❏   1696

Quality of life among physicians in Egypt and its influencing factors: a cross-sectional study

Amira Ismail Abdelrahman, Nora Atef Goda, Mohamed Mahmoud Bendary
National Cancer Institute, Cairo University, Cairo, Egypt

Article Info	ABSTRACT
	Doctors have an essential role in healthcare service, and their quality of life (QoL) is crucial for their professional satisfaction and overall well-being. This study assessed the QoL among physicians and explored the influencing factors that affect it. This cross-sectional study was carried out using a self-administered Internet survey. The survey was focused on physicians employed at various hospitals and clinics in Egypt. Data on participants' demographics, work-related factors, and QoL were collected using WHOQOL-BREF. WHOQOL-BREF questionnaire measures a participant's perception of their life quality across various domains, including general health, physical well-being, psychological health, social relationships, and the environment. The scores for each domain are calculated based on participants' responses to specific items, with higher scores indicating a better QoL. The QoL scores were 3.57 ± 1.02 for the general health domain, 12.93 ± 2.49 for physical domain, 12.29 ± 2.67 for psychological domain, 12.87 ± 3.20 for social domain, and 11.00 ± 2.58 for environmental domain. The overall QoL score was 3.64 ± 0.835. The findings indicate a moderate QoL among the participating physicians. The physicians' QoL domains were affected by age, sex, education level, marital status, chronic disease, smoking, speciality, working hours per week, extra working hours, and work experience.

Corresponding Author:

Mohamed Mahmoud Bendary
National Cancer Institute, Cairo University
Cairo, Egypt
Email: bendary3@gmail.com

1. INTRODUCTION

Quality of life (QoL), as defined by the World Health Organization (WHO), encapsulates an individual's perspective on their life concerning goals, expectations, standards, and concerns in the context of the cultural and value systems in which they live [1]. In the realm of healthcare, particularly within hospitals, the association between high levels of work-associated stress and diminished QoL is a pervasive concern [2]. Factors contributing to this stress include fatigue, high turnover, night shifts, workload, stressful work conditions, sickness severity, and interpersonal conflicts with colleagues or patients [3].

The repercussions of elevated work-related stress on QoL are profound, impacting both mental and physical health. Individuals often experience mild anxiety and difficulties falling asleep, leading to a negative cycle that further exacerbates their overall well-being [4]. Insomnia, a common consequence of heightened stress, manifests in daytime tiredness, diminished job performance, mood swings, impaired interpersonal interactions, and an increased risk of accidents [4]–[6].

Understanding the characteristics of healthcare workers and delving into the intricate relationship between their job strain and QoL variables is imperative. This comprehension can facilitate the optimization of support systems and intervention strategies, mitigating the detrimental effects on their lives [7], [8]. There

is a possibility that healthcare personnel' QoL could witness an improvement, and that the overall outcomes for their patients could also be enhanced, through the reduction of stress [9].

The worldwide environment for healthcare practitioners, particularly physicians, is characterized by distinctive obstacles that have a substantial influence on multiple facets of their QoL [10]. Recent research highlights the widespread occurrence of burnout, discontentment, and stress among medical professionals, emphasizing the critical nature of understanding and confronting these concerns in order to safeguard the health of individuals and the integrity of healthcare systems as a whole [11], [12]. The correlation between stress and QoL in the healthcare setting, particularly hospitals, is complex, thus a thorough examination of the underlying causes is required. This comprehension is crucial in the development of efficacious interventions that can enhance the QoL of physicians, therefore leading to improved outcomes in patient care [12], [13].

Light on the complexities of QoL among healthcare professionals (HPs), underscoring the necessity for additional investigation and tailored interventions in this particular setting [14], [15]. Despite growing recognition of QoL's impact on HPs, a comprehensive exploration of the factors influencing QoL among physicians in Egypt remains relatively limited. This study aimed to assess QoL among physicians and explore factors affecting it.

2.   METHOD
2.1. Study design
A survey with a cross-sectional design was developed and targeted doctors working at various hospitals or clinics in Egypt. This study included physicians working in any healthcare facility in Egypt who agreed to participate and complete the questionnaire, and those who refused participation were excluded. After explaining the study purpose, physicians who agreed to participate were asked to complete the online self-administered questionnaire. A web-based survey using Google Forms was created, and its link was shared among doctors via social media.

