

## ORIGINAL PAPER ΕΡΕΥΝΗΤΙΚΗ ΕΡΓΑΣΙΑ

# The impact of job demands, job resources, work-life balance, and supervisor-resident relationships on burnout syndrome among medical residents in Indonesia

**OBJECTIVE** To explore the impact of job demands, job resources, work-life balance, and supervisor-resident relationship quality on burnout syndrome among medical residents in Indonesia. **METHOD** This cross-sectional study was conducted between March and July 2024. Data were collected from 938 medical residents across 16 universities in Indonesia. Data collection was carried out online using a Google Form-based questionnaire that had previously undergone validity and reliability testing. **RESULTS** The study identified several factors influencing the risk of burnout among medical residents in Indonesia. Red tape was significantly associated with an increased risk of burnout (odds ratio [OR]: 1.40; 95% confidence interval [CI]: 1.07–1.83;  $p=0.0163$ ). On the other hand, autonomy in work 1 (OR: 0.76; 95% CI: 0.57–0.99;  $p=0.0466$ ) and autonomy in work 2 (OR: 0.68; 95% CI: 0.51–0.89;  $p=0.0060$ ) were associated with a reduced risk of burnout. Furthermore, supervisor support (OR: 0.71; 95% CI: 0.54–0.93;  $p=0.0117$ ), colleague support (OR: 0.55; 95% CI: 0.42–0.72;  $p<0.0001$ ), and flexible work schedules (OR: 0.53; 95% CI: 0.41–0.70;  $p<0.0001$ ) were also associated with a reduced risk of burnout. **CONCLUSIONS** This study highlighted the impact of job demands, job resources, work-life balance, and supervisor-resident relationships on burnout syndrome among medical residents in Indonesia.

Burnout among medical residents is a significant mental health issue in medical education, with a prevalence reaching 50.13%.<sup>1,2</sup> This underscores its substantial impact on residents' mental health and the quality of healthcare services. Factors influencing burnout include job demands, job resources, work-life balance, and the relationship between supervisors and residents.<sup>3</sup> A study indicates that high job demands and a lack of supervisor support increase the risk of burnout, whereas adequate resources and strong relationships act as protective factors against its occurrence.<sup>4</sup>

Another important factor is work-life balance; the imbalance between work and personal life may contribute to an increase in stress, fatigue, and anxiety, which in turn

worsens all symptoms of burnout.<sup>5</sup> Support, recognition, and good communication by supervisors reduce the level of stress and improve overall well-being. For this reason, the supervisor-resident relationship is essential as a contextual variable in particular.<sup>6</sup> These factors may reduce burnout cases among residents. Moreover, the risk of burnout may be moderated by various factors such as the relationship between the supervisor and the resident. It refers to emotional support, guidance, and communication by the supervisor in support of the professional development of the resident.<sup>7</sup> Good supervisor support can reduce work stress by mechanisms of recognition for hard work and provision of social support.<sup>8</sup> A study has shown that a

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Η επίδραση των απαιτήσεων της εργασίας, των πόρων εργασίας, της ισορροπίας μεταξύ επαγγελματικής και προσωπικής ζωής και των σχέσεων επόπτη-ειδικού στο σύνδρομο επαγγελματικής εξουθένωσης μεταξύ των ειδικευόμενων ιατρών στην Ινδονησία

Περίληψη στο τέλος του άρθρου

### Key words

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resident with a good supervisor-resident relationship is likely to suffer from burnout by up to 34%.<sup>9</sup> However, the dynamics of this relationship cannot be separated from the context of other factors, such as high job demands, which increase work pressure, and limited job resources, which limit the resident's ability to cope with job demands.<sup>10</sup> Furthermore, work-life imbalance can increase resident stress, thus diminishing the positive effects of the supervisor-resident relationship.<sup>11</sup> Therefore, further research is needed regarding how the supervisor-resident relationship interacts with other factors in preventing burnout among medical residents.

The present study aimed to find the influence of job demands, job resources, work-life balance, and the quality of supervisor-resident relationships on the occurrence of burnout syndrome among residents in 16 Indonesian universities. We expect that increased supervisor support and a well-maintained work-life balance may lead to low levels of burnout and that adequate job resources may weaken the detrimental impact of job demands. If the findings are as expected, the present study may hopefully provide new insights for medical education institutions in the design of more effective interventions to support resident well-being and further improve the quality of healthcare services.

