Universal Journal of Public Health 12(3): 425-433, 2024
DOI: 10.13189/ujph.2024.120301 http://www.hrpub.org

Post-pandemic Job Burnout in Azerbaijani Medical Doctors: The Role of Psychological Resilience and Hope

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Received September 22, 2023; Revised April 3, 2024; Accepted May 20, 2024

Cite This Paper in the Following Citation Styles

(a): *[1] Elnur Rustamov, Narinj Rustamova, Gulay Mammadzada , "Post-pandemic Job Burnout in Azerbaijani Medical Doctors: The Role of Psychological Resilience and Hope," Universal Journal of Public Health, Vol. 12, No. 3, pp. 425 - 433, 2024. DOI: 10.13189/ujph.2024.120301*

(b): *Elnur Rustamov, Narinj Rustamova, Gulay Mammadzada (2024). Post-pandemic Job Burnout in Azerbaijani Medical Doctors: The Role of Psychological Resilience and Hope. Universal Journal of Public Health, 12(3), 425 - 433 DOI: 10.13189/ujph.2024.120301*

Abstract The impact of the COVID-19 pandemic on healthcare professionals worldwide has been significant, affecting both their physical and emotional well-being. This has led to the emergence of a major concern known as occupational stress or burnout syndrome characterized by emotional exhaustion, depersonalization, and feelings of reduced personal accomplishment. The present research is driven by the need to understand the specific factors contributing to post-pandemic burnout in Azerbaijani medical doctors and identify potential interventions to mitigate its adverse effects. The aim of the study was to investigate the mediating role of hope in the relationship between the psychological resilience of medical doctors and the level of job burnout. Brief Psychological Resilience Scale, Maslach Burnout Inventory Scale, and Dispositional Hope Scale were used to measure the outcome of interest. A total of 303 medical doctors, with a mean age of 39 years (SD 10.25), participated in our study, and a significant majority (79.5%) of them were female. Almost 80% of participants reported being married and 73.2% were working in the central hospitals. Correlation analyses showed that job burnout is negatively related to psychological resilience and hope. On the other hand, psychological resilience was positively associated with hope. In addition, structural equation modeling revealed that hope played a mediating role in the relationship between psychological resilience and burnout sub-dimensions (emotional exhaustion, depersonalization, and personal accomplishment). Based on the results of this research, increasing the level of psychological resilience during the period when individuals experience burnout and become desensitized may be curative. The findings from this study may have practical implications for the development of interventions and support systems tailored to the unique needs of Azerbaijani medical doctors.

Keywords Psychological Resilience, Job Burnout, Hope, Medical Doctors, Post-pandemic

1. Introduction

Many aspects of life have changed after the emergence of the coronavirus disease (COVID-19). This global disease, which severely shook both individuals and states, had a special impact on the economy, social life, education, and health [1, 2]. This disease, which caused individuals to experience psychological problems, led to changes in life norms. In addition, behavioral disorders emerged in individuals who were caught unprepared for the new life [3]. Besides, it changed many occupational groups' working conditions and had a negative impact on the professional lives of health professionals, both physically [4, 5, 6] and psychologically [7, 8, 9]. When evaluated from a physical point of view, it is possible to say that all health professionals, especially medical doctors, have survived serious diseases or faced death [10]. Research reports revealed that many healthcare workers died due to COVID-19 [11, 12, 13].

On the other hand, it has been claimed in mental health studies that health workers experience depression, stress, anxiety, and other psychological problems more than other individuals [14, 15, 16]. In addition to the psychological problems mentioned in these studies, problems such as burnout emerged particularly amongst healthcare workers both during and after the pandemic. Job burnout experienced by healthcare workers has been the subject of many studies [17, 18, 19, 20, 21]. Experienced professional burnout is reported to cause medical doctors to have difficulties in doing their profession and thus, many medical doctors want to leave the profession [10]. Based on the results of these studies, job burnout, especially among health workers, may be one of the effects of the pandemic. This burnout also demonstrates its effect on life after the pandemic.