MedCalc version 18.2.1 was used to compute the sample size based on prior research by Maqsood *et al.* [16], who revealed a mean QoL score among physicians of 3.3±1.1. A score of three was hypothesized as a null hypothesis value. The total sample size was 177 physicians and was increased to 200 to compensate for possible non-response. Alpha and power were adjusted at 0.05 and 0.8, respectively. Out of 260 distributed forms, 250 HPs participated in this survey, yielding a 96% response rate.

2.2. Research instrument
The online self-administered questionnaire consisted of two parts; the first included participants' data (age, sex, the highest education level, residence, occupation, marital status, number of children, smoking status, co-morbidities, working hours a week, night shifts, and years of experience). The second was the WHOQOL-BREF (Arabic version). It comprised two general and twenty-four specific components. The 24 components were grouped into four domains: physical, psychological, social contact, and environmental.

Every item was rated on a scale from 1 to 5, with a higher score indicating a greater life quality. The average score of each item inside the domain was used to determine the domain score. The overall QoL score was calculated by adding the answers to each subscale. Greater domain scores indicated a higher QoL. The whole questionnaire was in Arabic and was implemented in a pilot study involving 20 participants to determine its clarity, time consumption, and difficulties, and it was modified accordingly.

2.3. Consent and ethical approval
Before starting the survey, all participants received an electronic, written permission form. They were required to give their consent before participating. The study was approved by the Institutional Review Board of the National Cancer Institute at Cairo University. This approval was granted in December 2022. The approval number for the study is 2212-501-043.

2.4. Data analysis
Using the online survey link, MS Excel spreadsheets containing the obtained data were imported and analyzed by IBM SPSS version 23 (Armonk, USA). Using Kolmogrov-Smirnov, Shapiro-Wilk test, and direct visualization methods, the normality of numeric data was examined. Numerical data were summarised using means and standard deviations or medians and ranges. The categorical data were summarized using numbers and percentages. Student's t-test was used to compare two groups with normally distributed numeric variables. Analysis of variance (ANOVA) was used to compare more than two groups with normally distributed numeric variables. Multivariate linear regression analysis was used to determine predictors for each domain. All tests were two-tailed. p-values<0.05 was regarded as significant.

3. RESULTS AND DISCUSSION

All of the 260 distributed forms, 250 HPs participated (response rate=96%). Two-thirds of the participants were less than forty years (62.2%). Females predominated in this study (66.5%). Most of the participants were married (82.4%). Approximately half of the participants (52.4%) had an MD degree. Most participants (71.6%) were from lower Egypt. About one-third (30.9%) had chronic diseases. Only 3.6% were smokers. Surgical specialties represented 24%. The most frequently reported weekly working hours category was >18–≤36 hours (46.5%). About one quarter (24.2%) reported having extra working hours. About two-thirds (62.8%) had a work experience of less than or equal to 15 years Table 1.

Table 2 shows the average QOL score according to the WHOQoL-BREF domains. The overall QoL score was 3.64±0.835. The general health score was 3.57±1.02. The physical health score was 12.93±2.49. The psychological health score was 12.29±2.67. The social relationship score was 12.87±3.20. The environment score was 11.00±2.58. Cronbach's alpha for each domain is illustrated in Table 2.

Table 1. Participant characteristics

Variables		Number	%
Age (n=246)	≤40	153	62.2
	>40	93	37.8
Sex (n=248)	Male	83	33.5
	Female	165	66.5
Marital status	Single	29	11.6
	Married	206	82.4
	Others (divorce, widow)	15	6
Education	Bachelor	25	10.0
	MSC degree	94	37.6
	MD degree	131	52.4
Governorates	Metropolitan	51	20.4
	Lower Egypt	179	71.6
	Upper Egypt	20	8.0
Chronic disease (n=249)	No	172	69.1
	Yes	77	30.9
Smoking (n=249)	Non-smoker	233	93.6
	Smoker	9	3.6
	x-smoker	7	2.8
Specialty (n=242)	Surgical	58	24.0
	Non-surgical	184	76.0
Working hours/week (n=245)	≤18 hours	50	20.4
	>18−≤36	114	46.5
	>36−≤54	56	22.9
	>54	25	10.2
Extra working hours (n=248)	No	188	75.8
	Yes	60	24.2
Work experience (n=242)	≤15	152	62.8
	>15	90	37.2

Table 2. Summary of the quality-of-life scores from WHOQoL-BREF domains

Variables	Mean (SD)	Range (min-max)	Cronbach's alpha
Overall QoL (score out of 5)	3.64 (0.835)	(1.00-5.00)	-
General health (score out of 5)	3.57 (1.02)	(1.00-5.00)	-
Physical health	12.93 (2.49)	(5.71-18.86)	0.783
Psychological	12.29 (2.67)	(6.00-18.00)	0.835
Social relationship	12.87 (3.20)	(4.00-20.00)	0.674
Environment	11.00 (2.58)	(4.00-16.50)	0.835

The overall QoL score significantly differed according to smoking status (p=0.037). It was significantly higher in non-smokers (3.66±0.83) than in smokers (3.22±0.83). Additionally, it significantly differed according to working hours (p=0.014). It was significantly higher in those with the lowest working hours of ≤18 hours (3.96±0.73) than in those with working hours of >18–≤36 (3.68±0.78) Table 3.

