

Work–life conflict and its health effects on Moroccan gastroenterologists: a cross-sectional study

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Abstract

Background: Gastroenterologists are exposed to various health-related risks due to their diverse professional roles, including endoscopy, clinical care, and academic responsibilities.

Objectives: This study aims to assess the work–life balance (WLB), the prevalence of work-related physical and mental symptoms among gastroenterologists practicing in Morocco, and the effects of WLB on their health.

Design: Survey study.

Methods: A total of 152 gastroenterologists from various Moroccan cities participated in an anonymous electronic questionnaire regarding their daily activities and symptoms. A WLB ratio was calculated, and musculoskeletal, gastrointestinal, and mental symptoms were recorded. The Maslach Burnout Inventory (MBI) was used to measure the burnout score. Data were analyzed using JAMOVI 2.5 software. The reporting of this study conforms to the Checklist for Reporting Results of Internet E-Surveys (CHERRIES) statement.

Results: This study included 152 gastroenterologists (72.4% female; sex ratio=0.38) with a median age of 31 years (range: 26–64). Among participants, 61.8% were married, and 70.2% were married to physicians. The average working hours were 50.2 ± 12.7 h/week. Health-related symptoms were common: 86.8% reported musculoskeletal disorders, and 71.1% reported digestive disorders. Regarding mental symptoms, 23.7% reported anxiety, and 46.1% reported depression, with 21.1% experiencing both. The median WLB ratio was 0.42 (range: 0.32–0.55). In univariate analysis, the ratio was correlated with age ($p < 0.001$) and mental symptoms (depression, $p < 0.001$; anxiety, $p = 0.007$). Multivariate analysis revealed age as the only significant associated factor (beta = -0.24 [95% confidence interval: -0.46 to -0.013]). Using the MBI scale, 72.4% of respondents experienced burnout, which correlated with the WLB ratio ($p = 0.04$). In addition, depersonalization (DP) showed a moderate negative correlation with age ($p = 0.002$, $r = -0.32$), while personal accomplishment (PA) showed a moderate positive correlation with age ($p = 0.003$, $r = 0.31$).

Conclusion: Moroccan gastroenterologists suffer from musculoskeletal, digestive, and mental symptoms, and are prone to burnout likely due to long and labor-intensive. Our study found that younger individuals worked more and were more likely to experience burnout, particularly with increased DP toward patients and diminished PA. The mechanisms behind this observation may be linked to higher workloads, less autonomy, and limited coping strategies, factors that should be explored further.

Keywords: burn-out, work–life balance

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Introduction

Burnout among healthcare professionals is increasingly recognized as a critical public health issue, with gastroenterologists reporting some of the highest rates globally.^{1,2}

The challenging nature of the gastroenterology profession exposes physicians to significant health risks, encompassing physical, mental, and emotional challenges.^{1,2} The dual role of combining endoscopic procedures and clinical care is often compounded by long working hours and academic pressures, leading to burnout and associated disorders. A recent global survey revealed that 50% of gastroenterologists experience burnout, manifesting as emotional exhaustion (EE), depersonalization (DP), and diminished personal accomplishment (PA).³

Work-life balance (WLB), a critical determinant of well-being, has been extensively studied in other medical disciplines, but remains underexplored among gastroenterologists. Poor balance between professional and personal life has been shown to increase the risk of burnout, reduce job satisfaction, and impair quality of care.^{4,5}

In Morocco, healthcare systems often impose longer work hours and more intense workloads than Eastern healthcare models, such as Saudi Arabia or Egypt, but no studies have specifically assessed burnout and WLB among gastroenterologists in the region. Existing data suggest that systemic issues, including healthcare resources and cultural expectations, may worsen these problems.^{6,7}

This study builds upon findings such as those from a Korean survey, highlighting the adverse effects of poor WLB on burnout and mental health symptoms.⁸

This study aims to assess the prevalence of work-related symptoms, burnout, and their association with WLB among Moroccan gastroenterologists, providing novel insights into the interplay between these factors in a unique healthcare context.

Patients and methods

The reporting of this study conforms to the checklist for reporting results of internet E-Surveys (CHERRIES) statement.⁹

Subjects

A total of 300 gastroenterologists (trainees and consultants) working in different regions of Morocco were invited to participate in this study from January to April 2024.

152 of them responded, yielding a 50% response rate.

