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RESEARCH ARTICLE

QUALITY OF LIFE AMONG PHYSICIANS IN RESIDENCY PROGRAMS IN AL MADINAH 2022

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Abstract

Objective: The aim of this study is to determine the quality of life and associated factors of physicians in residency training programmes in Al Madinah city.

Methods:A cross-sectional study was conducted in three training centres including four main specialities (family medicine, paediatric, internal medicine and surgery) in Al-Madinah, Saudi Arabia. A self-administered questionnaire was used that included socio-demographic and occupational characteristics, and the short version of Arabic World Health Organization quality of life questionnaire (WHOQOL-BREF). Appropriate statistical analysis were used, including t-test, analysis of variance (ANOVA) test, and multiple linear regression models.

Results: The highest mean score was in the environmental domain, followed by physical, social, and mental health finally, with score of 75.6%, 53.1%, 50.8%, and 49.2% respectively. The mean score of overall QOL and health satisfaction was 54.1%. In multiple linear regression analysis, gender was a significant predictor for overall QOL, overall health satisfaction (P<0.001), psychological (P<0.001), physical (P<0.001), and environmental domains (P= 0.014). Physicians without chronic disease had better overall QOL, and psychological score compared to physicians with chronic disease (P= 0.038, P= 0.032, respectively)

Married physicians had better social health (P= 0.010) and obese physicians had poorer QOL and overall health satisfaction (P<0.001).

Conclusion: This study found that male physicians, compared to females, had better QOL in the four domains of health. Obese physicians had poorer overall quality of life and health satisfaction relative to non-obese physicians. Physicians without chronic disease had better overall QOL, and psychological score compared to physicians with chronic disease. Married physicians had better social score.

Introduction:-

Quality of life according to World Health Organization (WHO) is (an individuals' perceptions of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns).(1) In medical field, a lot of problems have been identified and managed or prevented, but in case of doctors' health and quality of life in general, a lot are remaining. Starting from medical students' health:

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stress, poor lifestyle and bad social relationship are observed.(2) Been a physician per se may considered a risk for many mental and social issues, workers who are having the greatest risk for burnout are the physicians .(3)(4)(5) In post graduate years, more suicidal planning were noticed .(4) Burnout and Poor Quality of Life are more among physicians than other peers in U.S.(6) Young physicians in residency had more if not the highest level of distress and are prone to be less productive and having worse lifestyle.(6) Talking specifically about residents in their training, those who are in the first year are exposed to higher stress.(7) The factors contribute to poor quality of life among physicians under investigations, however many studies revealed associations between sex, working hours, and specialties' differences.(6)(8) Female physicians in contrast, found to have poorer overall quality of life and health satisfaction, psychological, and physical health compared to their male colleges.(9)(8) Front line specialties, as family medicine, internal medicine, and surgery, were linked to poorer quality of life and more burnout.(6) Having more hours per week is a predictor of poor quality of life of physicians (10), also having 24 hours calls compared to night float, has high association with poor quality of life.(11) During covid-19 pandemic, a poor quality of life socially and psychologically also observed among health care providers.(12)(13) A lot of determinants of associated with poor quality of life among physician investigated. Some institutes implemented a programs to overcome this poor quality of life.(14) Since medical doctors are vulnerable to have burnout and poor quality of life related to their contact with patients and work overload starting from college and increased even more in their residency training, which in turn affecting the productivity and long term health of the doctors and even their patients.(15) Focusing on the quality of life of residents is an important way to assess them and thereafter make the right action. (16)One study was conducted in Al-Madinah, concluded that good QOL among the participating physicians was observed relatively; while physicians with unhealthy lifestyle factors had lower QOL.(16) In this research we aimed to determine quality of life and associated factors of physicians in residency training programmes in Al Madinah city.

Materials And Methods:-

This cross-sectional study was conducted in Al-Madinah city, Saudi Arabia during 2022. Al Madinah city is located in the Hejaz region of western Saudi Arabia about 340 km north of Mecca and has a population of 1,512,724. Al Madinah has multiple governmental health centres and hospitals, which have training centres of different specialities, including; family medicine, paediatric, internal medicine, and surgical specialties.

The target population were all the residents in their training centres with total number of 400 and the sample size was calculated by epi info app as the following assumptions: the prevalence of poor quality of life was 30 % according to previous study and the statistical power was 80%, with 95% confidence interval [CI] found that the minimum required sample size was 179 .(16) A convenient sampling technique was used to recruit 202 patients.