Table 3. Bivariate analysis highlighting mean differences in scores for health domains

Variables		Overall QoL	General Health	Physical	Psychological	Social	Environment
		Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)	Mean (SD)
Age/year	≤40	3.52 (0.93)	3.38 (1.11)	12.76 (2.47)	11.70 (2.64)	12.85 (3.14)	10.72 (2.59)
	>40	3.85 (0.61)	3.89 (0.77)	13.25 (2.52)	13.27 (2.43)	13.02 (3.32)	11.51 (2.47)
	p-value	0.676	0.298	0.131	<0.001	0.683	0.020
Sex	Male	3.45 (0.74)	3.54 (0.99)	13.38 (2.23)	12.59 (2.78)	12.71 (2.93)	10.61 (2.60)
	Female	3.73 (0.86)	3.58 (1.04)	12.68 (2.59)	12.12 (2.62)	12.96 (3.33)	11.19 (2.55)
	p-value	0.645	0.910	0.034	0.197	0.555	0.095
Education	Bachelor	3.04 (0.93)	2.88 (1.09)	12.12 (3.17) a	10.37 (2.38) a	12.85 (3.26)	10.02 (2.37) a
	MSC degree	3.48 (0.91)	3.46 (1.06)	12.32 (2.40) a	11.59 (2.70) a	12.33 (3.42)	10.34 (2.67) a
	MD degree	3.87 (0.66)	3.79 (0.90)	13.52 (2.27) b	13.15 (2.37) b	13.27 (2.98)	11.67 (2.38) b
	p-value	0.752	0.278	<0.001	<0.001	0.091	<0.001
Marital status	Single	3.62 (0.82)	3.83 (0.85)	12.43(2.82) a,b	10.85 (3.15) a	11.22 (3.75) a	10.76 (3.20)
	Married	3.63 (0.84)	3.55 (1.04)	13.13 (2.36) a	12.50 (2.51) b	13.25 (2.98) b	11.02 (2.50)
	others	3.73 (0.79)	3.40 (1.06)	11.12 (2.91) b	12.18 (3.15) a,b	10.93 (3.54) a	11.23 (2.53)
	p-value	0.902	0.309	0.005	0.008	<0.001	0.825
Chronic disease	No	3.65 (0.83)	3.59 (1.02)	13.26 (2.41)	12.27 (2.56)	12.93 (3.20)	11.08 (2.62)
	Yes	3.62 (0.86)	3.52 (1.03)	12.19 (2.53)	12.31 (2.94)	12.71 (3.21)	10.82 (2.52)
	p-value	0.107	0.259	0.002	0.905	0.617	0.459
Smoking	Non-smoker	3.66 (0.83) a	3.59 (1.03)	12.95 (2.53)	12.26 (2.66)	12.86 (3.22)	11.01 (2.58)
	Smoker	3.22 (0.83) b	3.11 (0.93)	12.51 (1.67)	13.56 (2.45)	13.48 (2.53)	10.50 (1.71)
	x-smoker	3.43 (0.98) a,b	3.43 (0.98)	12.33 (2.29)	11.14 (3.39)	12.19 (3.80)	11.00 (3.65)
	p-value	0.037	0.072	0.711	0.191	0.727	0.846
Specialty	Surgeries	3.34 (0.97)	3.26 (1.24)	12.52 (2.78)	12.02 (3.09)	12.16 (3.24)	10.16 (2.82)
	Other specialties	3.74 (0.78)	3.68 (0.93)	13.04 (2.38)	12.39 (2.52)	13.15 (3.19)	11.29 (2.39)
	p-value	0.601	0.847	0.164	0.415	0.041	0.007
Working hours/week	≤18 hours	3.96 (0.73) a	3.78 (1.00) a	13.57 (2.52) a	12.56 (2.32)	13.57 (2.90) a	11.91 (2.36) a
	>18-≤36	3.68 (0.78) b	3.71 (0.90) b	13.05 (2.32) a	12.39 (2.75)	13.06 (3.29) a	11.07 (2.53) a
	>36- ≤54	3.55 (0.81) a,b	3.46 (1.06) a,b	12.77 (2.63) a,b	12.33 (2.55)	12.90 (3.29) a,b	10.88 (2.34) a
	>54	3.04 (1.02) a,b	2.76 (1.16) a,b	11.63 (2.42) b	11.20 (2.99)	11.04 (2.20) b	9.10 (2.69) b
	p-value	0.014	0.026	0.013	0.180	0.010	<0.001
Extra working hours	No	3.81 (0.70)	3.69 (0.95)	13.19 (2.39)	12.68 (2.46)	13.09 (3.09)	11.35 (2.52)
	Yes	3.10 (1.0)	3.18 (1.14)	12.11 (2.63)	11.03 (2.96)	12.27 (3.50)	9.88 (2.50)
	p-value	0.430	0.549	0.003	<0.001	0.085	<0.001
Work experience	≤15	3.51 (0.91)	3.41 (1.11)	12.80 (2.45)	11.74 (2.58)	12.98 (3.12)	10.73 (2.55)
	>15	3.83 (0.64)	3.83 (0.81)	13.26 (2.49)	13.21 (2.58)	12.77 (3.30)	11.44 (2.58)
	p-value	0.615	0.247	0.156	<0.001	0.617	0.038