The concept of burnout was first coined by Freudenberger [22]. This concept is expressed in the aforementioned study as a loss of energy as individuals fail in their work. Leiter and Maslach [23], on the other hand, define burnout as the helplessness of individuals both physically and mentally. Burnout, which has many different definitions in the literature, is explained through three dimensions [24]. These are: (a) Emotional exhaustion, (b) depersonalization, and (c) personal accomplishment. Lee and Ashforth [25] discuss the three dimensions of job burnout as outlined in Maslach's concept within the literature. They argue that the increase in unwillingness is associated with the decline in the individual's emotional resources, which is described as emotional exhaustion. At the same time, the individual's alienation from the environment in this process is expressed as depersonalization. Personal success, expressed as the third dimension of burnout, is defined as the individual's evaluation of themselves as inadequate in his work. These three dimensions can cause individuals to lose focus, become unresponsive at work, and have lower job satisfaction. In the literature, this situation is expressed as job burnout [26].

In particular, occupational groups that provide assistance to other individuals are more likely to experience job burnout [27]. It may be stated that health workers, who are among these occupational categories, are emotionally exhausted. These people become depersonalization to other events around them and question individuals' accomplishments particularly during the pandemic. According to research in the literature, medical doctors, especially, experience a high level of job burnout during the pandemic [10, 28]. Therefore, some protective factors should be taken to prevent job burnout experienced by healthcare professionals. When the literature is examined, it is evaluated that psychological resilience may be one of these protective factors [29, 30, 31].

Psychological resilience is the ability of individuals to cope with and adapt to the difficulties they face [32]. In the literature, it is stated that individuals with high psychological resilience are those who can cope with difficulties and overcome them even when they have problems [33, 34, 35]. These studies reveal that a high level of psychological resilience is a factor that can reduce burnout. Similarly, several research on healthcare professionals reveals that psychological resilience may play an essential role in reducing individuals' job burnout [31, 36, 37]. In the study conducted by Rees et al. [38] with nursing students, it is stated that there is a significant relationship between psychological resilience and burnout. All of these studies demonstrate that healthcare professionals should have high psychological resilience to cope with professional burnout. In other words, the level of psychological resilience of health workers is a protective factor for job burnout.

Another protective factor that is considered to be effective in preventing job burnout experienced by healthcare professionals is hope. Hope is a process that involves individuals setting goals in life and planning to reach the goal [39]. Another research defines hope as the state of having positive expectations about the future [40]. In the study conducted by Fredrickson et al. [41], it is noted that hope has an important role in individuals' trying to cope with disturbing situations in life. In this viewpoint, it may be beneficial for individuals to have high hopes to cope with difficult and stressful life events. In other words, the role of hope in reducing individuals' job burnout might be mentioned. This idea is supported by a recent study by Pharris et al. [42]. In the aforementioned study, it is emphasized that hope significantly predicts burnout and that individuals' levels of hope should be increased to reduce burnout. Similarly, according to another recent study, there is a significant relationship between hope and burnout, and hope is a variable that predicts burnout [43]. Based on these research findings, it may be beneficial to carry out studies to increase individuals' hope levels to prevent job burnout experienced by healthcare workers.

Lastly, other studies are showing that there is a significant relationship between the variables of psychological resilience and hope, which is supported by the literature, and has an important role in reducing burnout [44, 45]. Based on these studies, examining the psychological resilience, hope level, and job burnout of health workers can contribute to the literature. Job burnout may be experienced more in individuals after the pandemic, especially since the mental health of all healthcare professionals, especially medical doctors, is adversely affected and they work in a stressful way for a long time. Therefore, it is important to conduct this research and to investigate which factors may be effective in preventing job burnout in health workers. The objective of this cross-sectional study is to explore the association between psychological resilience and professional burnout among medical doctors and to investigate the potential mediating role of hope in this relationship.

1.1. Hypotheses

H1: There is a significant negative association between

psychological resilience and professional burnout among medical doctors, indicating that doctors with higher levels of psychological resilience are likely to report lower levels of professional burnout.

H2: Hope is positively associated with psychological resilience and negatively associated with professional burnout among medical doctors, suggesting that higher levels of hope might correlate with lower levels of professional burnout, particularly among those with high psychological resilience.

