

Predictors of quality of professional life and well-being of medical residents and interns: Role of gender and workplace spirituality

Mohammad Hadi Yadollahpour¹  | Maral Eydi²  | Mousa Yaminfirooz¹  |
Hemmat Gholinia¹  | Shirin Shahrokhi³  | Mahbobeh Faramarzi¹ 

¹Social Determinants of Health Research Center, Health Research Institute, Babol University of Medical Sciences, Babol, Iran

²Student Research Committee, Health Research Institute, Babol University of Medical Sciences, Babol, Iran

³Clinical Psychology, Student Research Committee, Behshahr Azad University, Behshahr, Iran

Correspondence

Mahbobeh Faramarzi, Social Determinants of Health Research Center, Health Research Institute, Babol University of Medical Sciences, Babol, Iran,
Email: mahbob330@yahoo.com

Funding information

Babol University of Medical Sciences, Grant/Award Number: 724134099

Abstract

Background and Aims: The well-being of physicians in their professional lives has a major influence on the quality of medical care and patient outcomes. This study explored how Professional Quality of Life (ProQOL) and psychological well-being are connected to workplace spirituality (WPS) and demographic factors like age and gender. It also compared the average levels of ProQOL, psychological well-being, and WPS between medical residents and interns.

Methods: In a cross-sectional study, 230 medical residents and interns completed three questionnaires, including ProQOL, Ryff Scale Psychological Wellbeing–Short Form, and WPS. The data was analysed using Pearson correlation, independent *t*-test, ANOVA, and multiple linear regression modeling.

Results: Residents and interns had moderate ProQOL levels and higher work spirituality. However, medical residents scored lower in occupational spirituality and compassionate care fulfillment compared to interns while experiencing higher levels of emotional exhaustion and secondary mental strain. Gender disparities were significant, with women scoring higher in compassionate care fulfillment but lower in secondary mental strain. Regression analysis showed that occupational spirituality positively predicted professional, compassionate care fulfillment ($B = 0.910, p < 0.001$) but negatively predicted emotional exhaustion in both groups.

Conclusions: These findings underscore the importance of understanding factors like gender and work spirituality to enhance the well-being and quality of care provided by medical residents and interns.

KEYWORDS

gender, professional quality of life, psychological well-being, work spirituality

This is an open access article under the terms of the [Creative Commons Attribution-NonCommercial-NoDerivs](https://creativecommons.org/licenses/by-nc-nd/4.0/) License, which permits use and distribution in any medium, provided the original work is properly cited, the use is non-commercial and no modifications or adaptations are made.

© 2024 The Author(s). *Health Science Reports* published by Wiley Periodicals LLC.

1 | INTRODUCTION

Medical schools are responsible for training competent, professional, and aware medical students to ensure the health of individuals and society.¹ However, to achieve this goal, some aspects of the medical education process can lead to mental and psychological distress in medical students, which can have undesirable consequences.² Medical students face various challenges during their years of medical education.^{2,3} Long-term medical training, encountering the suffering and death of patients, time constraints, and feelings of competition can impact medical students' quality of life (QOL).^{4,5}

Professional Quality of Life (ProQOL) reflects how individuals perceive their work in a caregiving role. ProQOL encompasses positive aspects, like compassion satisfaction (CS), and negative⁶ aspects, such as compassion fatigue (CF). Compassion satisfaction is the rewarding and fulfilling feeling that comes from providing care, helping others, and recognizing the social impact of one's work.⁷ This satisfaction arises when empathy drives acts of kindness and eases patients' suffering. On the other hand, compassion fatigue, which can present as burnout (BO) or secondary traumatic stress (STS),⁶ is a common challenge in healthcare, often resulting from the emotional toll of dealing with patients' difficulties and distress in medical settings.⁸

ProQOL in physicians is a multidimensional construct encompassing various dimensions that significantly impact their well-being and job satisfaction. It is generally defined as an individual's satisfaction with life.⁹ Physicians face numerous challenges that significantly affect their satisfaction, work-life balance, and fulfillment in their chosen profession. Factors such as workload, autonomy, relationships with colleagues and patients, and organizational climate all contribute to the overall quality of professional life experienced by medical professionals.¹⁰

Various factors influence the ProQOL of medical residents and interns. A report indicated that demographic factors such as age, gender, and marital status play a role in healthcare providers' ProQOL.⁷ A study by Zakeri and colleagues compared CS, fatigue, and resilience among nurses before and during the COVID-19 pandemic. Resilience and gender were significant predictors of CS during COVID-19. In contrast, resilience and work experience were significant predictors before COVID-19.¹¹ Another study by Xu et al. analyzed the correlation between clinical nurses' ProQOL and their demographic characteristics. They found that marital status and education significantly influenced compassion satisfaction, BO, and STS. They also found that nurses with higher CS experienced less BO and STS.¹²