## MATERIAL AND METHOD

### Design

This study employed a cross-sectional design to assess the impact of job demands, job resources, work-life balance, and supervisor-resident relationships on the occurrence of burnout syndrome among medical residents in Indonesia. Our current study included residents from universities across five islands: Sumatra, Sulawesi, Kalimantan, Java, and Bali. The study was conducted between March and July 2024. Data were collected online using a Google form-based questionnaire designed to measure the research variables. The study protocol adhered to the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) checklist.<sup>12</sup>

### Ethical approval

The study protocol was ethically approved by the Ethics Committee of the Faculty of Medicine, Universitas Brawijaya. Before participating in the study, participants were provided with detailed information regarding the study's objectives, benefits, and potential risks. They were also informed of their right to confidentiality and their right to withdraw from the study at any time. No incentives were provided to participants in this study.

### Participants and eligibility criteria

This study involved 938 medical residents from 16 universities across five islands in Indonesia: Sumatra, Sulawesi, Kalimantan, Java, and Bali. The sample was selected using non-probability sampling with a purposive sampling method. The sample size was determined based on a burnout prevalence of 44% among residents, with a 5% margin of error and a 95% confidence interval. Inclusion criteria included medical residents enrolled in these universities, holding a Resident Registration Certificate, and willing to complete the study questionnaire. Exclusion criteria included residents who did not fully complete the questionnaire or declined to participate after being informed about the study objectives.

### Data collection

Data collection in this study was conducted by distributing questionnaires online via Google Forms to the respondents. The questionnaire used in this study was tested for validity and reliability prior to its application. The data collected included age, gender, semester level, academic major, university, job demands covariates, job resources covariates, work-life balance covariates, supervisor-resident relationship, and the occurrence of burnout. The data collection process took place from March to July 2024 and was conducted by AA and BB.

### Covariates

The outcome variable in this study was the incidence of burnout. We used the Maslach Burnout Inventory (MBI) to assess burnout, which consists of emotional exhaustion (EE), depersonalization (DP), and personal accomplishment (PA). Participants were classified as experiencing burnout syndrome, if their scores were  $EE \geq 18$ ,  $DP \geq 10$ , and  $PA \leq 28$ . The predictor variables in this study were job demands, job resources, work-life balance, and supervisor-resident relationship. Job demands included emotional demands, mental demands, physical demands, work-home conflict, work overload, pace of change, organizational change, red tape, harassment, role conflict 1, role conflict 2, and interpersonal conflict. Job resources consisted of autonomy in work 1, autonomy in work 2, award 1, award 2, supervisor support 1, supervisor support 2, colleague support 1, colleague support 2, flexible schedule 1, flexible schedule 2, feedback 1, feedback 2. Work-life balance included work time 1, work time 2, family time, break and relaxation time, responsibility and commitment 1, responsibility and commitment 2, job involvement 1, job involvement 2, paying attention to family interests amidst work, relationship with supervisors and colleagues 1, relationship with supervisors and colleagues 2, relationship with supervisors and colleagues 3, relationship with supervisors and colleagues 4, family condition, achieved quality and quantity 1, and achieved quality and quantity 2. Supervisor-resident relationship focused on the quality of the interaction between supervisor and resident, which included the supervisor appreciating and recognizing the

potential of the resident, understanding the needs and issues in the resident's tasks 1, understanding the needs and issues in the resident's tasks 2, has respect for the supervisor, aligns with the supervisor, has confidence in the supervisor, is willing to help solve work-related problems, ensures an effective working relationship, and guarantees support if there are any issues.

### Statistical analysis

The data in this study were presented in the form of frequencies (n) and percentages (n%). To analyze the data, descriptive analysis was performed, presenting data in the form of frequencies (n) and percentages (n%). To determine the impact of job demands, job resources, work-life balance, and supervisor-resident relationships on the incidence of burnout in this study, we used multiple logistic regression tests. The effect size was presented as odds ratio (OR) along with the 95% confidence interval (95% CI). Statistical analysis in this study was conducted using GraphPad Prism software (GraphPad Prism, GraphPad Software, Inc, California, US).