An anonymous electronic questionnaire, accessible only to invited participants through professional gastroenterology networks, was distributed to participants targeting practicing clinicians with diverse professional roles (general gastroenterologists, endoscopists, hepatologists). Participants were invited via email and professional WhatsApp groups. No incentives were provided.

Participants were informed about the study purpose, expected completion time, and data confidentiality at the beginning of the survey.

Responses were anonymized, and no identifiable information, including IP addresses, was collected. Data were stored in a secure password-protected database.

Survey

The questionnaire consisted of demographic factors (age, sex, marriage, children, job position, and duration) and information about time spent working (including extra-hospital work) and time outside of work (including activities and sleep).

The WLB ratio was calculated by dividing the number of working hours by the number of hours spent outside of work (including activities and sleep). Though it is not a standardized measure, it has been adapted from prior literature assessing work-life conflict in medical professionals.⁷

Musculoskeletal and gastrointestinal symptoms were recorded. For mental symptoms, the Hospital Anxiety and Depression Scale¹⁰ was used to determine the prevalence of depression or anxiety. The “Maslach Burnout Inventory” (MBI) was used to measure the burnout score, which includes EE, DP, and PA. Higher EE and DP scores with a lower PA indicate a higher burnout score. To document the prevalence of

burnout, subjects who met the criteria of high EE (≥ 27) or high DP (≥ 10) were categorized as having burnout.¹¹

The survey consisted of 20 questions distributed over 5 pages to ensure clarity and participant engagement. The order of the questions was randomized to minimize response bias. No adaptive questioning was used; all participants answered the same set of questions.

Before distribution, the survey was pilot-tested with five gastroenterologists to assess clarity, completeness, and functionality. Minor modifications were made based on their feedback.

Participation was voluntary, and respondents could not skip questions if desired.

A completeness check was implemented, ensuring that participants could not submit the survey with missing responses. A review page was included before submission to allow modifications.

To prevent duplicate responses, each participant could submit the survey only once using a unique survey link. No IP tracking was used. No surveys were excluded from analysis.

A unique visitor was defined as a single respondent using a unique survey link. No cookies were used for respondent identification or tracking. Since this was a closed survey, a view rate was not calculated. No log file analysis was conducted to track multiple entries.

Statistical analysis

Data were analyzed using JAMOVI 2.5 for mac. Continuous variables were summarized as means (\pm SD) or medians (IQR), while categorical variables were expressed as percentages.

Univariate and multivariate analyses were conducted to identify factors associated with burnout and WLB. A p value of 0.05 was considered to be statistically significant in all analyses.

Weighting techniques were not applied to adjust for non-representative sampling, and no propensity score adjustment was performed.

Results

Demographic and professional characteristics

A total of 152 Moroccan gastroenterologists were included in the study. The majority were female (72.4%), while 27.6% were male, resulting in a sex ratio of 0.38. The median age of the respondents was 31 years (range: 26–64 years).

Regarding marital status, 61.8% were married, and of those, 70.2% were married to physicians. Participants reported working an average of 50.2 ± 12.7 h/week with a median number of 6.5 endoscopies/week (range: 2–12).

Prevalence of physical and mental symptoms

A significant proportion of respondents reported various health issues. Musculoskeletal disorders were 86.8% of participants, while digestive disorders were experienced by 71.1%. Regarding mental health, 23.7% reported anxiety while 41.6% reported depression, with 21.1% experiencing both anxiety and depression simultaneously (Table 1).

Work-life balance

The median WLB ratio was 0.42 (range: 0.32–0.55).

In univariate analysis, the WLB ratio showed no correlation with sex, musculoskeletal disorders, or digestive disorders but a significant correlation with age ($p < 0.001$) and mental symptoms, specifically depression ($p < 0.001$) and anxiety ($p = 0.007$).

However, in multivariate analysis adjusted for age, sex, depression, and anxiety, age remained the only significant associated factor (beta = -0.24 ; 95% confidence interval (CI): $(-0.46$ to $0.013)$; Table 2).

Burnout assessment using the MBI scale

Burnout was assessed using the MBI, and 72.4% of respondents were found to have experienced burnout.

Burnout was not correlated with sex or marital status, while a significant association was observed with the WLB ratio ($p = 0.04$).

Table 1. Demographic data.