Note: Different small letters indicate significant pair

The general health score significantly differed according to working hours (p=0.026). It was significantly higher in those with the lowest working hours of ≤18 hours (3.78±1.00) than in those with working hours of >18–≤36 (3.71±0.90) Table 3. The physical score was significantly higher in males than in females (13.38±2.23 vs. 12.68±2.59, respectively, p=0.034), those without chronic diseases than in those with (13.26±2.41 vs. 12.19±2.53, respectively, p=0.002), and those with no extra working hours than in those with extra hours (13.19±2.39 vs. 12.11±2.63, respectively, p=0.003). Additionally, the physical score significantly differed according to education (p<0.001), marital status (p=0.005), and working hours (p=0.013), and all post hoc analyses are shown in Table 3.

The psychological score was substantially greater in those with age >40 than in those ≤40 (13.27±2.43 vs. 11.70±2.64, p<0.001), those with no extra working hours than in those with (12.68±2.46 vs. 11.03±2.96, p<0.001), and those with work experience >15 years than in those ≤15 years (13.21±2.58 vs. 11.74±2.58). Additionally, the psychological score differed according to education (p<0.001), and marital status (p=0.008), and all post hoc analyses are shown in Table 3. The social score was significantly higher in non-surgical specialties than in surgical specialties (13.15±3.19 vs. 12.16±3.24, p=0.041). Additionally, it significantly differed according to marital status (p<0.001) and working hours per week (p=0.01), and all post hoc analyses are illustrated in Table 3.

The environmental score was significantly higher in those aged >40 years than in those ≤40 years (11.51±2.47 vs. 10.72±2.59, respectively, p=0.02), those with non-surgical specialties than in those with surgical specialties (11.29±2.39 vs. 10.16±2.82, respectively, p=0.007), those with no extra working hours than in those with (11.35±2.52 vs. 9.88±2.50, respectively, p<0.001), and those with work experience >15 years than in those ≤15 years (11.44±2.58 vs. 10.73 ±2.55, p=0.038). Additionally, the environmental score

significantly differed according to education (p<0.001) and working hours per week (p<0.001), and all post hoc analyses are shown in Table 3.

Multivariate linear regression analyses were conducted to predict QoL scores in different domains. For the physical domain, the predictors were female gender (B=-0.166, p=0.025), single marital status (B=0.243, p=0.02), married marital status (B=0.335, p=0.001), presence of chronic disease (B=-0.244, p<0.001), MD degree (B=0.283, p=0.012), working hours >36–≤54 hours (B=-0.255, p=0.005), and working hours >54 hours (B=-0.268, p<0.001) Table 4.

For the psychological domain, the only predictor was the MD degree (B=3.799, p<0.001). For the social domain, the predictors were married marital status (B=0.315, p=0.004) and working hours >54 (B=-0.232, p=0.004). For the environmental domain, the predictors were MD degree (B=0.290, p=0.013) and working hours >54 (B=-0.225, p=0.005). For the overall domain, the significant predictor was working hours >18–≤36 (B=0.281, p=0.003) Table 4.