## RESULTS

### Baseline characteristic of study participants

This study involved 938 participants with a nearly balanced gender distribution, with 49.4% male and 50.6% female. Based on age, the majority of participants (87.2%) were in the age range of 26–35 years, while the remaining 12.8% were between 36–45 years old. In terms of academic semester, the largest proportion of participants were in Semester 7 (27%), followed by Semester 4 (19.1%) and Semester 5 (17.3%), while Semester 1 had the smallest representation (4.5%). Regarding the university origin, the most participants came from Universitas Airlangga (11.2%) and Universitas Indonesia (11.0%), followed by Universitas Brawijaya (9.1%) and Universitas Padjadjaran (8.3%), while Universitas Riau and Universitas Lambung Mangkurat had the lowest representation at 2.0% and 2.6%, respectively. Detailed data on participant characteristics in this study are presented in table 1.

### The association between job demand and burnout syndrome

Our study found that there were no significant differences between the burnout and non-burnout groups regarding qualitative job demands such as emotional, mental, and physical demands ( $p > 0.05$ ). Similarly, quantitative demands such as workload and pace of change did not show significant differences ( $p > 0.05$ ). Furthermore, organizational demands related to organizational change also showed no significant differences ( $p = 0.9835$ ), while

**Table 1.** Baseline characteristics of study participants.

Characteristics	n	%
<i>Gender</i>		
Male	463	49.4
Female	475	50.6
<i>Age (years)</i>		
26–35	818	87.2
36–45	120	12.8
<i>Semester</i>		
Semester 4–7	715	76.2
Semester 1–3	223	23.8
<i>University</i>		
Universitas Airlangga	105	11.2
Universitas Andalas	47	5.0
Universitas Brawijaya	85	9.1
Universitas Diponegoro	58	6.2
Universitas Gadjah Mada	49	5.2
Universitas Hasanuddin	48	5.1
Universitas Indonesia	103	11.0
Universitas Lambung Mangkurat	24	2.6
Universitas Padjadjaran	78	8.3
Universitas Riau	19	2.0
Universitas Sam Ratulangi	39	4.2
Universitas Sebelas Maret	52	5.5
Universitas Sriwijaya	51	5.4
Universitas North Sumatra	60	6.4
Universitas Syiah Kuala	65	6.9
Universitas Udayana	65	5.9

Note: Data were presented as n (%)

red tape showed a significant relationship (OR: 1.40; 95% CI: 1.07–1.83;  $p = 0.0163$ ), indicating that the burnout group was more often exposed to bureaucratic issues. Factors such as role conflict, harassment, and interpersonal conflict did not show significant differences between the burnout and non-burnout groups. Complete data on the factors influencing burnout syndrome are presented in table 2.

### The association between job resource and burnout syndrome

In terms of work autonomy, the variables autonomy in work 1 (OR: 0.76; 95% CI: 0.57–0.99;  $p = 0.0466$ ) and autonomy in work 2 (OR: 0.68; 95% CI: 0.51–0.89;  $p = 0.0060$ ) showed a significant relationship with burnout, indicating

**Table 2.** The association between job demand and burnout syndrome.

Job demand covariates	Burnout (%)	Non-burnout (%)	OR	95% CI	p value
<i>Qualitative job demands</i>					
Emotional demands	333 (66.96)	299 (64.72)	1.27	0.97–1.67	0.0871
Mental demands	315 (66.18)	294 (63.64)	1.12	0.85–1.47	0.4151
Physical demands	303 (63.66)	278 (60.17)	1.16	0.89–1.51	0.2721
Work home conflict	306 (64.29)	301 (65.15)	0.96	0.73–1.26	0.7815
<i>Quantitative demands</i>					
Work overloads	307 (64.50)	288 (62.34)	1.10	0.84–1.43	0.4926
Pace of change	311 (65.34)	289 (62.55)	1.13	0.86–1.48	0.3749
<i>Organizational demands</i>					
Organizational change	316 (66.39)	307 (66.45)	1.00	0.76–1.30	0.9835
Red tape	335 (70.38)	291 (62.99)	1.40	1.07–1.83	0.0163
Harassment	308 (64.71)	302 (65.37)	0.97	0.74–1.27	0.8316
Role conflict 1	333 (69.96)	299 (64.72)	1.27	0.97–1.67	0.0871
Role conflict 2	308 (64.71)	304 (65.80)	0.95	0.73–1.25	0.7248
Interpersonal conflict	334 (70.17)	305 (66.02)	1.21	0.92–1.60	0.1726

Note: Data were presented as n (%)