H3: Hope acts as a mediator in the association between psychological resilience and professional burnout among medical doctors, meaning that the relationship between psychological resilience and professional burnout is partly explained by the level of hope.

2. Materials and Methods

2.1. Present Participants and Procedure

The participants were medical doctors from the affiliated center and surrounding areas, in Baku, Azerbaijan. A total of 303 medical doctors were recruited via a web-based survey. Participation was anonymous, voluntary and without compensation. The mean age of the participants was 39 years (SD = 10.25); 79.5% of the participants were female. The average experience of the participants in the profession of medicine is 13.99 years (SD = 10.11). The average number of patients per day is 11.48 (SD = 9.16). More information about the participants' characteristics is presented in Table 1.

Table 1. Sample characteristics

Variable	Frequency (*n*)	*%*
Gender		
Female	241	79.5
Male	62	20.5
Marital status		
Married	240	79.2
Single	63	20.8
Years of employment as a medical doctor		
1-3 years	52	17.2
4-6 years	35	11.6
7-10 years	42	13.9
11-15 years	53	17.5
16-20 years	54	17.8
21-25 years	28	9.2
26 and above	39	12.9
Number of patients per day		
1-5 patients	84	27.7
6-10 patients	123	40.6
11-15 patients	40	13.2
16-20 patients	24	7.9
21 and above	32	10.6
Hospital status		
State hospital	147	48.5
Private hospital	156	51.5
Region		
City center	224	73.9
Suburban	79	26.1
Perceived financial income		
Sufficient	131	43.2
Insufficient	172	56.8

2.2. Ethics

The study adhered to the ethical standards outlined in the 1964 Declaration of Helsinki and its subsequent revisions. Ethical approval was obtained from the Ethics Council of the Psychology Scientific Research Institute to ensure the ethical conduct of the study (Decision Number: T-666).

2.3. Measures

Brief Psychological Resilience Scale (BPRS) [46]. The BPRS, which is used to determine the psychological resilience level of individuals, consists of six items (e.g., "I get through difficult times with little trouble"). Items are rated on a five-point scale from 1 (*strongly disagree*) to 5 (*strongly agree*). Three items in the scale are reverse. The scale may be used to get a total score when the reversed items are arranged. A high score on the scale means a high level of psychological resilience. As a result of the construct validity of the scale, it was reported that it had a good fit. In addition, the Cronbach alpha value was calculated as .83.

The Maslach Burnout Inventory (MBI) [47]. The MBI, which evaluates the burnout level of individuals, consists of nine items (e.g., "I feel emotionally drained from my work"). Items are rated on a seven-point scale from 1 (*never*) to 7 (*every day*). The scale has three sub-dimensions: emotional exhaustion, depersonalization, and personal accomplishment. There are reverse items in the scale. After the reversed items are arranged, a separate total score is taken for each sub-dimension. An increase in the scores obtained from the sub-dimensions indicates a higher level of burnout. It has been reported that the construct validity of the scale is at a sufficient level. As a result of the reliability analysis of the scale, Cronbach's alpha values were calculated as .90 for emotional exhaustion, .79 for depersonalization and .71 for personal achievement.

Dispositional Hope Scale (DHS) [39]. The DHS used to determine the hope level of the participants has two sub-dimensions and a total of 12 items (e.g., "I reach the goals I set for myself"). Four of the items are fillers and are not included in the scoring. Items are rated on an eight-point scale from 1 (a*bsolutely wrong*) to 8 (*absolutely right*). A total score can be obtained from the scale. Higher scores indicate a higher level of hope. As a result of the construct validity of the scale, it was stated that it had sufficient fit. In the reliability analysis, the Cronbach alpha coefficient was calculated as .83.