Variable (n= 152)	Value
Male	27.6%
Female	72.4%
Median age	31 years old
Married participants	61.8%
Average work hours	50.2 ± 12.7 h
Burnout	72.4%
Musculoskeletal disorders	86.6%
Gastrointestinal disorders	71.1%
Anxiety	23.7%
Depression	46.1%

Two specific dimensions of the MBI scale showed associations with age: DP with a significant negative correlation ($p = 0.002$; $r = -0.32$) and PA with a significant positive correlation ($p = 0.003$; $r = 0.31$; Table 3).

Discussion

This study provides a critical assessment of the significant burnout prevalence and WLB challenges faced by Moroccan gastroenterologists. Consistent with international findings, our study highlights how professional stressors impact physical, mental, and emotional well-being.¹² However, specific systemic and cultural factors must be considered when interpreting these results.

WLB and its association with burnout

WLB emerged as a critical factor in this study, with a median ratio of 0.42, indicating an imbalance between professional and personal life. This aligns with studies conducted in Korea and the US, which demonstrated that lower WLB scores were strongly associated with increased burnout among healthcare professionals.⁸ In addition, WLB disparities have been observed across different professions, including law,¹³ engineering, and finance, further reinforcing the need for sector-specific intervention.

In line with the MBI¹² framework, such work–life imbalance is known to contribute to EE, DP, and reduced PA, core dimensions of burnout. These manifestations were observed among participants in our cohort.

The study also found that younger gastroenterologists were more likely to experience burnout, which could be attributed to extended working hours, limited autonomy, and fewer coping strategies compared to their senior colleagues.

Interestingly, our findings corroborate a recent global survey that identified younger physicians as particularly vulnerable to burnout due to extended working hours and professional isolation,¹⁴ which remains speculative as it was not directly assessed in this study.

The observed correlation between age and DP (negative) and PA (positive) in our cohort is consistent with reports suggesting that older physicians might develop better coping mechanisms, higher autonomy, and a greater sense of fulfillment in their careers.⁶

Physical and mental symptoms

The high prevalence of musculoskeletal (86.8%) and gastrointestinal symptoms (71.1%) among Moroccan gastroenterologists mirrors findings in global healthcare worker populations. Musculoskeletal symptoms, frequently linked to repetitive tasks such as endoscopy, are a known occupational hazard among gastroenterologists.¹⁵ This has been corroborated by a German study, which reported similar rates of musculoskeletal discomfort among endoscopists, highlighting the need for ergonomic interventions.¹⁶

Gastrointestinal symptoms in this population may be stress-induced, reflecting the significant psychological and physical demands of the profession.

Mental health symptoms, including anxiety (23.7%) and depression (46.1%), are strikingly high in this population. These results echo findings from a European meta-analysis, which reported that 40%–60% of gastroenterologists experience psychological distress due to workload, limited resources, and high patient expectations.¹⁷ In Morocco, the limited resources and

Table 2. Factors influencing the work–life balance ratio.

Factors	Univariate analysis			Multivariate analysis		
	β	95% CI	<i>p</i>	β	95% CI	<i>p</i>
Age	−0.026	[−0.48 to −0.038]	0.02	−0.24	[−0.46 to −0.013]	0.038
Sex						
Female	Ref					
Male	−0.02	[−0.053 to 0.49]	0.93	0.16	[−0.35 to 0.67]	0.53
Proven anxiety						
No	Ref					
Yes	0.71	[0.19–1.23]	0.007	0.43	[−0.14 to 1.01]	0.13
Proven depression						
No	Ref					
Yes	0.74	[0.31–1.17]	<0.001	0.48	[−0.012 to 0.97]	0.056
CI, confidence interval.						

Table 3. Factors associated with burnout.

Factors	Univariate analysis			Multivariate analysis		
	OR	95% CI	<i>p</i>	OR	95% CI	<i>p</i>
Age	1.03	[0.97–1.1]	0.35	1.03	[0.93–1.1]	0.44
Sex						
Female	Ref					
Male	0.53	[0.15–1.8]	0.31	0.41	[0.004–1.4]	0.22
Work–life ratio	0.017	[0.0031–0.84]	0.04	0.03	[−0.14 to 1.01]	0.07
CI, confidence interval; OR, odds ratio.						

patients' demands lead to a high burden of anxiety and depression.

The strong association of burnout with anxiety and depression underscores the need for institutional support mechanisms, such as peer counseling, flexible scheduling, and mindfulness programs.^{18,19}

Burnout as a global phenomenon

Burnout in healthcare has reached alarming levels worldwide, with gastroenterologists among the

most affected specialties. Studies from the US and Europe have consistently shown that over 50% of gastroenterologists experience burnout, with contributing factors ranging from administrative burden to reduced clinical autonomy.⁷ Our study, however, found a burnout prevalence of 72.4%, exceeding these international estimates, suggesting unique systemic challenges in Morocco.

