

# Burnout among European IBD specialists: a survey supported by ECCO

Anett Dávid<sup>ID</sup>, Márta Volosin, Klaudia Farkas, Tamás Resál<sup>ID</sup>, Csilla Keresztes, Beatrix Rafael\* and Tamás Molnár<sup>ID</sup>

*Ther Adv Gastroenterol*

2023, Vol. 16: 1–12

DOI: 10.1177/  
17562848231214086

© The Author(s), 2023.  
Article reuse guidelines:  
sagepub.com/journals-  
permissions

## Abstract

**Background:** Burnout remains a significant health concern within the healthcare sector. Numerous studies have explored burnout among gastroenterologists. However, as far as we are aware, there is currently no documented research specifically focused on burnout for specialists in the field of inflammatory bowel disease (IBD).

**Objective:** The aim of our study was to assess the extent of burnout, its determinants, and to analyze potential risk factors among European healthcare professionals who provide care to patients with IBD.

**Methods:** We carried out a cross-sectional pilot study involving healthcare professionals responsible for the treatment of patients with IBD. A total of 102 participants (56.9% male, average age  $48 \pm 10.6$ ) completed the anonymous multiple question open web survey. The survey consisted of four distinct psychological constructs (burnout, depression, somatization, and well-being), along with inquiries associated with sociodemographic, health-related, and work-related factors.

**Results:** In our study, we observed that 47.1% of professionals specializing in IBD experienced burnout. When considering all three factors of burnout simultaneously, 5.9% of participants fell within the moderate range. Among these, depersonalization (DP) was the most prevalent factor, with 48% at a medium level and 47.1% at a high level. Depression, somatization, and well-being correlated with emotional exhaustion (EE) and DP, while only depression correlated with personal accomplishment (PA). Furthermore, age, physical activity, total time spent in healthcare, and time spent as an IBD specialist were correlated with EE. Multiple linear regression analysis revealed that depression was the most dominant predictor of both PA and DP. In terms of work-related factors, we observed that having endoscopic access had a detrimental impact on burnout, while the presence of a dedicated IBD outpatient unit and opportunities to participate in multidisciplinary meetings had a positive effect on mitigating burnout.

**Conclusions:** Our pilot study underscores the importance of burnout among IBD professionals in Europe, with a specific emphasis on DP. Subsequent studies may help to uncover the way underlying factors contribute to burnout, potentially laying the foundation for international support and prevention initiative programs.

Correspondence to:

**Tamás Molnár**  
Department of Medicine,  
Albert Szent-Györgyi  
Medical School, University  
of Szeged, Kálvária Avenue  
57, Szeged, H-6725,  
Hungary  
[molnar.tamas@med.u-szeged.hu](mailto:molnar.tamas@med.u-szeged.hu)

**Anett Dávid**  
**Klaudia Farkas**  
**Tamás Resál**  
Department of Medicine,  
Albert Szent-Györgyi  
Medical School, University  
of Szeged, Szeged,  
Hungary

**Márta Volosin**  
Institute of Psychology,  
University of Szeged,  
Szeged, Hungary

**Csilla Keresztes**  
Department for Medical  
Communication and  
Translation Studies, Albert  
Szent-Györgyi Medical  
School, University of  
Szeged, Szeged, Hungary

**Beatrix Rafael**  
Department of Preventive  
Medicine, Albert Szent-  
Györgyi Medical School,  
University of Szeged,  
Szeged, Hungary

\*These authors share  
senior authorship

## Plain language summary

### Burnout among European IBD specialists

Professionals working with IBD patients are at high risk of burnout. The prevalence of depersonalization is the highest and there are several other risk factors. However, we also found protective factors that may help to reduce and prevent burnout.

**Keywords:** burnout, depression, IBD specialists

Received: 9 July 2023; revised manuscript accepted: 23 October 2023.

## Introduction

Burnout is a complex process, which can be understood as a response to prolonged stressors, and has three main dimensions: emotional exhaustion (EE), depersonalization (DP), and reduced personal accomplishment (PA).<sup>1</sup> DP in social relationships is associated with feelings of distance, dehumanization, and desensitization. EE is characterized by loss of empathy and emotional and physical fatigue. Moreover, in the case of reduced personal performance, a negative evaluation of oneself commonly is present, particularly in terms of the work done with patients.<sup>1-3</sup> According to Maslach, burnout may impair the care and professional attention that human service providers give to their clients. Burnout is a major health problem among doctors and nurses.<sup>2</sup> In general, symptoms of burnout include fatigue, sleeping disorders, psychosomatic symptoms, maladaptive coping, reduced interest, cynicism, indifferent behavior, hopelessness, increased depression and anxiety levels, suicidal ideation, social connections alteration, reduced PA, and an increased number of sick leave days. The effects of these symptoms may burden the healthcare system and cause several personal and financial problems for the individuals (both patients and doctors) and the healthcare system as a whole.<sup>3,4</sup> It has been established that burnout affects the physicians' well-being, organizational effectiveness, and ability to provide quality care. Burnout thus plays a significant role in the overall quality of the universal healthcare system.<sup>4</sup>