2.4. Statistical Analysis

Firstly, descriptive statistics and Pearson correlations between the study variables were investigated. Then, mediation analyses were computed to examine whether hope mediated the role of psychological resilience on medical doctors' job burnout by using a structural equation modeling. In all models, adjustments for potential confounding variables, such as gender and age were included. The significance of indirect effects was tested. A 95% bias-corrected confidence interval (CI) was used to estimate indirect effects with 5000 resamples

3. Results

3.1. Descriptive Statistics

Table 2-3 presents the means, standard deviations, skewness, kurtosis, and correlations for the main study variables. Correlation analyses (see Table 3) showed that job burnout was negatively related to psychological resilience (r = -.279, p < .001) and hope (r = -.507, p < .001). On the other hand, psychological resilience was positively associated with hope (r = .150, p < .01).

Table 2. Descriptive statistics and correlations among study variables

Variable	Cronbach alpha	1	2	3
1. Job burnout	.70	–		
2. Psychological resilience	.73	-.279**	–	
3. Hope	.89	-.507**	.150**	–
** p < .01				

3.2. Measurement Models

Measurement models were tested separately for the three sub-dimensions of job burnout (personal accomplishment, depersonalization, and emotional exhaustion). All the fit indices for the measurement model indicated that they were a suitable fit to the data: CMIN/df = 4.63, 3.05, 3.43; CFI = .934, .947, .948; IFI = .935, .947, .949; NFI = .918, .924, .929; GFI = .938, .960, .955; SRMR = .065, .053, .050. All factor loadings of the measurement model as indicators were significant, ps< .001. After the confirmation of the measurement model, the structural models were calculated.

3.2.1. Structural Models

We tested the role of psychological resilience on job burnout through the mediation of hope in three different structural models. First, the model for personal accomplishment, which is the sub-dimension of job burnout, was established. Therefore, the role of hope is a full mediator between psychological resilience and personal accomplishment. The fully-mediated model was found to be an acceptable fit to the data CMIN/df = 3.99; CFI = .91; IFI = .91; GFI = .93; SRMR = .07. Then, we added the path from psychological resilience to personal accomplishment. When this path was added (partially-mediated model), the fit was good CMIN/df = 3.64; CFI = .92; IFI = .92; NFI = .90; GFI = .94; SRMR = .061. A chi-square difference test revealed that the partially-mediated model was significantly different from the fully-mediated model ($\Delta\chi^2$ = 14.35, df = 1, p < .001), therefore partially-mediated model was preferred (see Figure 1A). As a result, psychological resilience may increase hope and this increase may strengthen personal accomplishment in Azerbaijani medical doctors. In

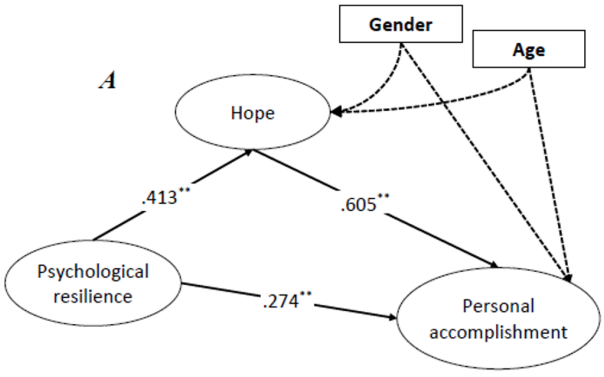
addition, psychological vulnerability may directly predict personal accomplishment.

The second model was established for depersonalization. Firstly, fully mediated model, which includes hope as a mediator, and no direct path from psychological resilience to depersonalization was tested. The model was found to be an acceptable fit to the data CMIN/*df* = 2.18; CFI = .95; IFI = .915 GFI = .96; SRMR = .049. Later, a direct path from psychological resilience to depersonalization was added. When this path was added (partially-mediated model), the fit was good CMIN/*df* = 2.23; CFI = .95; IFI = .95; NFI = .91; GFI = .96; SRMR = .049, however, the path from psychological resilience to depersonalization was not significant (β = -.11, p > .05). Both non-significance path and chi-square difference test results ($\Delta\chi^2$ = 1.09, *df* = 1, p > .05) showed that fully-mediated model was preferred (see Figure 1B).