OR: Odds ratio, CI: Confidence interval

that lower work autonomy was associated with a higher risk of burnout. Recognition (Award 1) also showed a significant relationship (OR: 0.75; 95% CI: 0.57–0.99;  $p=0.0390$ ), while Award 2 did not show a significant relationship ( $p=0.8057$ ) with the risk of burnout. Supervisor support in the variable supervisor support 1 showed a significant relationship (OR: 0.71; 95% CI: 0.54–0.93;  $p=0.0117$ ), while supervisor support 2 did not show a significant difference ( $p=0.0885$ ). Support from colleagues also played a role, with colleague support 1 showing a significant relationship (OR: 0.55; 95% CI: 0.42–0.72;  $p<0.0001$ ) and colleague support 2 (OR: 0.77; 95% CI: 0.59–0.99;  $p=0.0485$ ) showing a smaller effect on the risk of burnout. A flexible schedule (flexible schedule 1) also showed a significant relationship with burnout (OR: 0.53; 95% CI: 0.41–0.70;  $p<0.0001$ ), while flexible schedule 2 did not show a significant difference ( $p=0.1017$ ). Furthermore, feedback (feedback 1 and feedback 2) also showed a significant relationship with burnout (OR: 0.70; 95% CI: 0.54–0.92;  $p=0.0098$ ) (OR: 0.72; 95% CI: 0.55–0.94;  $p=0.0172$ ). Detailed data regarding the relationship between job resources and burnout syndrome are presented in table 3.

### The association between work life balance and burnout syndrome

Based on time analysis, there was no significant relationship between work time (work time 1 and work time

2) and burnout. Time for family (family time) also did not show a significant difference ( $p=0.3622$ ), nor did rest and relaxation time ( $p=0.3399$ ). Regarding involvement balance, the variables responsibility and commitment (responsibility and commitment 1 and 2) and job involvement (job involvement 1 and 2) did not show a significant relationship with burnout syndrome. Attention to family interests amidst work also did not show a significant relationship ( $p=0.3926$ ). In terms of satisfaction, the relationship with supervisors and colleagues (relationship with supervisors and colleagues 1, 2, 3, and 4) did not show a significant difference between the burnout and non-burnout groups. Family condition and quality and quantity achievement (achieved quality and quantity 1 and 2) also did not have a significant difference ( $p>0.05$ ). Detailed data regarding the relationship between work-life balance and burnout syndrome are presented in table 4.

### The association between supervisor-resident relationship quality and burnout syndrome

Based on the respect factor analysis, our results showed that supervisors who appreciate and recognize the potential of residents were significantly associated with a decrease in the occurrence of burnout (OR: 0.66; 95% CI: 0.50–0.89;  $p=0.0054$ ). However, variables such as the supervisor's understanding of the needs and issues in the resident's

**Table 3.** The association between job resource and burnout syndrome.

Job resource covariates	Burnout (%)	Non-burnout (%)	OR	95% CI	p value
Autonomy in work 1	141 (29.62)	165 (35.71)	0.76	0.57–0.99	0.0466
Autonomy in work 2	139 (29.20)	174 (37.66)	0.68	0.51–0.89	0.0060
Award 1	137 (28.78)	162 (35.06)	0.75	0.57–0.99	0.0390
Award 2	152 (31.93)	151 (32.61)	0.97	0.73–1.27	0.8057
Supervisor support 1	151 (31.72)	183 (39.61)	0.71	0.54–0.93	0.0117
Supervisor support 2	159 (33.40)	179 (38.74)	0.79	0.60–1.03	0.0885
Colleague support 1	166 (34.87)	228 (49.35)	0.55	0.42–0.72	<0.0001
Colleague support 2	175 (36.76)	199 (43.07)	0.77	0.59–0.99	0.0485
Flexible schedule 1	139 (29.20)	202 (43.72)	0.53	0.41–0.70	<0.0001
Flexible schedule 2	153 (32.14)	172 (37.23)	0.80	0.61–1.05	0.1017
Feedback 1	157 (32.98)	190 (41.13)	0.70	0.54–0.92	0.0098
Feedback 2	155 (32.56)	185 (40.04)	0.72	0.55–0.94	0.0172

Note: Data were presented as n (%)