Life of doctors puts them at a high level of challenges and stress that can adversely influence their QoL. Our research aimed to evaluate QoL among physicians and explore the influencing factors affecting it by applying a concise version of the WHO questionnaire, the WHOQOL-BREF, designed for QoL evaluation. Our work was conducted in Egypt, a nation whose healthcare system is significantly burdened by a high demand for medical services and a relatively limited number of physicians. This disparity between the population's healthcare requirements and the available healthcare workforce creates significant obstacles to guaranteeing excellent healthcare delivery and may affect physicians' health [17]–[19]. Therefore, it is vital to comprehend the QoL of Egyptian physicians and the factors that impact it to promote the country's healthcare environment. The physicians' well-being is crucial for their satisfaction and productivity and for ensuring the delivery of quality healthcare services to the population.

The current study obtained a 96% response rate with 250 HPs participating. Most participants were under forty and predominantly female, reflecting a current international and national trend of "feminization" of medicine [20], [21]. The overall QoL score was 3.64±0.835, with the greatest scores in the physical health domain (12.93±2.49). Consistent with our findings, a study assessed the physicians' QoL using the WHOQOL-BREF questionnaire. They reported a response rate of 93%. On the other hand, a study conducted in China among clinicians had a response rate of 84.6% [22], and another study in India among Medical students mentioned a response rate of 77% [23]. Therefore, we reason our good response rate to the simplified way of showing the questionnaire online and contacting participants in social media messaging apps, which encouraged them to complete the survey.

Our findings were in line with Maqsood et al. [16]. In their five-city, multi-center research in Saudi Arabia, the WHOQoL-BREF instrument was employed to record the QoL via an electronic institutional survey. Two hundred ninety HPs participated in the study. The quality-of-life scores were 3.66±0.88 for the general health domain, 11.67±2.16 for the physical domain, 13.08 ±2.14 for the psychological domain, 13.22±3.31 for the social domain, and 12.38±2.59 for the environmental domain. The overall score was 3.37±0.97.

The current demonstrated several significant associations between demographic and work-related factors and QoL scores. Non-smokers had higher overall QoL scores compared to smokers. Working fewer hours was associated with higher overall and general health scores. Males, those without chronic diseases, and those who did not work additional hours had better physical health scores. Age >40, no extra working hours, and work experience of >15 years were associated with higher psychological scores. Non-surgical specialties had higher social scores, while older age, non-surgical specialties, no extra working hours, and longer work experience were associated with higher environmental scores. Almalki et al. [24] reported that females and those with no extra working hours had higher physical health scores. Physical health score was significantly associated with the age of the doctors, with doctors between 30-39 years having the lowest score compared to the other age groups. Additionally, age was significantly related to psychological health, with the doctors between 30–39 and between 20–29 years having the lowest score compared to the remaining age groups. In contrast, they reported that non-surgical specialties, such as pediatrics, were noticed to have the least overall QoL.

Maqsood et al. [16] reported that age above 40, male gender, marriage, work experience of more than 15 years, and no additional work hours were associated with better scores for several QoL domains and the overall QoL. Of note, staff over 40 would have had more work experience and a greater comprehension of the nature of work and job circumstances. During their years of employment, they may have built many professional contacts and had enough possibilities for further education. Additionally, they could have achieved a better work-life balance and socioeconomic level [16], [25], [26].

The current study observed that physical score was significantly higher in males than in females. Additionally, physical, social, and psychological scores significantly differed according to marital status. Another study [16] found that physical scores were significantly higher in females than males. It documented that married individuals received better mean scores for the abovementioned domains and overall health. A

study of the healthcare staff in the Pakistani health sector assessed the current level of health-associated QoL (HRQOL) among HPs utilizing the self-administered research tool "WHOQOL-BREF" revealed that those who were married had higher QoL scores [27]. Furthermore, marital status was another factor affecting QoL, according to Almalki *et al.* [24], with single doctors scoring the lowest in psychological and social relationship domains compared to married doctors. Furthermore, a study done in the Jazan region, Saudi Arabia, on the quality of work life (QWL) among primary health care nurses reported that marital status plays a significant role in QoL in that study.

Another research in a Pakistani hospital found a greater stress level among single participants [28]. Single HCPs may have to endure the job stress alone, but married HCPs may be able to share it with their partners and have a greater capacity for coping. Such methods may minimize stress, and as a result, married HCPs may have a healthier work-life balance [16], [29].