Lastly, the model for emotional exhaustion was established. The function of hope as a complete mediator between psychological resilience and emotional exhaustion. The fully-mediated model was found to be an acceptable fit to the data CMIN/*df* = 2.86; CFI = .93; IFI = .93; GFI = .95; SRMR = .05. Then, we added a path from psychological resilience to emotional exhaustion. When this path was added (partially-mediated model), the fit was good CMIN/*df* = 2.81; CFI = .94; IFI = .94; NFI = .90; GFI = .95; SRMR = .051. A chi-square difference test revealed that the partially-mediated model was significantly different from the fully-mediated model ($\Delta\chi^2$ = 4.11, *df* = 1, p < .05), therefore partially-mediated model was preferred (see Figure 1C).

3.2.2. Bootstrapping Analysis

The mediating role of hope was also tested via bootstrapping based on 5,000 bootstrap samples, as displayed in Table 3. We found that hope provided significant mediating pathways linking psychological resilience to personal accomplishment (bootstrap estimate = .250, 95% CI = .123, .374), depersonalization (bootstrap estimate = -.114, 95% CI = -.208, -.044), and emotional exhaustion (bootstrap estimate = -.084, 95% CI = -.178, -.029). The indirect effect of psychological resilience on job burnout mediated by hope is presented in Table 3.



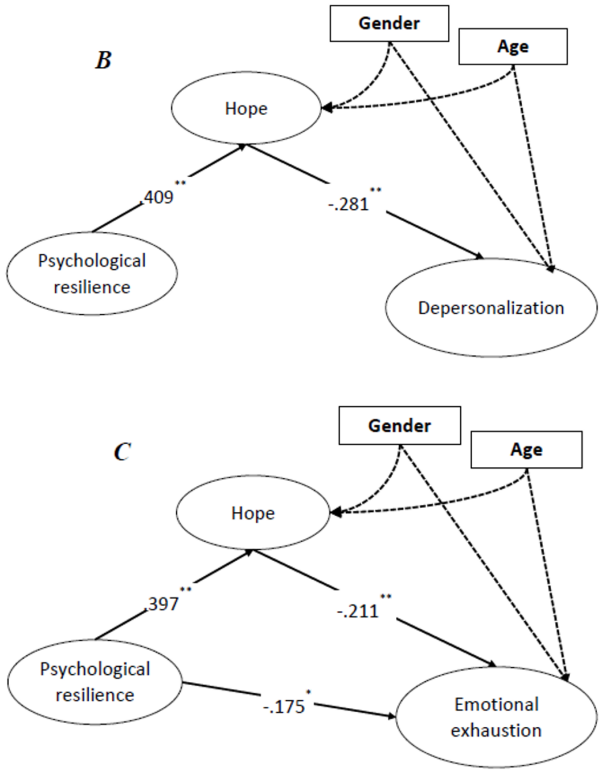


Figure 1. Standardized factor loadings for the structural model

Table 3. Bootstrapping Results

Model pathways	Estimated	95 % C.I.	
		Lower	Upper
Indirect effect			
Psychological resilience → Hope → Personal accomplishment	.250	.123	.374
Psychological resilience → Hope → Depersonalization	-.114	-.208	-.044
Psychological resilience → Hope → Emotional exhaustion	-.084	-.178	-.029

4. Discussion

The pandemic has impacted nearly all occupational groups, with health professionals, especially medical doctors, facing significant challenges. These challenges have not only led to physical strain but also to a variety of mental health issues, including an increase in reported burnout [19] and a decrease in future hopes [43]. In this context, our research aimed to delve into the mediating role of hope in the relationship between psychological resilience and the sub-dimensions of job burnout among medical doctors, through the establishment of three distinct models. The findings are discussed in further detail below, with a focus on the implications of hope's role.

The first significant finding of our study is that hope partially mediates the relationship between psychological

resilience and personal accomplishment among medical doctors. This implies that while psychological resilience directly influences personal accomplishment, the inclusion of hope in the model adds a predictive value, suggesting that higher levels of hope can further enhance personal accomplishment. This aligns with previous research indicating a strong relationship between psychological resilience and personal accomplishment, a sub-dimension of burnout [31, 48, 49, 50], and is supported by studies in other fields, such as special education and healthcare, highlighting the positive correlation between hope and personal accomplishment [52, 53]. These findings underscore the crucial role of psychological resilience and hope in combating burnout and fostering a sense of achievement among medical professionals.