OR: Odds ratio, CI: Confidence interval

**Table 4.** The association between work life balance and burnout syndrome.

Work life balance covariates	Burnout (%)	Non-burnout (%)	OR	95% CI	p value
<i>Time balance</i>					
Work time 1	50 (10.50)	52 (11.26)	0.92	0.62–1.39	0.7118
Work time 2	43 (9.03)	36 (7.79)	1.17	0.73–1.86	0.4937
Family time	44 (9.24)	51 (11.04)	0.82	0.53–1.25	0.3622
Break and relaxation time	37 (7.77)	44 (9.52)	0.80	0.51–1.27	0.3399
<i>Involvement balance</i>					
Responsibility and commitment 1	38 (7.98)	44 (9.52)	0.82	0.53–1.30	0.4036
Responsibility and commitment 2	41 (8.61)	47 (10.17)	0.83	0.54–1.28	0.4127
Job involvement 1	50 (10.50)	51 (11.04)	0.95	0.63–1.41	0.7917
Job involvement 2	52 (10.92)	66 (14.29)	0.74	0.50–1.09	0.1207
Paying attention to family interests amidst work	49 (10.29)	40 (8.66)	1.21	0.77–1.88	0.3926
<i>Satisfaction balance</i>					
Relationship with supervisors and colleagues 1	44 (9.24)	54 (11.69)	0.77	0.50–1.16	0.2211
Relationship with supervisors and colleagues 2	44 (9.24)	55 (11.90)	0.75	0.49–1.13	0.1848
Relationship with supervisors and colleagues 3	52 (10.92)	54 (11.69)	0.93	0.61–1.39	0.7118
Relationship with supervisors and colleagues 4	46 (9.66)	56 (12.12)	0.78	0.51–1.18	0.2268
Family condition	47 (9.87)	49 (10.61)	0.92	0.60–1.40	0.7115
Achieved quality and quantity 1	54 (11.34)	51 (11.04)	1.03	0.68–1.56	0.8820
Achieved quality and quantity 2	53 (11.13)	59 (12.77)	0.86	0.58–1.26	0.4398

Note: Data were presented as n (%)

OR: Odds ratio, CI: Confidence interval

tasks (both in task 1 and task 2) did not show significant differences. Additionally, respect for the supervisor was not significantly related to burnout ( $p=0.6745$ ). For the trust

factor, variables such as alignment with the supervisor (aligning with the supervisor) and trust in the supervisor (having confidence in the supervisor) did not show

significant relationships with the occurrence of burnout. Regarding obligation, no significant relationships were found between the supervisor's willingness to help solve work-related problems ( $p=0.9817$ ), the effectiveness of the working relationship ( $p=0.1027$ ), or the supervisor's willingness to provide support in case of issues ( $p=0.6846$ ). Detailed data regarding the relationship between supervisor-resident relationship quality and burnout syndrome can be seen in table 5.

## DISCUSSION

This study analyzed the factors associated with burnout syndrome in residents. Our results showed that high job demands, such as emotional demands and excessive workload, as well as a lack of support from colleagues and supervisors, were significantly associated with an increased occurrence of burnout. Conversely, job resources such as autonomy in work, supervisor support, and work schedule flexibility were found to have a negative association with burnout, meaning that the higher these resources, the lower the likelihood of burnout. These findings are consistent with previous studies that show social support and control over work can reduce the risk of burnout.<sup>13</sup> Additionally, this study reinforces earlier findings that balancing job demands and available resources is a key factor in maintaining the well-being of residents.<sup>14</sup> Therefore, our results align with prior studies and contribute further insights into the occurrence of burnout in the resident population in Indonesia.

Our study found no significant relationship between qualitative job demands (emotional, mental, physical) and quantitative job demands (workload, pace of change) with the occurrence of burnout in residents. The same result was found for organizational demands related to organizational change. However, red tape showed a significant relationship, with the burnout group being more frequently exposed to these issues. The underlying reason for this result might be due to the well-organized work structure of residents and the strict supervision system in place, which protects residents from the negative impacts of general job demands. However, bureaucratic issues often create administrative barriers and slow down work processes.<sup>15</sup> This may add mental strain and frustration, significantly contributing to burnout.<sup>16</sup> This factor highlights the need for improvements in administrative processes to create a more efficient and supportive work environment.