Healthcare professionals are at daily risk of exposure to different stressors that lead to burnout. Burnout occurs in approximately 30–65% of the physicians, particularly in those working in the fields of emergency medicine, critical care, and general internal medicine.<sup>3,5,6</sup> The rate of burnout in gastroenterologists has been reported to be between 18.3 and 64.4%; in addition, 32–63% of gastroenterologist respondents recorded moderate to high levels of EE.<sup>7,8</sup> Both professional and personal factors may contribute to the degree of burnout experienced among professionals. Burnout was demonstrated to be the highest in females, those with a younger age, and those having no children or having young children. Work-life imbalance also affects burnout.<sup>4,8,9</sup> For example, time spent on work-related activities in the home environment can increase burnout.<sup>8</sup> But other inequalities, family roles, and the relegation of tasks in a home environment can also

have an impact on burnout.<sup>4,9</sup> A study on English gastroenterology trainees reported a burnout prevalence of 35.3%, and more than 57% of these trainees reported EE, 63.9% low performance, and 23.5% of them showed signs of DP.<sup>10</sup> However, the results are varied and often contradictory concerning the extent of burnout amongst professionals. One thing that might be clear is that a significant proportion of gastroenterologists struggle with symptoms of burnout throughout their career. Currently, no specific data are available in regard to the mental health of inflammatory bowel diseases (IBD) specialists. European Crohn's and Colitis Organization (ECCO) is an organization that includes experts and doctors in the field of IBD and is therefore dedicated specifically to IBD patients. It is assumed that ECCO members are made up of gastroenterologists who have an outstanding interest in IBD. They research and practice in a field that enables them to interact with people affected by IBD on a daily basis; therefore, influencing them to choose ECCO membership as a personal interest area of focus. It would be compelling to study whether long-lasting management and care of this special group of patients has an influence on the physician's emotions and whether it leads them to experience a higher incidence of burnout than with other subspecialties.

Therefore, the purpose of the study was to measure the level of burnout in European gastroenterologists treating IBD patients by using various types of questionnaires and analyzing social and economic risk factors.

## Materials and methods

### *Study design and participants*

The current study was an international, observational, cross-sectional, questionnaire-based pilot study, supported and authorized by the ECCO carried out between April 2021 and October 2021. The idea of the study was presented at the 5th IBD National Study Group Virtual Meeting and was found worthy of implementation. The clinical study protocol and the study synopsis were created with the help of the Clinical Research Committee of ECCO. Ethics approval number: RKEB 197/2020-SZTE. Participants were contacted *via* e-mail, and participation was voluntary. An anonymous multiple question open web survey was conducted with the logistical support

of the ECCO (the questionnaire we compiled was published in the organization's official newsletter). [The reporting of this study conforms to the Checklist for Reporting Results of Internet E-Surveys statement (Supplemental Material 1)].<sup>11</sup> ECCO members were invited to participate in this survey through collective e-mails. All subscribed members received the newsletter, but the questionnaire was addressed to practicing physicians who are IBD specialists. In total, 9521 recipients received the newsletter. Considering the statistics of the congress (2200 gastroenterologists out of 6800 participants), it was estimated that about half of the members who received the newsletter are gastroenterologists, and about half of them opened the questionnaire.<sup>12</sup> Due to the low response rate, invitations were subsequently sent to our previous study partners (100 additional people). The previous research partners were professionals who also had a high proportion of IBD patients, and their research work was focused on this field of study. Additionally, they had previously collaborated with the authors of this article on joint international studies in this particular field of research. Thus, they were directly contacted to complete the questionnaire. This suggests an estimated response rate of 4–5% among IBD specialists.

Participants gave informed consent prior to filling in the questionnaire. Additionally, they acknowledged their consent for data processing and the potential publication of information obtained from the aggregated data. The questionnaire started with information about the purpose of the survey and how to complete the questionnaire. No personal information was stored during the completion of the questionnaire, only the answers were saved. Filling in the questionnaire could be discontinued at any time without any consequences. There were no rewards or incentives for responding. The answers were stored and processed in accordance with data protection rules. In addition to this, the informed consent and details were contained within the text of the emailed newsletter. The initial questionnaire was first tested among our own colleagues before being publicly released. After creating the questionnaire, the first version was tested among our own colleagues (eight specialists and residents in total) who work in the field of gastroenterology and frequently treat patients with IBD in inpatient or outpatient settings. We developed the final version of the questionnaire with careful consideration of

their personal feedback and suggestions. The questionnaire consisted of four well-known, widely used indexes/scales to measure the psychological condition of respondents as well as some multiple-choice questions on sociodemographic data. The number of items varied between 16 and 22 per page. The full questionnaire was five pages long. All questions were compulsory with the exception clause for each. For example: 'Do you have any known chronic disease? Yes or No. If yes – Which one?' – that was optional. In this way, the completeness of each response could be checked. Only the completed questionnaires were analyzed and included in the database. The respondents were categorized according to the number of regularly managed IBD outpatients per week: small IBD centers (1–500 patients), medium centers (501–1000 patients), large centers (1001–2000 patients), and extra-large centers (over 2000 patients). The quality of the responding centers was ascertained by targeted questions: the existence of regular multidisciplinary meetings, the number of IBD nurses, the existence of dedicated IBD outpatient units, the possibility to administer biological drugs, and finally, access to the endoscopy unit.