The psychological well-being of physicians is an important aspect of their lives, encompassing emotional, mental, and social dimensions.¹³ Psychological well-being encompasses self-acceptance, positive relationships, autonomy, environmental mastery, a sense of purpose, and personal growth. This broad perspective on well-being is rooted in Carol Ryff's multidimensional model of mental well-being.¹⁴ The most important aspects relate to physicians' responsibility for patient health, lack of control over patients, high standards

of patients and their families, and dissatisfaction with medical practice.¹⁵

Workplace spirituality (WPS), or occupational spirituality, is an emerging concept that emphasizes finding meaning, purpose, and fulfillment in work, aligning with personal values and beliefs, and experiencing a sense of connection and transcendence in the work environment. This is associated with increased job satisfaction, organizational commitment, adaptation, and overall well-being among employees in various relevant areas. Research indicates that WPS can enhance employees' commitment and sense of life meaning through values such as unity, responsibility, justice, trust, honesty, innovation, and professionalism.¹⁶

Furthermore, the concept of spirituality in the workplace is not about religious practices; rather, it is more about recognizing that individuals have an inner life nourished by engaging in meaningful work within the framework of a community.¹⁷ This perspective emphasizes the importance of integrating spirituality into work to enhance a sense of meaning, purpose, and transcendence, which can have positive outcomes for both employees and organizations.¹⁸

Understanding the role of demographic factors and WPS among medical interns in predicting their ProQOL and psychological well-being is a vital subject in the outlook of modern healthcare. As these interns navigate their educational challenges and pressures, fostering WPS may provide them with resilience, meaning, and purpose. The study aimed to investigate:

1. The connection between ProQOL and psychological well-being with demographic factors like age and gender among interns and residents.
2. The influence of work spirituality and gender on predicting medical students' ProQOL and psychological well-being.
3. A comparison of the average scores of ProQOL, psychological well-being, and work spirituality between medical residents and interns.

2 | MATERIAL AND METHODS

2.1 | Study design and population

This cross-sectional analytical study was conducted with Babol University of Medical Sciences medical residents and interns between December 2022 and June 2023. To achieve reliable results, 230 participants were selected, based on a minimum correlation of 0.20 between ProQOL and gender, with a 95% confidence level and 80% statistical power, accounting for a possible 15% dropout rate.

$$n \geq \left(\frac{Z_1 - \frac{\alpha}{2} + Z_1 - \beta}{\frac{1}{2} \ln \frac{1+r}{1-r}} \right)^2 + 3 = 230$$

$$\alpha = 0.05, \quad \beta = 0.20, \quad r = 0.20$$

The study used a convenience sampling method to select participants.

The inclusion criterion for participation in this study was agreement among medical internship and residency students at Babol University of Medical Sciences to participate and complete the questionnaires used. Students with incomplete questionnaires were excluded from the study.

Initially, the purpose of this study was explained to the residents and interns of Babol University of Medical Sciences. After obtaining their consent, a questionnaire was administered, beginning with inquiries about their demographic information, followed by distributing other questionnaires. Upon completion of the questionnaires, the data were analyzed while maintaining confidentiality. The time required to complete the questionnaire was 10 to 15 min.

2.2 | Instrument

Data were collected using a questionnaire consisting of four sections: demographic characteristics.

2.2.1 | Demographic information questionnaire

A general questionnaire to collect demographic information includes age, gender, marital status, spouse's occupation, employment history, and number of children.

2.2.2 | ProQOL

The ProQOL scale, created by Stamm,¹⁹ is a self-report questionnaire consisting of 30 items designed to measure three areas: CF, BO, and CS, with each area covered by 10 items. Responses are given on a 6-point Likert scale, ranging from 0 (never) to 5 (always), with total possible scores between 0 and 50 for each scale. Scores of 22 or below indicate low levels, 23–41 are moderate, and 42 and above reflect high levels of CS, BO, and CF.¹⁹ In this study, the Persian version of the ProQOL scale (version 5) was used, which had previously been applied to 464 Iranian healthcare workers, yielding an intraclass reliability of $r = 0.96$ and an internal reliability (Cronbach's alpha) of $r = 0.73$.²⁰ The Cronbach's alpha for the CF, BO, and CS subscales was 0.85, 0.74, and 0.64, respectively. The ProQOL scale has been validated in over 200 studies.¹⁹