Multivariate linear regression analyses revealed significant predictors of QoL scores across different domains. Female gender, marital status, chronic disease, MD degree, and working hours were found to influence physical QoL. An MD degree was the sole predictor for the psychological domain, while marital status and working hours were significant predictors for the social domain. In the environmental domain, an MD degree and working hours played a significant role. Working hours showed a significant impact on the overall QoL. A recent study on 167 physicians from tertiary care hospitals in Egypt to evaluate professional QoL components and their predictors documented that possessing greater educational background, marital status, and working hours were significant predictors for the physical and social QoL domains [15]. Similarly, Wang *et al.* [30] found that marriage and marital status were positively related to compassion satisfaction, a component of professional QoL. Moreover, Ruiz-Fernández *et al.* [31] reported that participants with higher educational levels exhibited higher QoL levels. Also, Alharbi *et al.* [26] showed that higher age, more work experience, full-time employment, married status, rotating shift, and specialty units were associated with greater QWL scores.

This study has some limitations. It relied on self-reported data and a self-administered questionnaire, which may introduce biases and limitations in capturing the full spectrum of physicians' well-being. Secondly, most physicians were from lower Egypt, which limits the generalizability of the findings to other regions or populations. Therefore, more multi-regional studies should be performed on a broader population of physicians in Egypt.

Table 4. Results of regression analysis for variables associated with domains of QOL in physicians

Variables	Overall QoL		General health		Physical		Psychological		Social		Environment	
	β	p	β	p	β	p	β	p	β	p	β	p
Age: ≤40 (ref)												
>40	-0.071	0.663	-0.003	0.984	0.085	0.562	0.4	0.689	0.145	0.357	-0.053	0.730
Sex: Male (ref)												
Female	0.003	0.971	-0.025	0.762	-0.166	0.025	-0.088	0.930	0.039	0.624	0.063	0.412
Marital status:												
Divorced, widow (ref)												
Single	-0.063	0.584	0.146	0.210	0.243	0.02	0.301	0.764	0.059	0.593	0.105	0.335
Married	-0.092	0.418	0.06	0.601	0.336	0.001	1.51	0.133	0.316	0.004	0.093	0.382
Chronic disease: No (ref)												
Yes	0.123	0.089	0.064	0.378	-0.244	<0.001	-1.786	0.075	-0.055	0.431	-0.122	0.073
Education: Bachelor (ref)												
MSC	-0.098	0.39	-0.155	0.180	0.064	0.53	1.883	0.061	-0.111	0.313	0.062	0.561
MD	-0.087	0.481	-0.143	0.251	0.283	0.012	3.799	<0.001	0.048	0.686	0.290	0.013
Specialty others (ref)												
surgery	-0.028	0.719	-0.06	0.453	-0.06	0.398	0.592	0.554	-0.2	0.793	-0.043	0.568
Working hours/week: ≤18 h (ref)												
>18-≤36	0.281	0.003	0.177	0.061	-0.123	0.143	0.368	0.713	-0.91	0.312	-0.069	0.433
>36-≤54	0.107	0.226	0.052	0.560	-0.225	0.005	-0.481	0.631	-.113	0.184	-0.13	0.120
>54	.055	0.512	0.026	0.758	-0.268	<0.001	-1.289	0.199	-.232	0.004	-.225	0.005
Extra working hours: No (ref)												
Yes	-.107	0.175	0.014	0.864	-0.042	0.548	-1.323	0.187	0.015	0.838	-.088	0.234
Experience: ≤15 (ref)												
>15	-0.005	0.974	0.076	0.632	0.02	0.888	0.903	0.368	-0.157	0.303	.151	0.307

B: Regression coefficient

4. CONCLUSION

Our study revealed that physicians generally experience a moderate quality of life (QoL), with significant differences across various domains. Specifically, non-smokers and those with fewer working hours tend to report higher overall QoL scores compared to their counterparts. Moreover, several factors such as age, gender, and marital status, along with professional aspects like specialty, educational background, and

work experience, play crucial roles in influencing specific domains of QoL. These findings highlight the complex interplay between personal and professional characteristics in determining the overall well-being of physicians, and underscore the need for targeted interventions that address the unique challenges faced by different physician groups, ultimately aiming to enhance their overall well-being and work-life balance.