The questionnaire was only available in English and took about 20 min to complete. The sample included all gastroenterologists who were ECCO members and subscribed to the newsletter and completed the questionnaire, as well as research partners in the field who also completed the questionnaire. Completion was by convenience sampling and a snowball method. No other professionals were included in the study. The questionnaire was divided into four sections. In the first part of the study, sociodemographic data was collected, such as age, gender, leisure activities, and spiritual beliefs. The second section gathered information about the physical health of the participants including chronic diseases, body mass index (BMI), list of regular medications, and smoking and drinking habits. The third part of this study focused on information related to work and collected comprising data on the workplace, time spent in healthcare, number of work hours, and scientific activities. The final component of this study recorded four psychological measures: Maslach Burnout Inventory (MBI), Patient Health Questionnaire-9 (PHQ-9), Patient Health Questionnaire-15 (PHQ-15), and World Health Organization 5-item well-being questionnaire (WHO-5).<sup>13–19</sup>

### Measures

MBI is a widely used measure to assess burnout. It covers three different domains of burnout: EE, DP, and PA. Higher EE and DP scores in combination with lower PA scores result in higher burnout levels. Scores for all three factors are categorized as low, moderate, and high. PA scores are inversely interpreted to EE and DP. The combination of high categories in all three subscales (DP, EE, and PA) indicates burnout.<sup>13,14</sup> However, some authors define burnout as having high EE and/or DP scores.<sup>8,20</sup> This was also used to determine the degree of burnout. Generally, the inventory is considered highly reliable (Cronbach's  $\alpha=0.795$ ).<sup>13</sup> In our own study, Cronbach's  $\alpha$  was 0.874.

PHQ-9 is a self-administered questionnaire that is useful to screen the severity of depression (Cronbach's  $\alpha=0.848$ ). The clinical cut-off is 10, and it strongly predicts the likelihood of depression.<sup>15</sup> Our PHQ-9 results showed that Cronbach's  $\alpha$  was 0.850.

PHQ-15 is a self-administered questionnaire that may be useful in screening for somatization and the severity of somatic symptoms (Cronbach's  $\alpha=0.784$ ). The cut-off score is 10 or above.<sup>16,17</sup> Our reliability analysis result was Cronbach's  $\alpha=0.782$ .

WHO-5 is a self-reported measure of current mental well-being with high reliability (Cronbach's  $\alpha=0.927$ ). The raw scores range from 0 to 25. A score of 0 represents the worst quality of life and 25 the best quality of life.<sup>18,19</sup> Our reliability analysis result was Cronbach's  $\alpha=0.925$ .

### Statistical analyses

Statistical tests were performed by using Jamovi software Version 2.2.2 (The Jamovi project (2021),<sup>21</sup> with  $p<0.05$  considered statistically significant. In addition to descriptive statistical analysis, Pearson correlations, independent sample  $t$ -test, Mann–Whitney test, and linear regression analysis were performed on the data. Pearson correlations were performed with continuous variables (e.g. total questionnaire scores, age, number of children, number of leisure activities, number of regular medications, on-call duty, years at work, number of patients cared for, etc.). Additionally, dichotomous variables were included or transformed for ease of analyzing the

data. In the correlation analyses, one participant was excluded based on the number of IBD nurses in their institution (average  $2.15 \pm 1.68$ ) as they reported 52 IBD nurses, which is an outlier when compared to the others. This report of having 52 nurses is more than 3 standard deviations from the average and is not as realistic as the value 6, which was the maximum value in the remaining data. All participants were included in the sample when comparing groups. Gender differences were assessed in the four questionnaires (separated by MBI subscales). In each group, depending on whether the normal distribution was found, Mann–Whitney (PA, EE, depression, and somatization) or independent samples  $t$ -tests (DP and well-being) were performed. Multiple linear regression analyses were used to further investigate the factors explaining burnout. In addition to the psychological scales, variables that correlated with the burnout subscales (PA, DP, and EE) were included, as well as five additional dichotomous variables (multidisciplinary meetings, number of IBD patients managed by the center, existence of dedicated IBD outpatient unit, possibility to use biological drugs, and access to endoscopy unit). In case of dichotomous variables, the yes–no answer was the default (multidisciplinary meetings, existence of dedicated IBD outpatient unit, access to endoscopy unit) or recoded the response options into two categories (number of IBD patients managed by the center (above 1000 patients=1, below 0), possibility to use biological drugs (not available=0, available=1). The Jamovi program uses Enter method for the regression analysis.

## Results

### Baseline characteristics

A hundred and two professionals completed the pilot questionnaire (male 56.9%). The response rate was quite low (about 5%). The average age was  $48 \pm 10.6$  years, the youngest healthcare professional was 31 years old, and the oldest was 85 years old. Sociodemographic, health, and work-related factors are summarized in Table 1.

Based on our study findings, it is characteristic of the general IBD specialist to live in a relationship, work mostly in a city hospital, and largely associated with a university environment. They have 22 or more days off per year and have sufficient financial savings. They are non-smoker, but

**Table 1.** Sociodemographic, health, and work-related factors.

Sociodemographic and work factors (n = 102)				
Average age (years)	48 ± 10.6			
Male/female	56.9%	43.1%		
Having a partner/single	80.4%	19.6%		
Residence (capital, city, or village)	42.2%	41.2%	16.7%	
Savings (no or little/sufficient or more)	26.5%	73.5%		
Chronic diseases (no/yes)	64.7%	35.3%		
Drinking habits (0–4 times a month/2–4 times a week)	60.8%	39.2%		
Smoking (no/yes)	86.3%	13.7%		
Working hours/day (average)	12.3 ± 11.2			
Paid vacation days/year	23.5% (<21 days)	76.5% (>22 days)		
Time spent in healthcare (general/IBD specialist in years)	21.5 ± 10.709	14.4 ± 9.275		
Scientific activity (no/yes)	24.5%	75.5%		
Multidisciplinary meetings	6.9%	93.1% <sup>s</sup>		
Dedicated IBD outpatients	24.5%	75.5%		
Workplace (University/city/village/other)	52%	32.4%	6.9%	8.8%
Size of IBD center (small/medium/large/extra-large)	21.8%	26.7%	28.7%	22.8%
Number of IBD nurses (average)	2.6 ± 5.2			
Number of endoscopies/week (average)	19.5 ± 15.3			
On-call duties (average)	2.7 ± 6.9			
IBD, inflammatory bowel disease.				

occasionally consume alcohol, and rate their own current health status as mostly good. They are also active in conducting scientific research, regularly attend multidisciplinary meetings, have a dedicated IBD outpatient unit, and have access to biological therapy. They have been working as an IBD specialist for an average of 14 years, work 12 h/day, have two to three on-calls per week, attend 55 IBD patients, and perform 19 endoscopies per week. Their work is supported by two IBD nurses working at the center.