2.2.3 | Ryff scale psychological wellbeing–short form

Created by Ryff in 1989 and updated in 2002, this questionnaire is a condensed version of the original with 120 questions. Participants respond to the RSPWB-SF using a 6-point Likert scale, where higher scores reflect better psychological well-being. The scale measures six key areas: self-acceptance, personal growth, purpose in life, environmental mastery, autonomy, and positive relationships with

others. Research has shown the test's correlation between 0.70 and 0.89 across 84 items.²¹ In the Iranian adaptation, internal consistency, measured by Cronbach's alpha, ranges from 0.71 to 0.78 for the various factors, with a total test-retest reliability of 0.82.²²

2.2.4 | Workplace spirituality

This concept was assessed using a modified version of a three-dimensional scale developed by Milliman et al. in 2003, based on earlier work by Ashmos and Duchon in 2000, initially targeting the healthcare sector. The reliability of each dimension in the scale has a Cronbach's alpha ranging from 0.88 to 0.94.¹⁸ The scale has been validated and shown to be reliable in numerous studies.^{23,24}

It was later adapted into Persian by Alizadeh, with modifications specific to nurses, resulting in a 20-item questionnaire. This version uses a 5-point Likert scale, where responses range from “completely disagree” (1) to “completely agree” (5). The scale covers three dimensions: meaningful work (6 items), sense of community (7 items), and alignment with organizational values (7 items), with total scores ranging from 20 to 100. The Persian version has demonstrated content and face validity, with a Cronbach's alpha of 0.882,²⁵ as well as in a study on the Iranian nursing population, which also showed a Cronbach's alpha of 0.88.²⁶

2.3 | Data analysis

After collecting the data, they are entered into SPSS 22 software. If the variables follow a normal distribution pattern in descriptive analysis, the data will be reported using mean and standard deviation. If the data do not conform to this model, they will be reported using median and range. Furthermore, Pearson correlation, independent t-test, ANOVA, and multiple linear regression modeling were employed to address the study questions. A significance level of 5% will be considered in these tests.

3 | RESULTS

In this study, 230 participants, consisting of interns and residents in the field of medicine, were included. Among the participants, 170 were interns, and 60 were residents. Among the participants, 141 were female, and 89 were male, with 55 married and 175 single individuals. Furthermore, 189 participants were under 30, and 41 were 30 years old or older.

Table 1 compares the mean scores of ProQOL, psychological well-being, and work spirituality in two groups: medical residents and interns. The mean ProQOL scores in both groups, medical residents and interns, were average across all sub-components. A comparison between the two groups revealed that in medical residents, the mean CS was significantly lower than that of interns. However, the mean CF and STS in medical residents was significantly higher than in interns ($p < 0.001$).

In medical residents and interns groups, work spirituality was higher than average (scores exceeding 50 out of a maximum score of 100). Additionally, the t-test results showed that the overall score of work spirituality and all its sub-components were significantly lower

TABLE 1 Comparison of average work spirituality, psychological well-being, and quality of professional life in interns and residents.

Education Variables	Intern Mean (SD)	Resident Mean (SD)	p value
Psychological well-being			
Autonomy	14.98 (2.14)	8.65 (1.68)	$p < 0.001$
Environmental mastery	13.26 (2.01)	7.65 (1.47)	$p < 0.001$
Personal growth	13.59 (1.16)	11.83 (0.8)	$p < 0.001$
Positive Relation with others	11.32 (1.59)	9.33 (0.51)	$p < 0.001$
Purpose in Life	8.68 (0.91)	10 (0.71)	$p < 0.001$
Self-Acceptance	9.04 (1.33)	12.3 (0.46)	$p < 0.001$
Psychological well-being	70.88 (4.29)	59.77 (2.83)	$p < 0.001$
Quality of professional life			
Compassion satisfaction	39.06 (4.15)	30 (1.58)	$p < 0.001$
Compassion fatigue	27.55 (4.45)	40.71 (4.12)	$p < 0.001$
Secondary traumatic stress	22.36 (1.37)	23.60 (1.86)	$p < 0.001$
Work spirituality			
Meaningful of work	22.04 (2.09)	17.95 (1.32)	$p < 0.001$
Sense of solidarity	24.9 (1.6)	19.92 (2.59)	$p < 0.001$
Alignment organizational value	21.19 (1.75)	18.53 (1.44)	$p < 0.001$
Work place spirituality	68.12 (1.85)	56.4 (3.24)	$p < 0.001$

Note: Significant at $p < 0.05$.

in medical residents than in medical interns ($p < 0.001$). Regarding psychological well-being, although Self-Acceptance and Purpose in Life were higher in medical residents than interns, in the other four sub-components, including Autonomy, Environmental Mastery, Personal Growth, and Positive Relations with Others, medical residents scored significantly lower than interns ($p < 0.001$). Furthermore, the overall mean psychological well-being score was lower for medical residents than interns ($p < 0.001$).