Residents outside rotations, residents who don't want to participate, and residents on vacations were all excluded from study.

Data collection and tools

The instrument used in this study consisted of two sections: First section contained sociodemographic and occupation such as age, sex, marital status, number of children, height and weight, co morbidities, specialty, residency year, and number of calls per month. Second section contained the WHOQOL-BREF instrument which is used to assess the four quality of life domains defined by the WHO which is physical health, psychological health, social relations, and environment. This instrument is self-administered questionnaire, comprised of 26 items, the first two items separately assess the overall perception of QOL and health. The remaining questions will assess the four domains of life, namely physical health, mental health, social relationships and environment, and the number of questions for each domain is 7, 6, 3 and 8 respectively. The tool follows a scoring system that is scored on a 5-point Likert scale from 1 to 5, where a higher score indicates a better quality of life, only three questions should be coded in reverse before scoring.(17) The Cronbach's coefficient was 0.867 for the entire questionnaire, 0.796 for the physical health domain, 0.755 for the mental health domain, 0.786 for the social relationships domain, and 0.793 for the environmental domain. Because a Cronbach's coefficient value >0.7 was considered a desirable reliability estimate, these results showed good internal uniformity for the domains tested.(18) It is valid and reliable instrument according to multiple studies.(19)(20)(18)

Ethical considerations

Ethical approval was taken from the ethics committee of the General Directory in the Ministry of Health. All the participants were signed a consent section that is included in the questionnaire. The participation of this study is

voluntary. The participants were informed that there is no anticipated risk and confidentiality of all participants will be assured and only the research team have accessibility to the data. Consent for was obtained from the participants.

Statistical analysis

Data entry and statistical analysis were performed using the Statistical Package for the Social Science program SPSS version 25 (IBM Corp., Armonk, NY, USA). Mean and standard deviations (SD) were obtained for the continuous variables, while frequencies and proportions were obtained for the categorical variables. For continuous data, the t-test and analysis of variance (ANOVA) test were used. Multiple linear regression analysis was utilized to determine the factors that significantly associated with quality of life. Multi-collinearity was assessed between the variables. A p-value of <0.05 was considered significant.

Results:-

Out of 400 physicians, 202 filled the questionnaire with a response rate of 50.5%. The mean age of the studied physicians were 28 years, 65% were males, while the females were 34.2%. More than the half of the physicians 53% were single, while married, divorced, and widowed were 43.6%, 2.5%, and 0.5% respectively. A fifty-seven percent of them were Family physicians, while paediatricians, internist and surgeons were 16.3%, 15.8% and 10.4% respectively. Around one third of them were overweight and 15.3% were obese, however around the half of them 42.6% were within normal body mass index (BMI). More than one third of studied physicians 33.7% had no calls, while 15.8% had 1-2 calls, 23.3% had 3-4 calls, and 27.2% had > 4 calls per month (Table1).

In QOL and overall health satisfaction domain, there were significant differences related to gender, co morbidities, BMI classifications, and different specialities. (P= 0.009, P= 0.038, P<0.001 and P<0.001, respectively) where females had poorer score compared to males. Physicians without chronic disease, and family physicians had better QOL and overall health satisfaction compared to physicians with chronic disease and paediatricians respectively (Table 2). In post hoc test, the obese physicians had poorer score compared to underweight, and normal weight physicians.

In psychological domain, there were significant differences related to gender where males had better score compared to females (P<0.001), BMI classifications (P= 0.037), co morbidities (P= 0.032), between different specialities (P<0.001), and number of calls per month (P= 0.008). While in post hoc test, physicians in family specialty had better psychological score compared to paediatricians and internist. (P= 0.001, and P= 0.002 respectively), and physicians with 1-2 calls had better psychological score compared to those with 3-4 calls per month (P= 0.021).

In physical domain, there were significant differences related to gender where males had better score compared to females (P<0.001), different specialities (P<0.001), and number of calls per month (P= 0.004). While In post hoc test, physicians in family specialty had better physical score compared to paediatricians (P<0.001) and physicians with 1-2 calls had better physical score compared to those with ≥5 calls per month (P= 0.047).