In terms of the questionnaires examined, 12.7% of the participants scored above 10 on the depression questionnaire, which is already an indication of the presence of a clinical level disorder. 0.9%

of the respondents reported a medium or high score on the somatization symptoms scale. On general well-being, 43% of the respondents scored below 14 points, with the majority reporting a medium or high perceived quality of life.

#### *Level of burnout*

For all three factors of burnout combined, 5.9% ( $n=6$ ) of participants fell within the moderate range. There were none who scored in the worst range in all three burnout categories. However, 47.1% of the respondents ( $n=48$ ) were in the highest category in terms of DP, which in this case also provides an indicator of burnout.<sup>8,20</sup> Among those with high DP, 43.8% ( $n=21$ )



**Table 2.** Descriptive statistics of MBI subscales.

N = 102	PA	EE	DP
Mean	29.6	9.38	12.7
Median	30.0	10.0	12.0
Standard deviation	4.65	4.91	4.53
Minimum	15.0	2.00	1.00
Maximum	38.0	18.0	24.0
Theoretical minimum	0	0	0
Theoretical maximum	48	54	30
DP, depersonalization; EE, emotional exhaustion; MBI, Maslach Burnout Inventory; PA, personal accomplishment.			

reported a moderate decrease in PA and 8.3% ( $n=4$ ) had a moderate level of EE. One-third of the respondents had a moderate decrease in PA, with less than 10% of these having EE. However, nearly half of the doctors experienced DP symptoms to a moderate degree, whereas the other half experienced DP symptoms to a high degree. Descriptive statistics of burnout subscales are summarized in Table 2, and frequencies of burnout category results are demonstrated in Table 3.

#### Factors associated with burnout

Correlations were used to examine which variables were associated with the degree of burnout. The burnout questionnaire was assessed on three subscales: PA, EE, and DP. The three subscales were compared with the following continuous variables: age, number of leisure activities, children, regular medications, exercise, BMI, time spent in healthcare, time spent as IBD specialist, managed IBD patients, on-call duties, work hours, number of endoscopies, number of IBD nurses, and collective sum of the psychological questionnaires. Seven different variables (age, exercise, time spent in health care, and time spent as an IBD professional depression, somatization, and well-being) show low or moderate correlation with one or more burnout subscales. Moderately strong correlations were found for all three psychological factors with EE, and depression with DP. The results are summarized in Table 4, and all other non-significant correlations are presented in the Supplemental Table (Supplemental Material 2).

**Table 3.** Frequencies of burnout categories ( $N=102$ ).

N = 102	Levels	Counts	% of total
PA	Moderate	34	33.3
	High	68	66.7
EE	Low	96	94.1
	Moderate	6	5.9
DP	Low	5	4.9
	Moderate	49	48
	High	48	47.1
DP, depersonalization; EE, emotional exhaustion; PA, personal accomplishment.			

#### Factors explaining burnout

The regression model explaining the PA was significant:  $R^2=0.161$ ;  $R_{adj}^2=0.088$ ;  $F(8, 92)=2.21$ ,  $p=0.034$ . Depression showed significant effects on PA ( $p=0.006$ ), and three factors showed some tendencies: multidisciplinary meetings ( $p=0.062$ ), well-being ( $p=0.088$ ), and dedicated outpatient unit ( $p=0.096$ ). Depression reduced PA, while multidisciplinary meetings and outpatient unit improved PA. The other factors did not significantly explain PA. The results are presented in Table 5.

Results of the regression analysis of EE were  $R^2=0.518$ ;  $R_{adj}^2=0.459$ ;  $F(11,89)=8.70$ ,  $p<0.001$ . Factors that showed a significant correlation with EE were also included in the analysis: regular physical activity, time spent in health care, and time spent as an IBD specialist. Well-being ( $p<0.001$ ) and access to the use of an endoscope ( $p=0.030$ ) showed significant effects on EE. Well-being improved EE, but endoscopic work reduced it (Table 6).

Results of the regression analysis of DP were  $R^2=0.263$ ;  $R_{adj}^2=0.198$ ;  $F(8,92)=4.09$ ,  $p<0.001$ . Depression ( $p<0.001$ ) showed significant effects on DP. Access to the use of an endoscope ( $p=0.092$ ) showed a tendency on DP, but this is not significant (Table 7).