Table 2 shows the connection between ProQOL and demographic factors like age and gender among interns and residents. Gender had a notable impact on ProQOL scores in both groups. Specifically, women scored higher than men in the sub-components of CS and CF in both interns and residents. However, women had lower mean scores for STS compared to men in both groups.

In terms of the influence of age, in medical residents, age was not a significant factor affecting ProQOL, as there was no significant difference between those above 30 years old and those below 30 years old across all three sub-components of ProQOL. However, age was a significant factor in medical interns. Specifically, the mean scores of all three sub-components of ProQOL in interns above 30 were significantly higher than those below 30.

Table 3 demonstrates the relationship between psychological well-being and demographic factors in medical residents and interns. In both resident and intern groups, age and gender significantly influenced the mean Psychological Well-being score. Specifically, women had higher psychological well-being scores than men in both groups of residents and interns. Additionally, for residents and interns, individuals below 30 had higher psychological well-being scores than those above 30.

Table 4 indicated that work spirituality positively predicted satisfaction with compassion, and work spirituality negatively predicted CF. In another linear regression analysis, the relationship between work spirituality and psychological well-being in medical interns and residents shows a significant association between these two variables.

TABLE 2 The relationship between quality of professional life and demographic factors in medical interns and residents.

Demographic factors Variables	Gender		Age		p value	
	Woman	Men	<30	>30	Gender	Age
Compassion satisfaction mean (SD)						
Intern	42.19 (1.05)	34.6 (2.52)	32 (1.23)	39.15 (4.1)	$p < 0.001$	0.009
Resident	30.73 (1)	28.42 (1.46)	31 (1.54)	29.46 (1.33)	$p < 0.001$	0.234
Compassion fatigue mean (SD)						
Intern	43.75 (0.65)	36.39 (2.96)	31 (2.56)	40.83 (4.01)	$p < 0.001$	0.014
Resident	29.98 (3.13)	22.32 (0.88)	32.52 (3.2)	25.41 (3.45)	$p < 0.001$	0.069
Secondary traumatic stress mean (SD)						
Intern	21.77 (1.43)	23.21 (0.65)	22.36 (1.38)	23 (3.25)	$p < 0.001$	0.002
Resident	23.68 (2.21)	23.42 (0.60)	22.05 (1.71)	24.44 (1.33)	$p < 0.001$	0.052

Note: Significant at $p < 0.05$.

TABLE 3 Relationship between Psychological well-being and demographic factors in medical interns and residents.

Demographic factors Variables	Gender		Age		p value	
	Woman	Men	<30	>30	Gender	Age
Autonomy mean (SD)						
Intern	16.57 (1.22)	12.7 (1.38)	15.02 (2.27)	11 (0.14)	0.402	0.05
Resident	9.49 (1.3)	6.84 (0.68)	10.38 (1.35)	7.72 (0.98)	$p < 0.001$	0.573
Environmental mastery mean (SD)						
Intern	14.7 (0.9)	11.2 (1.22)	13.31 (1.97)	9 (1.89)	0.004	0.015
Resident	8.49 (0.92)	5.84 (0.37)	8.71 (0.9)	7.80 (1.43)	$p < 0.001$	$p < 0.001$
Personal growth mean (SD)						
Intern	14.12 (0.84)	12.84 (1.16)	13.63 (1.14)	11 (1.39)	$p < 0.001$	0.051
Resident	11.98 (0.88)	11.53 (0.51)	11.95 (0.97)	11.77 (0.7)	0.09	$p < 0.001$
Positive relation with others mean (SD)						
Intern	12.3 (0.78)	9.93(1.41)	11.33 (1.6)	11 (0.98)	$p < 0.001$	0.048
Resident	9/51 (0/5)	8/95 (0/22)	9.48 (0.51)	9.26 (0.49)	$p < 0.001$	0.17
Purpose in life mean (SD)						
Intern	8.13 (0.7)	9.47 (0.53)	8.68 (0.91)	10 (1.58)	0.413	0.025
Resident	9.68 (0.56)	10.68 (0.47)	9.38 (0.66)	10.33 (0.47)	0.304	0.15
Self-acceptance mean (SD)						
Intern	8.07 (0.74)	10.43 (0.49)	9.02 (1.32)	11 (2.15)	0.811	0.003
Resident	12.24 (0.43)	12.42 (0.5)	12 (1.26)	12.46 (0.5)	0.028	0.001
Psychological well-being mean (SD)						
Intern	73.89 (1.88)	66.57 (2.86)	70.97 (4.23)	6 (2.78)	0.01	0.022
Resident	61.39 (1.37)	56.26 (0.8)	61.9 (1.86)	58.62 (2.59)	0.005	0.001

Note: Significant at $p < 0.05$.