In social domain, there were significant differences related to gender where males had better score compared to females (P= 0.010), marital status (P= 0.002), BMI classifications (P= 0.031), different specialities (P= 0.001), and number of calls per month (P= 0.011).While in post hoc test, physicians in family specialty had better social score compared to paediatricians (P= 0.007) and physicians with no calls had better social score compared to those with ≥5 calls per month (P= 0.047).

In environmental domain, there were significant differences related to gender where males had better score compared to females (P= 0.006), different specialities (P<0.001), and number of calls per month (P<0.001). While In post hoc test, physicians in family specialty had better environmental score compared to paediatricians and surgeons (P<0.001, P= 0.003 respectively), and physicians with no calls had better environmental score compared to those with 3-4 and those with ≥5 calls per month (P= 0.026, and P= 0.049 respectively). Physicians with 1-2 calls had better environmental score compared to those with 3-4 and those with ≥5 calls per month (P= 0.008, and P= 0.016 respectively) (Table 3).

In multiple linear regression analysis, males, physicians without chronic diseases, and non-obese physicians were significantly associated with better overall QOL and overall health satisfaction compared to females, physicians with chronic disease, and obese physicians (P<0.001, P= 0.038, P<0.001, respectively). Physicians without chronic disease had better psychological score compared to physicians with chronic disease(P= 0.032). Males were also

significantly associated with better psychological (P<0.001), physical (P<0.001), and environmental (P= 0.014) scores compared to females. Whereas married physicians were significantly associated with better social score compared to unmarried physicians(P= 0.002) (Table4).

Discussion:-

Numerous studies worldwide have been successful in their efforts to validate the WHOQOL-BREF instrument, including a local studies conducted among preclinical students in Riyadh and Jeddah (20)(21). Several factors can affect an individual's perception of QOL, including socio demographic occupational factors. Because physicians are at a high-risk for poor quality of life, our study aimed to investigate the association between socio demographic occupational factors and quality of life of physicians in residency in Madinah, Saudi Arabia.

In our study, the highest mean score was in the environmental domain, followed by physical, social, and psychological health finally. This higher environmental score may be explained by availability of resources, putting in mind what KSA have as its position as Qibla of Muslims, and an economic position as one of the member state of G20.

Other study in Punjab and Islamabad showed the highest mean score is physical health, followed by social relationships, then environment domain, and lastly mental health.(9) Striking finding in this study that a female physician had poorer QOL in overall health and its satisfaction, and other three domains. Going with similar finding, study in Punjab and Islamabad was conducted at leading hospitals, found that female physicians scored significantly lower for physical health, mental health, and social relationships than male physicians.(9) Similarly, in psychological domain, a study conducted in Germany came to the conclusion that female physicians had poorer psychological health compared to their male colleagues.(8)

Inconsistent with the study was conducted in Jeddah which showed that the highest mean score after the environment domain, are mental health, then social relationships, and finally physical health.(2)

In Pakistan study of healthcare workers found that health providers in Pakistan were relatively less satisfied in their physical and environmental domains, while more satisfied in social and psychological domains. However, the instrument used in mentioned study is different, although it is validated and reliable in term of assessing the quality of life(22). The current study found that males, non-obese and being a family physician were associated significantly with overall QOL and health satisfaction.

Regarding obesity, a study was conducted in Al Madinah region of saudi arabia on Primary care physicitons, concluded that lower social score was higher among physicians with obesity and unhealthy lifestyle habits.(16)

When examining factors affecting physicians' quality of life, we found that there was no significant difference in physicians' quality of life per residency level, while finding in study conducted in Brazil showed that quality of life of first-year residents is worse than the others. this may be explained by putting in mind that Brazilian study were in a reference tertiary trauma hospital, while our study conducted in primary health care and secondary hospitals.(7) Although there was no significant difference in term of age variations in all domains, the means of all four domains were the least in those with age < 25 years, while in psychological domain those with same age group scored highest level. Talking about co morbidities, number of children, and residency level, there were no significant differences in all domains, although the highest score in co morbidities variable was in those with no diseases in all domains. The BMI classifications related to psychological and social health were significantly associated, where the underweight physicians had the lowest score. Surprisingly, family physicians had the highest score in all domains of health, and significantly better overall QOL, health satisfaction, and all four domains of health compared to paediatricians, and better psychological, environmental health compared to internist, and surgeons respectively. While in large sample US study, concluded that most specialties showed more burnout are family, internal medicine, and surgery.(6)

Physicians with number of calls ≥5 per month were significantly associated with poor QOL in all domains of health. Hopefully, the researches in integrated wellness programs will reach a point where it will be possible to know the most feasible methods for setting shifts and calls schedules and other arrangements that help raise the quality of life of physicians working in this honourable profession.