#### Gender differences

Gender differences were assessed in the various questionnaires. In each group, depending on

**Table 4.** Variables significantly correlated with burnout subscales.

N=102	PA	EE	DP
Depression			
Pearson's <i>r</i>	<b>0.246</b>	<b>0.573</b>	<b>0.454</b>
<i>p</i> -Value	0.013	<0.001	<0.001
Somatization			
Pearson's <i>r</i>	0.145	<b>0.507</b>	<b>0.261</b>
<i>p</i> -Value	0.148	<0.001	0.008
Well-being			
Pearson's <i>r</i>	-0.040	<b>-0.645</b>	<b>-0.292</b>
<i>p</i> -Value	0.690	<0.001	0.003
Age			
Pearson's <i>r</i>	0.076	<b>-0.231</b>	-0.182
<i>p</i> -Value	0.453	0.020	0.069
Exercise			
Pearson's <i>r</i>	0.176	<b>-0.218</b>	-0.067
<i>p</i> -Value	0.078	0.028	0.506
Time spent in healthcare			
Pearson's <i>r</i>	0.100	<b>-0.233</b>	-0.147
<i>p</i> -Value	0.318	0.019	0.143
Time spent as an IBD specialist			
Pearson's <i>r</i>	0.053	<b>-0.208</b>	-0.109
<i>p</i> -Value	0.599	0.037	0.278

Significant correlations ( $p < 0.05$ ) are highlighted. DP, depersonalization; EE, emotional exhaustion; PA, personal accomplishment.

whether the normal distribution was found, Mann–Whitney or independent samples *t*-tests were performed. The results of the tests are shown in Table 7. There was no significant difference between male and female specialists in DP [ $t(100) = -1.35$ ,  $p = 0.179$ ]. Men had significantly higher well-being scores compared to women [ $t(100) = 2.74$ ,  $p = 0.007$ ]. There was no significant difference between the two genders in regard to EE and PA. However, there was a significant difference between the two groups in the

**Table 5.** Regression model of factors explaining PA.

Personal accomplishment	<i>B</i>	SE	<i>t</i>	<i>p</i>	$\beta$	VIF
Intercept	29.724	5.125	5.799	<0.001		
<b>Depression</b>	<b>0.512</b>	<b>0.182</b>	<b>2.822</b>	<b>0.006</b>	<b>0.459</b>	<b>2.91</b>
Somatization	-0.053	0.171	-0.312	0.756	-0.044	2.15
<b>Well-being</b>	<b>0.194</b>	<b>0.113</b>	<b>1.722</b>	<b>0.088</b>	<b>0.237</b>	<b>2.08</b>
Biological therapy	1.077	0.977	1.102	0.273	0.231	1.04
Access to the use of endoscopy	-1.628	4.653	-0.350	0.727	-0.349	1.08
<b>Dedicated IBD outpatient unit</b>	<b>-1.985</b>	<b>1.182</b>	<b>-1.680</b>	<b>0.096</b>	<b>-0.427</b>	<b>1.33</b>
<b>Multidisciplinary meetings</b>	<b>-3.339</b>	<b>1.769</b>	<b>-1.888</b>	<b>0.062</b>	<b>-0.717</b>	<b>1.03</b>
Size of IBD center	0.917	1.050	0.873	0.385	0.197	1.41

The main explanatory factors are highlighted. IBD, inflammatory bowel disease; PA, personal accomplishment; VIF, variance inflation factor.

prevalence of depressive symptoms ( $p < 0.001$ ) and somatization symptoms ( $p < 0.001$ ). Women scored significantly higher (almost double) than men on these variables for both depression and physical symptoms (Table 8).

## Discussion

The aim of the pilot study was to measure the level of burnout and analyze social and economic risk factors among European IBD specialists. Previous studies have assessed the incidence of burnout in larger groups, but no similar study has been conducted specifically among IBD professionals. A total of 102 participants took part in the survey. Our study results are the first to measure the mental status of a specialized healthcare professional group from various European countries, and the results might be beneficial in determining the needs for intervention on an organizational level.

First and foremost, our study revealed that 47.1% of the IBD professionals experienced burnout. Compared to previous studies, burnout rates were generally higher, which may suggest there might be an increasing risk associated with this target group.<sup>4,10,22</sup> We found that factors predisposing to burnout include depression, reduced subjective

**Table 6.** Regression model of factors explaining EE.

EE	B	SE	t	p	$\beta$	VIF
Intercept	4.756	4.783	0.994	0.323		
Somatization	0.210	0.142	1.485	0.141	0.163	2.23
<b>Well-being</b>	<b>-0.439</b>	<b>0.099</b>	<b>-4.429</b>	<b>&lt;0.001</b>	<b>-0.510</b>	<b>2.45</b>
Depression	0.149	0.151	0.985	0.327	0.127	3.08
<b>Access to the use of endoscopy</b>	<b>9.495</b>	<b>4.304</b>	<b>2.206</b>	<b>0.030</b>	<b>1.937</b>	<b>1.41</b>
Biological therapy	0.840	0.801	1.048	0.297	0.171	1.06
Dedicated outpatient unit	-1.369	0.975	-1.403	0.164	-0.279	1.37
Size of IBD center	0.655	0.887	0.738	0.463	0.134	1.52
Multidisciplinary meetings	0.079	1.478	0.054	0.957	0.016	1.09
Number of exercises	0.186	0.320	0.579	0.564	0.050	1.38
Time spent in healthcare	-0.043	0.063	-0.676	0.501	-0.094	3.57
Time spent as an IBD specialist	0.021	0.073	0.292	0.771	0.040	3.53
The main explanatory factors are highlighted. EE, emotional exhaustion; IBD, inflammatory bowel disease; SE, standard error; VIF, variance inflation factor.						