4 | DISCUSSION

Based on the findings of this study, in both groups of medical residents and interns, the average ProQOL was at a moderate level across all sub-components. Additionally, work spirituality was higher than the average level in both groups of medical residents and interns. Moreover, interns generally reported higher work spirituality, psychological well-being, and CS than medical residents.

This indicates that interns may work with greater purpose and satisfaction than residents. While a direct comparison between interns and residents is not explicitly stated in the search results, a study on the relationship between WPS, psychological well-being, and various dimensions among university professors, including the mediating role of job stress and other factors, addresses this issue. The findings of this study showed that variables such as WPS, compassion, relationship with others in the workplace, spiritual orientation, organizational values, and harmony with personal values have a significant and positive relationship with psychological well-being.²⁷

Another important finding of this study was that, among medical residents, the overall score of WPS and all its sub-components, the mean overall psychological well-being, and the mean professional CS

were significantly lower than medical interns ($p < 0.001$). However, medical residents' mean CF and STS were significantly higher than interns ($p < 0.001$). The observed differences in satisfaction with compassion, CF (occupational BO), and STS between interns and residents highlight the importance of investigating the unique challenges faced by different medical field roles. While interns may experience higher levels of satisfaction with compassion, residents may be more prone to occupational BO and STS, indicating the need for targeted interventions and supportive mechanisms tailored to each group.

This study also demonstrated a significant relationship between demographic factors such as gender and age with various aspects of professional life and psychological well-being. According to the results of this study, in both the interns and resident groups, gender was a significant factor in the difference in scores of medical professionalism quality. Specifically, the average scores of both CS and CF sub-components were higher in women than men in both residents and intern groups. The simultaneous experience of CF and CS among women in our study can be understood through the dual-process caregiving model.^{28,29} This model suggests that while providing care can be emotionally draining and lead to CF, it can also be immensely rewarding and result in CS. For women who often

TABLE 4 Predictors of quality of professional life in medical interns and residents.

Dependent variable		Independent variable			
		Work place spirituality	Age	Gender	Education
Compassion Satisfaction	<i>p</i> value	$p < 0.001$	0.159	$p < 0.001$	$p < 0.001$
	β	0.910	-0.057	0.307	-0.690
	<i>t</i>	6.156	-1.412	5.736	-5.247
Compassion Fatigue	<i>p</i> value	0.001	$p < 0.001$	$p < 0.001$	$p < 0.001$
	β	-0.237	-0.210	-0.585	0.962
	<i>t</i>	3.482	7.928	-23.684	15.870
Secondary Traumatic Stress	<i>p</i> value	0.846	$p < 0.001$	$p < 0.001$	$p < 0.001$
	β	0.01	0.692	-0.477	0.687
	<i>t</i>	0.195	-7.055	-26.109	15.326
Psychological well-being	<i>p</i> value	0.045	0.023	0.007	0.087
	β	0.109	-0.056	-0.509	0.68
	<i>t</i>	1.678	-1.454	-21.593	11.759

Note: Significant at $p < 0.05$.

navigate multiple roles and responsibilities, caregiving may evoke a strong sense of purpose and fulfillment despite the stress. Additionally, women might possess or develop more effective coping strategies and social support networks that enable them to derive satisfaction from their caregiving roles, even in the face of significant emotional and physical demands.^{28,29} Understanding this parallel experience is crucial for developing interventions that mitigate CF and enhance CS, promoting overall well-being among female healthcare professionals. However, the average score of STS was lower in women than men in both residents and intern groups. In a study focusing on mental health workers during the COVID-19 pandemic, it was found that severe fear of COVID-19 exacerbates CF (BO and STS), younger age intensifies occupational BO, and female gender exacerbates STS. Severe fear of COVID-19 had no impact on CS.³⁰ As mentioned earlier, the findings also indicate that statistically, women reported higher scores in STS compared to men, which is consistent with previous gender literature and recent research on pandemics in Italy.³¹ Another study on medical students at Golestan University of Medical Sciences examined the relationship between social health and quality of life. The results showed that social health is significantly and directly related to students' quality of life. However, variables such as gender did not show a significant relationship with social health indicators or quality of life.³²