Limitation

Recall bias is one of the limitations in this study, also this study was a cross-sectional in nature; therefore, it is not possible to link the association between the variables and the quality of life to a causal relationship. Despite the study achieved a great response rate, its generalization to all specialities was limited, and it may also be difficult to generalize it to all cities of the Kingdom of Saudi Arabia.

Table 1:- Socio-demographic and occupational characteristics of the physicians (n=202).

Characteristics	**n (%)**
Age	
<25	2 (1)
25-27	87(43.1)
28-30	93(46)
>30	20(9.9)
Gender	
Male	133 (65.8)
Female	69 (34.2)
Marital status	
Married	88(43.6)
unmarried	113(56)
Co morbidities	
Free	167(82.7)
with chronic disease	35(17.2)
BMI	
<18	6(3)
18-24.9	86(42.6)
25-29.9	71(35.1)
≥30	31(15.3)
Number of children	
No children	146(72.3)
1-2	44(21.8)
3-5	12(5.9)
Specialty	
Family medicine	116(57.4)
paediatric	33(16.3)
General medicine	32(15.8)
General surgery	21(10.4)
Residency level	
R1	50(24.8)
R2	55(27.2)
R3	48(23.8)
R4	46(22.8)
R5	3(1.5)
On calls per month	
0	68(33.7)
1-2	32(15.8)
3-4	47(23.3)
>4	55(27.2)

Table 2:- Overall QOL and general health association with Socio demographic occupational characteristics of the physcians (n=202).

Characteristics	**Overall Quality of Life and General Health**	
	Mean (SD)	**P-value**

Age		
<25	8 (0.00)	0.875
25-27	7.3(1.7)	
28-30	7.4(1.8)	
>30	7.3(1.6)	
Gender		
Male	7.6(1.6)	0.009
Female	6.9 (1.7)	
Marital status		
married	7.4(1.6)	0.679
unmarried	7.3(1.8)	
Co morbidities		
Free	7.5(1.6)	0.038
with chronic disease	6.8(1.8)	
BMI		
<18	8.1(1.4)	<0.001
18-24.9	7.6(1.6)	
25-29.9	7.6(1.5)	
≥30	6.0(1.8)	
Number of children		
No children	7.4(1.7)	0.525
1-2	7.1(1.7)	
3-5	7.7(1.7)	
Speciality		
Family medicine	7.7(1.6)	<0.001
pediatric	6.3(1.8)	
General medicine	7.0(1.6)	
General surgery	7.6(1.3)	
Residency level		
R1	7.3(1.6)	0.297
R2	7.8(1.7)	
R3	7.1(1.7)	
R4	7.2(1.7)	
R5	7.6(1.5)	
On calls per month		
0	7.5 (1.6)	0.063
1-2	7.9(1.6)	
3-4	7.3(1.6)	
>4	6.9(1.8)	

Table 3:- QOL domains association with Socio demographic occupational characteristics of the physcians (n=202).

Characteristics	**Psychological domain**		**Physical domain**		**Social domain**		**Environmental domain**	
	Mean (SD)	**P-value**	**Mean (SD)**	**P-value**	**Mean (SD)**	**P-value**	**Mean (SD)**	**P-value**
Age								
<25	21.5 (0.7)	0.899	23(2.8)	0.718	7.5(4.9)	0.124	23.5(2.1)	0.519
25-27	20.9(4.3)		25.9(4.6)		10.2(2.6)		29.0(5.6)	
28-30	20.5 (4.7)		25.3(4.8)		10.9(2.5)		28.6(5.7)	
>30	20.9 (3.6)		25.3 (4.0)		10.9(2.5)		28(4.7)	
Gender								
Male	21.6 (4.2)	<0.001	26.8(4.2)	<0.001	10.9(2.6)	0.010	29.4(5.5)	0.006