**Table 7.** Regression model of factors explaining DP.

DP	B	SE	t	p	$\beta$	VIF
Intercept	5.002	4.547	1.100	0.274		
Size of IBD center	0.753	0.931	0.809	0.421	0.171	1.41
Biological therapy	-0.177	0.867	-0.204	0.838	-0.040	1.04
<b>Access to the use of endoscopy</b>	<b>7.028</b>	<b>4.128</b>	<b>1.702</b>	<b>0.092</b>	<b>1.595</b>	<b>1.08</b>
Dedicated IBD outpatient unit	-1.471	1.048	-1.403	0.164	-0.334	1.33
Multidisciplinary meetings	-0.516	1.569	-0.329	0.743	-0.117	1.03
Somatization	-0.157	0.152	-1.036	0.303	-0.136	2.15
Well-being	-0.010	0.100	-0.102	0.919	-0.013	2.08
<b>Depression</b>	<b>0.600</b>	<b>0.161</b>	<b>3.726</b>	<b>&lt;0.001</b>	<b>0.569</b>	<b>2.91</b>
The main explanatory factors are highlighted. DP, depersonalization; IBD, inflammatory bowel disease; SE, standard error; VIF, variance inflation factor.						

well-being, somatization, and access to the use of endoscopy. Contrary to these, we identified access to outpatient care and multidisciplinary meetings as protective factors. In our study, out of the various burnout factors, DP rates were the highest among IBD specialists. According to a German

study, 33% of German gastroenterologists had a high DP score, 17% had a high EE score, and about 50% had a low PA score.<sup>23</sup>

There was a moderately strong positive correlation for depression and somatization with both



**Table 8.** Mann–Whitney and *t*-test results and descriptive statistics of gender differences.

Dependent variables	Group	<i>N</i>	Median	SD	Mann–Whitney <i>U</i>	<i>p</i>
Personal accomplishment	Male	58	30.00	4.52	1265	0.941
	Female	44	30.00	4.86		
Emotional exhaustion	Male	58	8.50	5.01	1028	0.093
	Female	44	11.00	4.67		
<b>Depression</b>	<b>Male</b>	<b>58</b>	<b>3.00</b>	<b>3.39</b>	<b>788</b>	<b>&lt; 0.001</b>
	<b>Female</b>	<b>44</b>	<b>5.00</b>	<b>4.69</b>		
<b>Somatization</b>	<b>Male</b>	<b>58</b>	<b>3.00</b>	<b>3.12</b>	<b>704</b>	<b>&lt;0.001</b>
	<b>Female</b>	<b>44</b>	<b>6.00</b>	<b>4.18</b>		
	<b>Group</b>	<b><i>N</i></b>	<b>Mean</b>	<b>SD</b>	<b><i>t</i>-Test</b>	<b><i>p</i></b>
DP	Male	58	12.2	4.29	−1.35	0.179
	Female	44	13.4	4.78		
<b>WHO well-being</b>	<b>Male</b>	<b>58</b>	<b>15.5</b>	<b>5.91</b>	<b>2.74</b>	<b>0.007</b>
	<b>Female</b>	<b>44</b>	<b>12.4</b>	<b>5.10</b>		
df = 100. Significant variables are highlighted. DP, depersonalization; SD, standard deviation; WHO, World Health Organization.						

EE and DP, and a moderately negative correlation between well-being and EE. Depression was correlated with all three burnout subscales. Several previous studies have found a medium-to-high correlation between depression and burnout, and our pilot study was consistent with them.<sup>24,25</sup> In addition to correlation, an association was also found between burnout and depression.<sup>26</sup> British researchers have investigated the correlation between well-being and burnout among doctors. They have found a medium negative correlation between the two factors.<sup>27</sup> In addition, younger age, regular exercise, and time spent in holistic medicine and as an IBD specialist are also negatively correlated with EE, but it has not been reported in the explanatory model. Young age seems to be a risk factor that is frequently identified in burnout studies.<sup>3,4</sup>

Higher levels of EE have been measured, which might lead to cynicism and somatization, and thus, have a negative impact on personal effectiveness.<sup>28</sup> A meta-analysis has found that outpatient doctors experience higher levels of EE than their inpatient colleagues.<sup>29</sup> This finding may

contradict ours. In our case, outpatient care was a protective factor. Depression was found to be the strongest explanatory factor behind the decline in both PA and DP. Similarly, a representative survey of Austrian physicians have assumed that major depression is strongly associated with all the three subscales of burnout.<sup>30</sup> A link between work-related burnout and depression has also been identified in young doctors.<sup>31</sup> Moreover, access to the use of endoscopy appeared to have significant effects on EE and a tendency in case of DP. Irrefutably, endoscopic work with IBD patients can be a source of increased stress for professionals. The increasing complexity of endoscopic techniques combined with an increased risk of complications and less professional experience may lead to higher burnout rates.<sup>22,32</sup>

In a significant number of studies on gastroenterologists, workload-related factors, age, and female gender were the three most frequently cited risk factors.<sup>7,33,34</sup> We found no significant effect of gender and age on burnout, but work-related factors, such as access to the use of endoscopy, outpatient unit, and multidisciplinary meetings (as a

trend) seemed to have an impact on burnout. The results suggest that stress and the difficulty of endoscopic work are reflected in the degree of burnout among doctors; the greater the workload in this particular area of the profession, the greater the degree of burnout. It is a welcome conclusion that those working in this specific field are also accompanied by protective factors. Outpatient care is perhaps one of the scenes where they can achieve improved patient well-being, a sense of success through helping them and a higher level of satisfaction. The professional environment that a multidisciplinary team can provide may reduce the strain on professionals through development and shared responsibility, as well as collaborative problem solving and perspective switching.