In this study, the residents and intern groups had higher overall psychological well-being scores among women than men. Additionally, in residents and interns, individuals under 30 had higher overall psychological well-being scores than those over 30. Regarding the age factor, in medical residents, age did not significantly impact ProQOL, as individuals over 30 did not differ significantly from those under 30 in all three sub-components of ProQOL. However, age was a significant factor in medical interns, as the average score of all three sub-components of ProQOL in interns

over 30 was significantly higher than in interns under 30. Indeed, it was found that age is associated with specific dimensions of psychological well-being and emphasizes the importance of considering life stage and level of experience when addressing the needs of medical professionals. Some studies corroborate these findings, highlighting the significant relationship between demographic factors such as gender and age with various aspects of professional life and psychological well-being among medical professionals.³³ This study specifically highlights gender differences in satisfaction with compassion, occupational BO, and psychological well-being, with women reporting higher levels of satisfaction and well-being than men. Additionally, it was found that age is associated with specific dimensions of psychological well-being, emphasizing the importance of considering life stage and level of experience when addressing the needs of medical professionals.³⁴

Intriguingly, our study revealed a notable gender discrepancy in stress levels and well-being outcomes among both residents and interns, with women scoring higher on stress measures while also exhibiting higher levels of well-being compared to men. This nuanced finding further examines the multifaceted dynamics within medical training environments. Possible factors contributing to these disparities may include differences in coping mechanisms, societal expectations, and support systems available to each gender cohort. Moreover, the intersectionality of gender with other variables such as speciality choice, work-life balance, and institutional culture may further influence these outcomes. Recognizing and understanding these gender-specific stressors and resilience factors is crucial for developing targeted interventions aimed at promoting the overall well-being and professional fulfillment of all medical trainees, irrespective of gender.

Another important finding was that WPS predicts positive satisfaction with job compassion ($B = 0.910$, $p < 0.001$) and

psychological well-being ($B = 0.109$, $p = 0.045$) but predicts negative fatigue due to job compassion in medical interns and residents. Studies support these findings. There is evidence supporting the conclusion that WPS can positively impact satisfaction with compassion and psychological well-being among healthcare workers. Specifically, a study involving nursing home nurses showed that spirituality and job satisfaction affect their compassion competence.³⁵ Another study on WPS among Iranian nurses showed that higher WPS levels increase CS and reduce occupational BO and STS.³⁶ These findings are consistent with the claim that nurturing a sense of spirituality or purpose in the workplace can lead to greater well-being and satisfaction among medical interns and residents.

The findings have some implications. One important implication of these findings is that they help us understand the interaction between professional life, psychological well-being, and WPS among medical interns and residents. By recognizing the challenges and unique needs of medical students and residents, medical schools and healthcare organizations can develop targeted interventions and support systems to strengthen resilience and promote positive outcomes for physicians. Additionally, this study emphasizes the potential benefits of cultivating a sense of spirituality or purpose in the workplace to increase overall well-being and satisfaction among medical interns and residents.

5 | LIMITATION

This study has several limitations. Firstly, it is a cross-sectional correlational study that does not establish causation. It is recommended that longitudinal studies examine differences and changes in psychological well-being factors and WPS between internship and residency periods. Secondly, this study was conducted at one university, which may limit the generalizability of its results to all medical interns and residents. Finally, these findings may be influenced by cultural, economic, and social factors specific to Iran, so caution should be exercised when generalizing them to medical interns and residents in other settings.

6 | CONCLUSIONS

Both medical residents and interns had moderate levels of ProQOL and higher work spirituality. However, in medical residents, the overall score of WPS and all its sub-components was significantly lower than those of medical interns. This study highlights the significant differences in WPS between medical interns and residents, emphasizing that interns generally reported higher levels of WPS than residents. WPS emerged as a significant factor influencing psychological well-being and ProQOL among medical interns and residents. These findings suggest the need for targeted interventions to enhance WPS among medical residents and improve their ProQOL and psychological well-being.

AUTHOR CONTRIBUTIONS

Mohammad Hadi Yadollahpour: Conceptualization; writing—review and editing. **Maral Eydi:** Data curation. **Mousa Yaminfirooz:** Investigation; writing—review and editing. **Hemmat Gholinia:** Methodology; formal analysis. **Shirin Shahrokhi:** Writing—original draft. **Mahbobeh Faramarzi:** Writing—review and editing; conceptualization; methodology.

ACKNOWLEDGMENTS

The authors would like to thank the study participants. The present Project was financially supported by Babol University of Medical Sciences supported the funding (Grant Number: 724134099). The funder had no role in study design; collection, analysis, and interpretation of data; writing of the report; the decision to submit the report for publication.