Healthcare infrastructure limitations, high patient loads, and prolonged working hours may contribute to these heightened burnout rates.

Systemic interventions play a pivotal role in mitigating physician burnout. Evidence suggests that organizational strategies, including workload redistribution, limiting working hours, and fostering team-based care, are effective in reducing burnout and enhancing physician satisfaction. Indeed, the Korean study referenced earlier demonstrated that systemic efforts to reduce workload, such as capping weekly hours and promoting team-based care, significantly mitigated burnout and improved physicians' satisfaction.⁸ Similarly, a Swiss study found that institutional measures, such as equitable distribution of responsibilities and wellness programs, resulted in a 30% reduction in burnout prevalence among gastroenterologists.²⁰

Impact on patient care

The implications of physician burnout extend beyond professional well-being, with growing evidence that it can adversely impact patient care and safety, including increased medical errors, reduced empathy, and lower patient satisfaction.²¹ Although our study did not directly assess these outcomes, prior research has demonstrated that physician burnout is linked to poorer clinical decision-making and higher rates of diagnostic errors.^{22,23}

Morocco's healthcare system faces unique challenges, including staffing shortages and high patient-to-physician ratios, which may further exacerbate the impact of burnout on patient care. Addressing these issues is therefore a matter of patient safety as much as professional well-being.

Potential interventions

To address burnout, multi-level interventions are essential. On a systemic level, healthcare organizations must prioritize reducing administrative burdens, implementing ergonomic workplace designs, and offering flexible work schedules.

In the Moroccan healthcare system, challenges such as resource constraints and uneven distribution of healthcare professionals persist and exacerbate work-life imbalance, necessitating policy-driven solutions. Key strategies include establishing minimum staffing standards to prevent overwork, investing in continuous professional development to enhance job satisfaction, and promoting a supportive work environment

through leadership training and peer support programs. These interventions have been shown to reduce burnout and improve the overall quality of healthcare delivery in many countries, including Morocco.²⁴

At the individual level, stress management techniques, mindfulness programs, and peer support networks have demonstrated efficacy in reducing burnout rates.²⁵

Mentorship programs and career development workshops may help younger gastroenterologists build resilience and personal fulfilment.¹¹

However, the implementation of such interventions in Morocco remains limited. While mental health support services are available, structured mindfulness programs and peer support networks are not yet widely established. Future research should explore the feasibility of implementing these programs within Moroccan medical institutions, ensuring they are culturally and logistically adaptable.

Limitations and future directions

This study has several limitations, including its cross-sectional design, reliance on self-reported data, a lack of longitudinal follow-up, and the absence of exploration of administrative burdens or clinical autonomy.

Moreover, no national-level data exist on burnout, WLB, or musculoskeletal symptoms among Moroccan physicians or other professionals, limiting comparative analyses.

Nonetheless, to our knowledge, this study was the first attempt to demonstrate work-life patterns and health-related problems among gastroenterologists in Morocco.

This survey showed that work-life conflicts in specific groups of doctors could be a critical platform upon which to build strategies for preventing physician burnout.

Therefore, future research should aim to assess burnout trends over time by doing longitudinal research, to compare burnout across specialties, and to investigate patient safety outcomes by examining how physician burnout affects medical errors and clinical performance.

Conclusion

This study highlights the critical need for interventions to address burnout and improve WLB among Moroccan gastroenterologists. Younger professionals and those with poor WLB are particularly at risk, underscoring the importance of targeted strategies to improve their work environment and mental health. By addressing these challenges, healthcare institutions can foster a healthier, more effective workforce, ultimately enhancing patient care quality.

Declarations

Ethics approval and consent to participate
IRB was not needed for our study.

Consent for publication

Not applicable, as this study does not include patient data or images requiring consent for publication.

Author contributions

Benayad Aourarh: Conceptualization; Data curation; Formal analysis; Investigation; Methodology; Validation; Visualization; Writing – original draft; Writing – review & editing.

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Mouna Tamzaourte: Methodology; Project administration; Supervision; Validation; Visualization; Writing – review & editing.

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Competing interests

The authors declare that there is no conflict of interest.

Availability of data and materials

The dataset generated during this study is available from the corresponding author upon reasonable request.

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Supplemental material

Supplemental material for this article is available online.

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