When compared with the opposite sex, women reported higher somatization and depression scores, while men reported higher subjective well-being values. Gender differences were present in these factors, but no gender differences were found for burnout. Men's higher well-being values may be due to different social roles and expectations; as a matter of fact, men may feel less need to talk about their difficulties, and the working environment may view these attempts less seriously. Women are more likely to experience and express depressive symptoms, and those with depression that are affected by valence are more at risk of DP. Screening for this factor can also provide useful data on burnout, especially for female professionals. On the other hand, women also reported more somatic symptoms when compared to men. Although there was a strong correlation between depression, anxiety, and somatization, it was independent of gender and age.<sup>35</sup> To our knowledge, no studies have examined gender differences in depression and somatization among gastroenterologists.

A major factor in managing burnout is establishing and maintaining a work-life balance. In terms of prevention, personal and institutional level interventions are important. Problem-focused coping and the exploration of resources as individual factors can be supportive to increase well-being. Organizational-level strategies can focus on supporting professional development, reducing work-related stress, and supporting and mentoring colleagues.<sup>34-36</sup> Participation in professional societies, research activities, and education can also help manage burnout.<sup>3</sup>

The research had many limitations. Due to the low number of subjects, we could not draw conclusions for a wider population. Furthermore, the study questionnaire study did not allow us to qualitatively explore the attitudes of the participants. For many professionals, English is not considered as their mother tongue or primary language, subsequently for some questions, minor differences in the answers may not have been accurately reflected. In addition to the cross-sectional study, it would also be useful to use follow-up methods to investigate the state of burnout among doctors. Online completion and convenience sampling was also a drawback as we could only involve respondents indirectly with no opportunity for face-to-face contact. An additional limitation of this study is the fact that respondents may come from a range of countries that have differing health systems, which can ultimately mean large individual and organizational differences within and across countries. In addition to the structure of the healthcare system, other general and social differences and problems may also affect response preferences. In the future, we plan to carry out a more detailed, broader, comparative study on the subject.

According to this study, professionals who work with IBD patients, particularly within this group of gastroenterologists, also are at a high risk of experiencing burnout. In conclusion, the role of protective factors against burnout (access to outpatient care and multidisciplinary meetings) may have a positive effect and are mostly accessible in well-equipped clinical centers. In addition to the higher level of care and cost-effectiveness aspects that have been identified at these institutions, this finding also underlines the influenceable role these institutions have on promoting positive returns on the mental health of their doctors. However, further research is needed to explore these factors in more detail.

## Declaration

### *Ethics approval and consent to participate*

ECCO Governing Board has approved the dissemination of your survey *via* the ECCO eNewsletter. All subjects provided written informed consent prior to study participation. The study was conducted according to the principles of the Declaration of Helsinki. Ethics approval number: RKEB 197/2020-SZTE

### Consent for publication

Participants acknowledged their consent for data processing and the potential publication of information obtained from the aggregated data.

### Author contributions

**Anett Dávid:** Conceptualization; Formal analysis; Investigation; Methodology; Writing – original draft; Writing – review & editing.

**Márta Volosin:** Formal analysis; Writing – review & editing.

**Klaudia Farkas:** Methodology; Writing – review & editing.

**Tamás Resál:** Investigation; Writing – review & editing.

**Csilla Keresztes:** Writing – review & editing.

**Beatrix Rafael:** Conceptualization; Investigation; Methodology; Writing – original draft; Writing – review & editing.

**Tamás Molnár:** Conceptualization; Investigation; Methodology; Writing – original draft; Writing – review & editing.

### Acknowledgements

We wish to thank the ECCO for supporting the release of our questionnaire and the IBD professionals who took the time to complete the forms. Thanks are also merited to all colleagues who contributed their personal help and support in making this study possible. Publication support was funded by Klebelsberg Library, University of Szeged.

### Funding

The authors received no financial support for the research, authorship, and/or publication of this article.

### Competing interests

The authors declare that there is no conflict of interest.

### Availability of data and materials

The data underlying this article will be shared on reasonable request to the corresponding author. The current manuscript, including related data and figures, has not been previously published and is not under consideration elsewhere.

### ORCID iDs

Anett Dávid  <https://orcid.org/0000-0002-0459-6249>

Tamás Resál  <https://orcid.org/0000-0002-3842-9094>

Tamás Molnár  <https://orcid.org/0000-0002-4913-7599>

### Supplemental material

Supplemental material for this article is available online.

### References

1. Maslach C, Schaufeli WB and Leiter MP. Job burnout. *Annu Rev Psychol* 2001; 52: 397–422.
2. Maslach C and Jackson SE. The measurement of experienced burnout. *J Occup Behav* 1981; 2: 99–113.
3. Keswani RN, Keefer L and Surawicz CM. Burnout in gastroenterologists and how to prevent it. *Gastroenterology* 2014; 147: 11–14.
4. Lacy BE and Chan JL. Physician burnout: the hidden health care crisis. *Clin Gastroenterol Hepatol* 2018; 16: 311–317.
5. Linzer M, Levine R, Meltzer D, *et al.* 10 bold steps to prevent burnout in general internal medicine. *J Gen Intern Med* 2014; 29: 18–20.
6. Shanafelt TD, Boone S, Tan L, *et al.* Burnout and satisfaction with work-life balance among US physicians relative to the general US population. *Arch Intern Med* 2012; 172: 1377–1385.
7. Ong J, Swift C, Bath M, *et al.* The prevalence of burnout, risk factors, and job-related stressors in gastroenterologists: a systematic review. *J Gastroenterol Hepatol*, 2021; 36: 2338–2348.
8. Burke C, Surawicz CM, Oxentenko AS, *et al.* A national survey of burnout in gastroenterologists: 2017 Naomi Nakao Gender-Based Research Award: 1081. *Am J Gastroenterol* 2017; 112: S593–S594.
9. Surawicz CM. J. Edward Berk distinguished lecture: avoiding burnout: finding balance between work and everything else. *Am J Gastroenterol* 2014; 109: 511–514.
10. Ong J, Swift C, Lim W, *et al.* Burnout in gastroenterology registrars: a pilot study of trainees in the East of England. *BMJ Open Gastroenterol* 2020; 7: e000401.