Our study showed that job resources, in the form of supervisor support, work autonomy, and schedule flexibility, actually significantly decrease the risks for burnout among residents. It is inversely related to those characteristics; the more significant job resources that are guaranteed, the lower the danger of burnout. The fundamental cause of this outcome can be attributed to the part employment resources played in improving residents' capacity to manage work-related responsibilities by providing a safe condition and room for both physical and mental healing. Residents should be better at handling stress and preserving their well-being, especially when they have access to sufficient job resources.

**Table 5.** The association between supervisor-resident relationship quality and burnout syndrome.

Supervisor-resident relationship quality	Burnout (%)	Non-burnout (%)	OR	95% CI	p value
<i>Respect</i>					
The supervisor appreciates and recognizes the potential of the resident	109 (22.90)	143 (30.95)	0.66	0.50–0.89	0.0054
The supervisor understands the needs and issues in the resident's tasks 1	95 (19.96)	107 (23.16)	0.83	0.61–1.13	0.2330
The supervisor understands the needs and issues in the resident's tasks 2	110 (23.11)	101 (21.86)	1.08	0.79–1.46	0.6473
Having respect for the supervisor	121 (25.42)	123 (26.62)	0.94	0.70–1.25	0.6745
<i>Trust</i>					
Aligning with the supervisor	104 (21.85)	121 (26.19)	0.79	0.59–1.07	0.1195
Having confidence in the supervisor	96 (20.17)	107 (23.16)	0.84	0.62–1.15	0.2659
<i>Obligation</i>					
The supervisor is willing to help solve work-related problems	112 (23.53)	109 (23.59)	1.00	0.74–1.34	0.9817
The working relationship is effective	104 (21.85)	122 (26.41)	0.78	0.58–1.05	0.1027
The supervisor is willing to guarantee support if there are any issues	108 (22.69)	110 (23.81)	0.94	0.70–1.27	0.6846

Note: Data were presented as n (%)

OR: Odds ratio, CI: Confidence interval

In fact, our findings showed that work-life balance factors such as work time, family time, and job involvement did not relate significantly to the occurrence of burnout syndrome in the population under study. It means that in the group of residents studied, these factors were not decisive for the occurrence of burnout. The underlying cause of this outcome may be that the work intensity of residents is very high, and even though work-life balance is considered important, supportive job resources and social support are stronger factors in reducing the risk of burnout among residents.

In respect of the supervisor-resident relationship, it was established that appreciation and recognition of residents' potential by the supervisor had a protective effect on the risk of burnout among residents. The reason, probably, is for a number of factors: for one, residents have increased self-confidence when they feel that their contribution and capabilities are valued. Moreover, the recognition from one's supervisor brings a more supportive work environment to encourage not only work motivation but also coping with psychological pressure. The supervisor's support buffers the resident from the negative influence of high job demands and consequently reduces the risk of burnout.

The results of this study provided several benefits and practical implications for higher education in residency programs. First, our findings showed that red tape was significantly associated with burnout among residents, with the burnout group being more frequently exposed to bureaucratic barriers compared to the non-burnout group. Therefore, we recommended that institutions reduce unnecessary bureaucratic obstacles and develop more efficient administrative systems. Second, supervisor support, work schedule flexibility, and job autonomy were found to have a significant relationship with a reduced risk of burnout. We suggested that institutions enhance job resources by providing residents with opportunities to participate in medical decision-making, offering training, and providing adequate psychological support. Third, the positive relationship between supervisors and residents, which includes appreciation for the potential of residents, played an important role in reducing the risk of burnout.

Hence, institutions should improve the quality of supervisor-resident relationships by encouraging open communication and holding regular meetings. Fourth, support from colleagues was also found to play a role in reducing the risk of burnout. Therefore, institutions are advised to strengthen residents' social networks through collaborative activities and social events that promote a sense of community. Fifth, work schedule flexibility, which provides residents with the space to balance workload and personal needs, was also found to be significant in reducing burnout risk. These implications are expected to help reduce burnout and improve the overall well-being of medical residents.

This study had several limitations that need to be considered. First, the cross-sectional design used limited the ability to draw causal conclusions between job demands, job resources, work-life balance, and supervisor-resident relationship quality on burnout. Second, the measurements relying on questionnaires may have introduced subjective bias, as responses could be influenced by personal experiences or the desire to provide socially desirable answers. Third, some items in the questionnaire may not have fully captured the complexity of the variables being measured, such as in the case of supervisor-resident relationship quality. Fourth, this study was conducted only on medical residents. Therefore, the findings may not be generalizable to other professions. Fifth, although the sample size was relatively large, it may not have been sufficient to capture a broader variation, which could have affected the statistical power of the study's results.