REFERENCES

[1]   WHO, "WHOQOL: measuring quality of life." [Online]. Available: https://www.who.int/tools/whoqol.
[2]   S. H. Hamaideh, M. T. Mrayyan, R. Mudallal, I. G. Faouri, and N. A. Khasawneh, "Jordanian nurses' job stressors and social support," *International Nursing Review*, vol. 55, no. 1, pp. 40–47, 2008, doi: 10.1111/j.1466-7657.2007.00605.x.
[3]   F. Kheiraoui, M. R. Gualano, A. Mannocci, A. Boccia, and G. La Torre, "Quality of life among healthcare workers: a multicentre cross-sectional study in Italy," *Public Health*, vol. 126, no. 7, pp. 624–629, 2012, doi: 10.1016/j.puhe.2012.03.006.
[4]   D. Perez-Valdecantos *et al.*, "Professional quality of life of healthcare workers in hospital emergency departments," *Behavioral Sciences*, vol. 12, no. 6, 2022.
[5]   S. Lee, H. J. Lee, and C. H. Cho, "Mediation effect of insomnia symptoms on relation between stress and quality of life," *Psychiatry Investigation*, vol. 19, no. 3, pp. 229–238, 2022, doi: 10.30773/pi.2021.0344.
[6]   G. Medic, M. Wille, and M. E. Hemels, "Short- and long-term health consequences of sleep disruption," *Nature and Science of Sleep*, vol. 9, pp. 151–161, 2017.
[7]   H. S. Son *et al.*, "Healthcare Workers' resilience mediates the influence of organizational commitment and anxiety response to viral epidemic on their quality of life in the COVID-19 pandemic," *Frontiers in Psychiatry*, vol. 12, 2022, doi: 10.3389/fpsyt.2021.735016.
[8]   L. S. C. Woon, N. S. Mansor, M. A. Mohamad, S. H. Teoh, and M. F. I. Leong Bin Abdullah, "Quality of life and its predictive factors among healthcare workers after the end of a movement lockdown: the salient roles of COVID-19 stressors, psychological experience, and social support," *Frontiers in Psychology*, vol. 12, 2021, doi: 10.3389/fpsyg.2021.652326.
[9]   G. P. Fichera, S. Sartori, and G. Costa, "Post-traumatic stress disorder following robbery at the workplace: a pilot study on 136 pharmacy workers," *La Medicina del lavoro*, vol. 100, no. 2, pp. 97–108, 2009.
[10] M. E. Kruk *et al.*, "High-quality health systems in the Sustainable Development Goals era: time for a revolution," *The Lancet Global Health*, vol. 6, no. 11, pp. 1196–1252, 2018, doi: 10.1016/S2214-109X(18)30386-3.
[11] S. De Hert, "Burnout in healthcare workers: prevalence, impact and preventative strategies," *Local and Regional Anesthesia*, vol. 13, pp. 171–183, 2020, doi: 10.2147/LRA.S240564.
[12] L. C. Rink, T. O. Oyesanya, K. C. Adair, J. C. Humphreys, S. G. Silva, and J. B. Sexton, "Stressors among healthcare workers: a summative content analysis," *Global Qualitative Nursing Research*, vol. 10, 2023, doi: 10.1177/23333936231161127.
[13] L. E. Søvold *et al.*, "Prioritizing the mental health and well-being of healthcare workers: an urgent global public health priority," *Frontiers in Public Health*, vol. 9, 2021, doi: 10.3389/fpubh.2021.679397.
[14] R. M. Ghazy *et al.*, "Quality of life among health care workers in Arab countries 2 years after COVID-19 pandemic," *Frontiers in Public Health*, vol. 10, 2022, doi: 10.3389/fpubh.2022.917128.
[15] B. A. Ibrahim, M. Mostafa, and S. M. Hussein, "Professional quality of life among physicians of tertiary care hospitals: an Egyptian cross-sectional study," *Journal of Public Health Research*, vol. 11, no. 2, 2022, doi: 10.4081/jphr.2021.2436.
[16] M. B. Maqsood *et al.*, "Assessment of quality of work life (QWL) among healthcare staff of intensive care unit (ICU) and emergency unit during COVID-19 outbreak using WHOQoL-BREF," *Saudi Pharmaceutical Journal*, vol. 29, no. 11, pp. 1348–1354, 2021, doi: 10.1016/j.jsps.2021.09.002.
[17] I. Kabbash, R. El-Sallamy, H. Zayed, I. Alkhyate, A. Omar, and S. Abdo, "The brain drain: why medical students and young physicians want to leave egypt," *Eastern Mediterranean Health Journal*, vol. 27, no. 11, pp. 1102–1108, 2021, doi: 10.26719/emhj.21.050.
[18] Y. A. Fouad, Y. M. Fahmy, S. M. A. Hady, and A. E. Elsabagh, "Egyptian future physicians are packing to leave but may be willing to return," *International Health*, vol. 7, no. 3, pp. 190–194, 2015.
[19] C. A. Gericke, K. Britain, M. Elmahdawy, and G. Elsisi, "Health system in Egypt," pp. 1–18, 2018, doi: 10.1007/978-1-4614-6419-8_7-1.
[20] B. Mckinstry, "Are there too many female medical graduates? Yes," *BMJ*, vol. 336, no. 7647, 2008, doi: 10.1136/bmj.39505.491065.94.
[21] J. Dacre, "Are there too many female medical graduates? No.," *BMJ*, vol. 336, no. 7647, 2008, doi: 10.1136/bmj.39505.566701.94.
[22] Y. Liang, H. Wang, and X. Tao, "Quality of life of young clinical doctors in public hospitals in China's developed cities as measured by the Nottingham Health Profile (NHP)," *International Journal for Equity in Health*, vol. 14, no. 1, 2015, doi: 10.1186/s12939-015-0199-2.
[23] R. Ali and O. Habib, "A study on job satisfaction of family physicians in Basrah," *The Medical Journal of Basrah University*, vol. 37, no. 2, pp. 51–58, Jun. 2019, doi: 10.33762/mjbu.2019.163348.
[24] M. J. Almalki, G. FitzGerald, and M. Clark, "Quality of work life among primary health care nurses in the Jazan region, Saudi Arabia: a cross-sectional study," *Human Resources for Health*, vol. 10, no. 1, Dec. 2012, doi: 10.1186/1478-4491-10-30.
[25] L. Crafford, R. Kusurkar, E. Bronkhorst, A. Gous, and A. Wouters, "Understanding of healthcare professionals towards the roles and competencies of clinical pharmacists in South Africa," *BMC Health Services Research*, vol. 23, no. 1, Mar. 2023, doi: 10.1186/s12913-023-09222-z.
[26] M. F. Alharbi, B. A. Alahmadi, M. Alali, and S. Alsaedi, "Quality of nursing work life among hospital nurses in Saudi Arabia: a cross-sectional study," *Journal of Nursing Management*, vol. 27, no. 8, pp. 1722–1730, 2019, doi: 10.1111/jonm.12863.
[27] M. S. Iqbal, "Health-related quality of life among healthcare providers in Pakistan," *Journal of Pharmacy and Bioallied Sciences*, vol. 13, no. 1, pp. 31–38, 2021, doi: 10.4103/jpbs.JPBS_265_20.
[28] M. Malik, "Occupational stress among practicing pharmacists in Pakistan: the current delima," *Journal of pharmacology & clinical research*, vol. 4, no. 2, 2017, doi: 10.19080/jpcr.2017.04.555633.
[29] A. Koinis, V. Giannou, V. Drantaki, S. Angelaina, E. Stratou, and M. Saridi, "The impact of healthcare workers job environment on their mental-emotional health. Coping strategies: the case of a local general hospital," *Health Psychology Research*, vol. 3, no. 1, 2015, doi: 10.4081/hpr.2015.1984.