Female	19(4.4)		23.2(4.5)		9.9(2.4)		27.2(5.4)	
Marital status								
married	21(4.0)	0.497	25.6(4.5)	0.866	11.2(2.3)	0.002	28.8(5.3)	0.745
unmarried	20.5(4.8)		25.5(4.8)		10.1(2.7)		28.5(5.8)	
Co morbidities								
Free	21 (4.4)	0.032	25.8 (4.4)	0.062	10.7(2.5)	0.181	28.8(5.4)	0.335
With chronic disease	19.2(4.2)		24.2(5.3)		10.0(2.7)		27.8(6.2)	
BMI								
<18	19(3.3)	0.037	23.6(2.9)	0.122	8.5(2.0)	0.031	28.5(2.9)	0.651
18-24.9	20.4(5.0)		25.4(5.0)		10.3(2.7)		28.6(5.9)	
25-29.9	21.6 (3.9)		26.4 (4.3)		11.1(2.3)		29(5.2)	
≥30	19.0 (3.7)		24.2 (4.4)		10.2(2.6)		27.4(5.9)	
Number of children								
No children	20.8 (4.6)	0.860	25.7 (4.5)	0.637	10.4(2.7)	0.346	28.7(5.6)	0.905
1-2	20.5 (4.0)		25.1(5.1)		11.0(2.0)		28.4(5.5)	
3-5	21.2(4.0)		25(4.6)		10.9(2.9)		29.2(4.6)	
Speciality								
Family medicine	21.8(3.8)	<0.001	26.8(4.2)	<0.001	11.1(2.3)	0.001	30.3(4.9)	<0.001
pediatric	18.3(3.8)		22.3(4.6)		9.4(2.8)		24.9(4.2)	
General medicine	18.5(5.2)		25(4.3)		9.8(2.5)		26.4(5.9)	
General surgery	21.7(4.9)		24.5(4.8)		10.5(3.1)		28.7(6.3)	
Residency level								
R1	20.7(3.9)	0.656	25.8(4.0)	0.535	10.2(2.5)	0.728	28.6(5.4)	0.893
R2	21.4(4.8)		26.3(4.9)		10.5(3.0)		28.9(6.4)	
R3	20.5(4.6)		24.8(4.5)		10.9(2.5)		29.1(5.2)	
R4	20.2(4.3)		25.3(5.1)		10.7(2.3)		28(5.1)	
R5	19(6.5)		25(2)		11.3(2)		27.6(4)	
On calls per month								
0	21.4 (4.1)	0.008	26.5(4.3)	0.004	11.1(2.2)	0.011	29.9(4.8)	<0.001
1-2	22.3(3.5)		27.2(4.2)		11.3(2.4)		31.1(5.4)	
3-4	19.1(5.0)		24.4(5.8)		10.4(2.6)		26.8(5.3)	
>4	20.4(4.4)		24(4.6)		9.7(2.8)		27.2(5.8)	

Table 4:- Multiple linear regression analysis of characteristics and its association with Overall QOL and general health and QOL domains of the physcians (n=202).

physicians characteristics	**B**	**SE**	***P*-value**	**95% CI for β**	**Tolerance**	**VIF**
Overall Quality of Life and General Health						
male vs female	0.938	0.256	<0.001	(0.432–1.443)	0.898	1.113
non obese vs obese	0.818	0.156	<0.001	(0.511–1.126)	0.906	1.104
Free of disease vs chronic disease	0.670	0.321	0.038	(0.037 – 1.303)	1.000	1.000
Psychological domain						
male vs female	2.765	0.683	<0.001	(1.418 – 4.113)	0.898	1.113
Free of disease vs chronic disease	1.786	0.826	0.032	(0.158 - 3.414)	1.000	1.000
Physical *domain*						

male vs female	3.3813	0.640	<0.001	(2.119–4.643)	.987	1.013
Social domain						
married vs unmarried	1.149	0.365	0.002	(0.430-1.868)	1.000	1.000
environmental *domain*						
male vs female	1.983	0.800	.014	(0.406-3.561)	.987	1.013

SE: Standard error, CI: confidence interval, VIF: Variance inflation factor.

Conclusion:-

The present findings indicate better overall QOL in male physicians compared to female physicians. This finding was consistent with all four domains of health. Obese physicians had poorer overall quality of life and health satisfaction relative to non-obese physicians. Physicians without chronic disease had better overall QOL, and psychological score compared to physicians with chronic disease. Married physicians were significantly associated with better social score.

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