:

- **Implementation of longitudinal studies:** Future research should prioritize longitudinal tracking of medical students from their first year through graduation. This would allow researchers to better understand the exact onset and progression of symptoms like emotional drainage and "imposter syndrome" before students reach the **critical phases of the third and final years**.
- **Deepening the analysis of systemic differences:** The data indicate that students enrolled in **Polish-language programs exhibit 15% higher stress levels than their peers in English Division programs**. Future studies should investigate the specific local risk factors driving this disparity, such as curriculum overload and academic hierarchy.
- **Exploration of demographic vulnerabilities:** Further research is necessary to explain why full-blown burnout and exhaustion are significantly more prevalent among **women and students living in dormitories**.

- **Efficacy of preventive interventions:** There is a critical need to empirically test the real-world impact of the recommended coping mechanisms. Future experimental studies should measure how the systemic implementation of interventions like **mindfulness training, sleep hygiene protocols, and peer-support networks** actively reduces levels of depersonalization, cynicism, and emotional exhaustion.

Author Contribution

conceptualization, P.C. and A.P., K.Ż., M.Ś., M.S., M.S., K.C., M.K., I.G., A.A
methodology, A.P., M.Ś., K.Ż., P.C., M.S., M.S., K.C., M.K., I.G., A.A
validation, A.P., K.C., M.S, A.A.;
software, M.K., M.S.;
formal analysis, P.C.;
writing—review and editing, A.P., K.Ż., P.C., M.Ś., M.S., M.S., K.C., M.K., I.G., A.A.;
writing—original draft preparation, P.C. and I.G.;
visualization, P.C.;
supervision, P.C.

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Data Availability Statement

The data presented in this study are available on request from the corresponding author.

Conflict of Interest Statement

The authors declare no conflicts of interest.

Declaration of the Use of Generative AI and AI-Assisted Technologies in the Writing Process

During the preparation of this work, the authors used Gemini for the purpose of organizing data and editing applications. After using this tool, the authors reviewed and edited the content as needed and take full responsibility for the substantive content of the publication.

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