In conclusion, this study showed that bureaucratic red tape, supervisor support, work autonomy, flexible work schedules, and positive relationships with supervisors as well as colleague support had a significant relationship with the risk of burnout among medical residents. With these results, it is expected that higher education institutions may adopt supportive policies, such as reducing bureaucratic barriers, enhancing supervisor training, and encouraging collaboration among residents. It is hoped that our findings may not only reduce burnout but also improve the well-being of residents, their performance, and the overall quality of medical services.

## ΠΕΡΙΛΗΨΗ

### Η επίδραση των απαιτήσεων της εργασίας, των πόρων εργασίας, της ισορροπίας μεταξύ επαγγελματικής και προσωπικής ζωής και των σχέσεων επόπτη-ειδικού στο σύνδρομο επαγγελματικής εξουθένωσης μεταξύ των ειδικευόμενων ιατρών στην Ινδονησία

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**ΣΚΟΠΟΣ** Η διερεύνηση της επίδρασης των απαιτήσεων εργασίας, των πόρων εργασίας, της ισορροπίας μεταξύ επαγγελματικής και προσωπικής ζωής και της ποιότητας της σχέσης επόπτη-ειδικού στο σύνδρομο επαγγελματικής εξουθένωσης μεταξύ των ειδικευόμενων ιατρών στην Ινδονησία. **ΥΛΙΚΟ-ΜΕΘΟΔΟΣ** Η μελέτη διεξήχθη μεταξύ Μαρτίου και Ιουλίου 2024. Συλλέχθηκαν δεδομένα από 938 ειδικευόμενους ιατρούς σε 16 πανεπιστήμια στην Ινδονησία. Η συλλογή δεδομένων πραγματοποιήθηκε διαδικτυακά χρησιμοποιώντας ένα ερωτηματολόγιο βασισμένο σε Google Form που είχε υποβληθεί σε έλεγχο εγκυρότητας και αξιοπιστίας. **ΑΠΟΤΕΛΕΣΜΑΤΑ** Η μελέτη εντόπισε διάφορους παράγοντες που επηρεάζουν τον κίνδυνο επαγγελματικής εξουθένωσης μεταξύ των ειδικευόμενων ιατρών στην Ινδονησία. Η γραφειοκρατία συσχετίστηκε σημαντικά με αυξημένο κίνδυνο επαγγελματικής εξουθένωσης (σχετικός λόγος [OR]: 1,40, 95% διάστημα εμπιστοσύνης [CI]: 1,07–1,83,  $p=0,0163$ ). Από την άλλη πλευρά, η αυτονομία στην εργασία 1 (OR: 0,76, 95% CI: 0,57–0,99,  $p=0,0466$ ) και η αυτονομία στην εργασία 2 (OR: 0,68, 95% CI: 0,51–0,89,  $p=0,0060$ ) συσχετίστηκαν με μειωμένο κίνδυνο επαγγελματικής εξουθένωσης. Επί πλέον, η υποστήριξη από τον προϊστάμενο (OR: 0,71, 95% CI: 0,54–0,93,  $p=0,0117$ ), η υποστήριξη από τους συναδέλφους (OR: 0,55, 95% CI: 0,42–0,72,  $p<0,0001$ ) και τα ευέλικτα ωράρια εργασίας (OR: 0,53, 95% CI: 0,41–0,70,  $p<0,0001$ ) συσχετίστηκαν επίσης με μειωμένο κίνδυνο επαγγελματικής εξουθένωσης. **ΣΥΜΠΕΡΑΣΜΑΤΑ** Η παρούσα μελέτη υπογραμμίζει τον αντίκτυπο των απαιτήσεων της εργασίας, των πόρων εργασίας, της ισορροπίας μεταξύ επαγγελματικής και προσωπικής ζωής και των σχέσεων επόπτη-ειδικού στο σύνδρομο επαγγελματικής εξουθένωσης μεταξύ των ειδικευόμενων ιατρών στην Ινδονησία.

**Λέξεις ευρητηρίου:** Άγχος, Ειδικευόμενοι ιατροί, Ποιότητα ζωής, Σύνδρομο επαγγελματικής εξουθένωσης, Ψυχική υγεία

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