CONFLICT OF INTEREST STATEMENT

The authors declare no conflict of interest.

DATA AVAILABILITY STATEMENT

The data that support the findings of this study are available from the corresponding author upon reasonable request.

ETHICS STATEMENT

The research proposal for this study was approved by the Ethics Committee in Research at Babol University of Medical Sciences, with the code IR. MUBABOL. HRI. REC.1400.238. Confidentiality and protection of participants' privacy were ensured, and the obtained information was kept confidential. The research results will be disclosed without mentioning the names or personal details of the individuals involved.

TRANSPARENCY STATEMENT

The lead author Mahbobeh Faramarzi affirms that this manuscript is an honest, accurate, and transparent account of the study being reported; that no important aspects of the study have been omitted; and that any discrepancies from the study as planned (and, if relevant, registered) have been explained.

ORCID

Mohammad Hadi Yadollahpour  <http://orcid.org/0000-0002-4337-2096>

Maral Eydi  <http://orcid.org/0009-0002-0493-5324>

Mousa Yaminfirooz  <http://orcid.org/0000-0003-1554-277X>

Hemmat Gholinia  <http://orcid.org/0000-0003-0517-2429>

Shirin Shahrokhi  <http://orcid.org/0000-0003-4227-2998>

Mahbobeh Faramarzi  <http://orcid.org/0000-0002-3568-7039>

REFERENCES

1. Ghassab-Abdollahi N, Shakouri S, Aghdam A, Farshbaf-Khalili A, Abdolalipour S, Farshbaf-Khalili A. Association of quality of life with physical activity, depression, and demographic characteristics and its predictors among medical students. *J Educ Health Promot.* 2020;9:147.