The second finding reveals that hope mediates the relationship between psychological resilience and depersonalization. This indicates that the direct effect of psychological resilience on depersonalization is overshadowed when hope is considered, making hope the sole significant predictor of depersonalization in this model. Previous studies have documented the predictive power of psychological resilience on depersonalization [37, 51], and our findings suggest that bolstering hope could be a key strategy in reducing feelings of depersonalization among medical doctors experiencing burnout. This is further supported by literature indicating a significant relationship between increased hope levels and reduced depersonalization [55, 56, 57].

Lastly, our study found that hope plays a partially mediating role in the relationship between psychological resilience and emotional exhaustion. This means that psychological resilience impacts emotional exhaustion both directly and indirectly through hope, highlighting the importance of fostering both psychological resilience and hope to mitigate emotional exhaustion. This is consistent with numerous studies that have established a link between psychological resilience and lower levels of emotional exhaustion across various healthcare settings [37, 53, 54, 58, 59, 60, 61, 64]. Moreover, research suggests that enhancing hope can further reduce emotional exhaustion, reinforcing the idea that hope and psychological resilience are key determinants in managing burnout's emotional toll [42, 62, 63].

In conclusion, the findings of our study illuminate the critical role of hope as a mediator in the relationship between psychological resilience and the different facets of job burnout among medical doctors. By expanding our understanding of these dynamics, we underscore the importance of interventions aimed at enhancing psychological resilience and fostering hope as effective strategies for addressing burnout in the healthcare sector. This approach not only aids in reducing burnout symptoms but also contributes to the overall well-being and professional satisfaction of medical doctors, who have been under unprecedented stress during the pandemic.

4.1. Implications

In this study, job burnout of all healthcare workers, especially medical doctors, who have both physical and mental difficulties due to COVID-19, was examined after the pandemic. In the study, the protective factors for personal accomplishment, depersonalization and emotional exhaustion, which are sub-dimensions of burnout, were discussed. In this study, it was revealed that psychological resilience and hope are protective factors for the sub-dimensions of burnout separately. Considering that the effects of the pandemic are still effective on the psychological health of individuals, it can be said that these research findings are valuable. Since many health professionals do not want to do their jobs after the pandemic, there is a need for further research findings that can strengthen the mental health of individuals. The findings of the present study may address this need. Therefore, it may be greatly beneficial to develop and implement psycho-educational programs that increase health workers' psychological resilience and hope levels.

4.2. Limitations and Future Research

There are certain limitations in addition to the study's implications. Firstly, the scales used in the study are self-report scales, and while the participants volunteered their answers may have been biased. Therefore, the data collection process can be carried out by using different ways in future research. Second, because the research design is cross-sectional, the cause-effect link between the variables cannot be established clearly. Future research can be carried out with a longitudinal or experimental research design. Third, data collection using the convenience sampling method in the research is a limitation. Future studies can use different sampling methods. Fourth, in this study, data was collected from medical doctors and research was conducted. In future research, new models can be tested by collecting data from all other healthcare workers. The last limitation is that the sample group of the study consists mostly of female participants. In future research, male doctors can be reached more and models can be tested similarly.

5. Conclusions

In this study, we embarked on a comprehensive investigation of the protective factors aimed at mitigating job burnout among medical doctors following the COVID-19 pandemic. This research marks a significant milestone as it represents the inaugural exploration of this critical issue within the context of Azerbaijan. Leveraging the robust methodology of structural equation modeling (SEM), we delved into the multifaceted dimensions of doctors' professional burnout. One of the key revelations of our study pertains to the pivotal role of enhancing

psychological resilience and fostering hope among individuals within the medical profession. Our findings underscored that interventions aimed at bolstering these attributes can indeed yield promising results in reducing job burnout among doctors. As we navigate the complex landscape of post-pandemic healthcare, our research offers valuable insights for policymakers, healthcare administrators, and practitioners alike, providing a solid foundation upon which targeted strategies can be developed to support the well-being of medical doctors in Azerbaijan.

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