[30] J. Wang *et al.*, "Factors associated with compassion satisfaction, burnout, and secondary traumatic stress among Chinese nurses in tertiary hospitals: a cross-sectional study," *International Journal of Nursing Studies*, vol. 102, 2020, doi: 10.1016/j.ijnurstu.2019.103472.

[31] M. D. Ruiz-Fernández, E. Pérez-García, and Á. M. Ortega-Galán, "Quality of life in nursing professionals: burnout, fatigue, and compassion satisfaction," *International Journal of Environmental Research and Public Health*, vol. 17, no. 4, Feb. 2020, doi: 10.3390/ijerph17041253.

BIOGRAPHIES OF AUTHORS

Amira Ismail Abdelrahman 🔴 📊 SC ⟳ is a lecturer of Epidemiology and biostatistics at the National Cancer Institute, Cairo University. Her research focuses on public health issues, particularly in raising awareness of disease risk factors and improving quality of life. She can be contacted at email: amiranci@yahoo.com.

Nora Atef Goda 🔴 📊 SC ⟳ is a lecturer of Epidemiology and Biostatistics at the National Cancer Institute, Cairo University, since 2010. Her research is primarily focused on the epidemiology of various types of cancer, with a special emphasis on gastrointestinal tract (GIT) cancers. She can be contacted at email: noraatef148@yahoo.com.

Mohamed Mahmoud Bendary 🔴 📊 SC ⟳ is a lecturer of Epidemiology and Biostatistics in Cairo University. His career has been marked by a commitment to understanding and improving health outcomes through rigorous scientific inquiry. He can be contacted at email: bendary3@gmail.com.