2. Dyrbye LN, Thomas MR, Shanafelt TD. Medical student distress: causes, consequences, and proposed solutions. *Mayo Clin Proc.* 2005;80:1613-1622.
3. Dyrbye LN, Thomas MR, Shanafelt TD. Systematic review of depression, anxiety, and other indicators of psychological distress among U.S. and Canadian medical students. *Acad Med.* 2006;81:354-373.
4. Peleias M, Tempski P, Paro HB, et al. Leisure time physical activity and quality of life in medical students: results from a multicentre study. *BMJ Open Sport Exerc Med.* 2017;3:e000213.
5. Jamali A, Tofangchiha S, Jamali R, et al. Medical students' health-related quality of life: roles of social and behavioural factors. *Med Educ.* 2013;47:1001-1012.
6. Cruz JP, Alquwez N, Mesde JH, Almoghairi AMA, Altukhays AI, Colet PC. Spiritual climate in hospitals influences nurses' professional quality of life. *J Nurs Manag.* 2020;28:1589-1597.
7. Azizkhani R, Heydari F, Sadeghi A, et al. Professional quality of life and emotional well-being among healthcare workers during the COVID-19 pandemic in Iran. *Front Emerg Med.* 2022;6:e2.
8. Ruiz-Fernández MD, Pérez-García E, Ortega-Galán ÁM. Quality of life in nursing professionals: burnout, fatigue, and compassion satisfaction. *Int J Environ Res Public Health.* 2020;17:1253.
9. Theofilou P. Quality of life: definition and measurement. *Eur J Psychol.* 2013;9:9.
10. Shanafelt TD, Hasan O, Dyrbye LN, et al. Changes in burnout and satisfaction with work-life balance in physicians and the general US working population between 2011 and 2014. *Mayo Clin Proc.* 2015;90:1600-1613.
11. Zakeri MA, Rahiminezhad E, Salehi F, et al. Compassion satisfaction, compassion fatigue and hardiness among nurses: a comparison before and during the COVID-19 outbreak. *Front Psychol.* 2021;12:815180.
12. Xu S, Ju D, Chen Y, et al. Analysis of the correlation between clinical nurses' professional quality of life and family care and organizational support. *Front Public Health.* 2023;11:1108603. <https://www.frontiersin.org/journals/public-health/articles/10.3389/fpubh.2023.1108603>
13. Muntean LM, Nireştean A, Popa CO, et al. The relationship between emotional stability, psychological well-being and life satisfaction of Romanian medical doctors during COVID-19 period: a cross-sectional study. *Int J Environ Res Public Health.* 2022;19:2937.
14. Fava GA. *Well-being Therapy: Treatment Manual and Clinical Applications.* 2019.
15. Antoniou ASG, Davidson MJ, Cooper CL. Occupational stress, job satisfaction and health state in male and female junior hospital doctors in Greece. *J Manag Psychol.* 2003;18:592-621.
16. Nafis M, Agus ZF, Mujib F. Workplace spirituality to increase institutions' commitment and meaning of life. *Epistemé: Jurnal Pengembangan Ilmu Keislaman.* 2018;13:89-112.
17. Sharma E, Mathur N. Analysis of workplace spirituality using SWOT-AHP Method. *TIJ's Research Journal of Social Science & Management - RJSSM* 2015.
18. Milliman J, Czaplewski AJ, Ferguson J. Workplace spirituality and employee work attitudes: an exploratory empirical assessment. *J Org Change Manag.* 2003;16:426-447.
19. Stamm B. *The concise manual for the professional quality of life scale.* 2010.
20. Ghorji M, Keshavarz Z, Ebadi A, et al. Persian translation and psychometric properties of professional quality of life scale (ProQOL) for health care providers. *J Maz Univ Med Sci.* 2018;28:93-106.
21. Ryff CD, Singer BH. Best news yet on the six-factor model of well-being. *Soc Sci Res.* 2006;35:1103-1119.
22. Bayani AA, Mohammad Koochekya A, Bayani A. Reliability and validity of Ryff's psychological well-being scales. *Iran J Psychiatry Clin Psychol.* 2008;14:146-151.
23. Tlemissov U, Anichkina O, Popovich A, et al. The relationship between workplace spirituality and organisational health in an Islamic context. *HTS: Theological Studies.* 2021;77:6653.
24. Anvari R, Barzaki AS, Amiri L, Irum S, Shapourabadi S. The mediating effect of organizational citizenship behavior on the relationship between workplace spirituality and intention. *Intangible Capital.* 2017;13:615-639.
25. Sima Alizadeh. Relationship between spirituality in workplace as an ethical factor and team working. 2018;13:123-130.
26. Kabiri A, Ghaleei A, Talebi M. Relationship between dimensions of spirituality (as ethics) in the workplace with organizational health and organizational trust. *Ethic Sci Technol.* 2019;14:83-91.
27. Ahmed RR, Soomro FA, Channar ZA, et al. Relationship between different dimensions of workplace spirituality and psychological well-being: measuring mediation analysis through conditional process modeling. *Int J Environ Res Public Health.* 2022;19:11244.
28. Hunt P, Denieffe S, Gooney M. Running on empathy: relationship of empathy to compassion satisfaction and compassion fatigue in cancer healthcare professionals. *Eur J Cancer Care.* 2019;28:e13124.
29. Dobrina R, Bicego L, Giangreco M, et al. A multi-method quasi-experimental study to assess compassion satisfaction/fatigue in nurses, midwives and allied health professionals receiving a narrative medicine intervention. *J Adv Nurs.* 2023;79:3595-3608.
30. Stefanatou P, Xenaki L-A, Karagiorgas I, et al. Fear of COVID-19 impact on professional quality of life among mental health workers. *Int J Environ Res Public Health.* 2022;19:9949.
31. Magnavita N, Tripepi G, Di Prinzio RR. Symptoms in health care workers during the COVID-19 epidemic. A cross-sectional survey. *Int J Environ Res Public Health.* 2020;17:5218.
32. Kamkar MZ, Agha Goli Zada M, Karamelahi Z. Investigation of social health and its relationship with quality of life in medical students of Golestan University of Medical Sciences. *J North Khorasan Univ Med Sci.* 2023;15:55-62.
33. Denning M, Goh ET, Tan B, et al. Determinants of burnout and other aspects of psychological well-being in healthcare workers during the Covid-19 pandemic: a multinational cross-sectional study. *PLoS One.* 2021;16:e0238666.
34. Heponiemi T, Aalto A-M, Puttonen S, Vänskä J, Elovainio M. Work-related stress, job resources, and well-being among psychiatrists and other medical specialists in Finland. *Psychiatr Serv.* 2014;65:796-801.
35. Lee S-J, Yeom H-E. Influence of spirituality and job satisfaction on the compassion competence of hospice nurses. *Korean J Hosp Palliat Care.* 2022;25:169-177.
36. Farmahini Farahani M, Jaber K, Purfarzad Z. Workplace spirituality, compassion satisfaction, burnout, and secondary traumatic stress: a cross-sectional study in Iranian nurses. *Perspect Psychiatr Care.* 2023;2023:e7685791.

How to cite this article: Yadollahpour MH, Eydi M, Yaminfirooz M, Gholinia H, Shahrokhi S, Faramarzi M. Predictors of quality of professional life and well-being of medical residents and interns: role of gender and workplace spirituality. *Health Sci Rep.* 2024;7:e70064. doi:10.1002/hsr2.70064