11. Eysenbach G. Improving the quality of web surveys: the checklist for reporting results of internet E-surveys (CHERRIES). *J Med Internet Res* 2004; 6: e34.
12. European Crohn's and Colitis Organisation – ECCO – Home, <https://www.ecco-ibd.eu/> (2023, accessed 1 October 2023).
13. Maslach C, Jackson SE and Leiter MP. *Maslach burnout inventory manual*. 3rd ed. Palo Alto, CA: Consulting Psychologists Press, 1996
14. Legassie J, Zibrowski EM and Goldszmidt MA. Measuring resident well-being: impostorism and burnout syndrome in residency. *J Gen Intern Med* 2008; 23: 1090–1094.
15. Kroenke K, Spitzer RL and Williams JB. The PHQ-9: validity of a brief depression severity measure. *J Gen Intern Med* 2001; 16: 606–613.
16. Kroenke K, Spitzer RL and Williams JB. The PHQ-15: validity of a new measure for evaluating the severity of somatic symptoms. *Psychosom Med* 2002; 64: 258–266.
17. Kocalevent RD, Hinze A and Brähler E. Standardization of a screening instrument (PHQ-15) for somatization syndromes in the general population. *BMC Psychiatry* 2013; 13: 1–8.
18. Topp CW, Østergaard SD, Søndergaard S, *et al*. The WHO-5 Well-Being Index: a systematic review of the literature. *Psychother Psychosom* 2015; 84: 167–176.
19. World Health Organization. Wellbeing measures in primary health care/the DepCare Project: report on a WHO meeting: Stockholm, Sweden, 12–13 February 1998 (No. WHO/EURO: 1998-4234-43993-62027). World Health Organization. Regional Office for Europe, <https://www.corc.uk.net/outcome-experience-measures/the-world-health-organisation-five-well-being-index-who-5/> (1998, accessed 7 March 2021).
20. Thomas NK. Resident burnout. *JAMA* 2004; 292: 2880–2889.
21. The jamovi project (2021). jamovi. (Version 2.0) [Computer Software], <https://www.jamovi.org> (2021, accessed 5 May 2021).
22. Keswani RN, Taft TH, Coté GA, *et al*. Increased levels of stress and burnout are related to decreased physician experience and to interventional gastroenterology career choice: findings from a US survey of endoscopists. *Am J Gastroenterol* 2011; 106: 1734–1740.
23. Adarkwah CC, Labenz J, Birkner B, *et al*. Work satisfaction and burnout risk of gastroenterologists in Germany: results of a nationwide survey. *Z Gastroenterol* 2020; 58: 960–970.
24. Bianchi R, Boffy C, Hingray C, *et al*. Comparative symptomatology of burnout and depression. *J Health Psychol* 2013; 18: 782–787.
25. Takai M, Takahashi M, Iwamitsu Y, *et al*. The experience of burnout among home caregivers of patients with dementia: Relations to depression and quality of life. *Arch Gerontol Geriatr* 2009; 49: e1–e5.
26. Ong J, Ong AML, Ong S, *et al*. The impact of the coronavirus disease 2019 pandemic on gastroenterologists in Southeast Asia: a mixed-methods study. *J Gastroenterol Hepatol* 2021; 36: 3056–3068.
27. Jenkins J, Boxley E and Simons G. A national cross-sectional survey and interviews exploring the relationship between well-being and burnout in doctors. *BJPsych Open* 2021; 7: S32–S33.
28. Alarcon GM. A meta-analysis of burnout with job demands, resources, and attitudes. *J Vocat Behav* 2011; 79: 549–562.
29. Roberts DL, Cannon KJ, Wellik KE, *et al*. Burnout in inpatient-based versus outpatient-based physicians: a systematic review and meta-analysis. *J Hosp Med* 2013; 8: 653–664.
30. Wurm W, Vogel K, Holl A, *et al*. Depression-burnout overlap in physicians. *PloS One* 2016; 11: e0149913.
31. Rogers ME, Creed PA and Searle J. Emotional labour, training stress, burnout, and depressive symptoms in junior doctors. *J Vocat Educ Train* 2014; 66: 232–248.
32. Aguilar-Nájera O, Zamora-Nava LE, Grajales-Figueroa G, *et al*. Prevalence of burnout syndrome in gastroenterologists and endoscopists: results of a national survey in Mexico. *Postgrad Med* 2020; 132: 275–281.
33. Barnes EL, Ketwaroo GA and Shields HM. Scope of burnout among young gastroenterologists and practical solutions from gastroenterology and other disciplines. *Dig Dis Sci* 2019; 64: 302–306.
34. Correia C, Teixeira R, de Almeida NMP, *et al*. Burnout in gastroenterologists: a national-level analysis. *Scand J Gastroenterol* 2021; 56: 1271–1278.
35. Romani M and Ashkar K. Burnout among physicians. *Libyan J Med* 2014; 9: 1–6.
36. Buscarini E, Gecse KB and Tiniakos D. Burnout among gastroenterologists: how to manage and prevent it. *United European Gastroenterol J* 2020; 8: 832–834.