



ISSN NO. 2320-5407

Journal Homepage: - www.journalijar.com

**INTERNATIONAL JOURNAL OF
ADVANCED RESEARCH (IJAR)**

Article DOI: 10.21474/IJAR01/17249
DOI URL: <http://dx.doi.org/10.21474/IJAR01/17249>



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Article DOI: 10.21474/IJAR01/17249

RESEARCH ARTICLE

LEVEL OF BURNOUT AND ITS DETERMINANTS AMONG PROGRAM PHYSICIANS OF DIFFERENT SPECIALTIES IN MAKKAH CITY 2023

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Manuscript Info

Manuscript History

Received: 15 May 2023
Final Accepted: 19 June 2023
Published: July 2023

Abstract

Introduction: Burnout is a major problem that affect most of the residents and health care providers silently resulting in low level of satisfaction. Prior studies done in Saudi Arabia for the prevalence of burnout among programs residents in different regions, none of them was done in Makkah city. This study focuses on burnout among residents in postgraduate training Among different specialties, which can be stressful both physically and psychologically.

Methodology: It is an analytical cross-sectional study; data was collected by questionnaire. Calculation of sample size was done by Raosoft website. SPSS version 26 is used for data analysis.

Results: The study included 282 program physicians in Makkah City. Results showed that 52.8% were female. Working hours per week varied, with 26.6% working less than 48 hours and 8.2% working more than 144 hours. 21.6% expressed a neutral opinion about their specialty, while 65.6% reported being satisfied. Among the participants, 29.8% had a low level of burnout, 27.7% had a moderate level, and 42.6% had a high level of burnout based on the total MBI scores. Factors associated with high-level burnout included maintaining an unhealthy lifestyle, being neutral or satisfied with the specialty, desiring to change the specialty, having fewer shifts per month, and working longer hours per week. Age, gender, marital status, and years of practice as a GP did not show significant associations with high-level burnout.

Conclusion: This study sheds light on the prevalence of burnout and its determinants among program physicians in Makkah City. The findings underscore the significance of addressing burnout as a pressing concern within the healthcare profession. Interventions targeting workload management, career satisfaction, healthy lifestyle promotion, and specialty-specific support may be crucial in mitigating burnout and enhancing the well-being of physicians. Further research is warranted to explore additional factors contributing to burnout and to develop comprehensive interventions tailored to the specific needs of physicians in different specialties and stages of their careers.

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Introduction:-

Burnout is a major problem that affect most of the residents and health care providers silently resulting in low level of satisfaction. Prior studies done in Saudi Arabia for the prevalence of burnout among programs residents in different regions, none of them was done in Makkah city.

The term Burnout was introduced by World Health Organization as a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed. It is characterized by three dimensions:

1. feelings of energy depletion or exhaustion;
2. Increased mental distance from one's job, or feelings of negativism or cynicism related to one's job career
3. Reduced professional efficacy.

The most common approach to quantify this phenomenon is the Maslach Burnout Inventory (MBI). It was developed by Maslach in 1976, which comprises of 22 items measuring 3 domains of burnout:

- 1) emotional exhaustion: the depletion of emotional energy by continued work-related demands,
- 2) depersonalization: a sense of emotional distance from one's patients or job,
- 3) low personal accomplishment, which is a decreased sense of self worth or efficacy related to work.

Prior studies have found that burnout can affect all physicians in all specialties throughout their career as early as medical students to senior consultants and not limited to junior physicians. Stressors for residents can be categorized into 3 main themes:

- 1) Situational (workload, sleep deprivation, poor learning environment, and lack of support)
- 2) Personal (family, social isolation, and financial burden)
- 3) professional (overwhelming work responsibility, and information).

This study focuses on burnout among residents in postgraduate training Among different specialties, which can be stressful both physically and psychologically.

This Study aims to evaluate the burnout level among physicians, and Identify the Reasons of burnout among program physicians to control it and improve the programs policies in the future.

Methodology:-

This Study used Analytical cross-sectional design which has been carried out using an online questionnaire obtained from 282 Residents training in Saudi programs among different specialties in different centers in Makkah city at the period from January 2023 till June 2023.

The primary outcome is level of burnout among Saudi board residents and the independent variables are: Age, gender, marital status, Sleeping hour, healthy food, Exercise, specialty, Residency level, satisfaction about specialty, number of working hours, number of on calls and shifts.

Data Analysis done using (SPSS) version 26 the most recent version of statistical computer program used for data entry analysis, with a P –value < 0.05 considered as a significant, appropriate statistical test has been considered.

Ethical approval obtained from Security Forces Hospital in Makkah IRB committee and written consent obtained from all participants.

Results:-

Sociodemographic and other parameters of all participants evaluated for Burnout Table 1 shows the sociodemographic and other parameters of the participants who were evaluated for burnout. The study included 282 participants. In terms of gender, 47.2% were male, while 52.8% were female. Regarding marital status, 39.4% of participants were single, 22.0% were married without children, 31.9% were married with children, and 6.7% were divorced. Regarding age, the majority, 76.2%, fell within the 25-30 years range. A smaller proportion, 17.7%, belonged to the 31-35 years category, and only 6.0% were over 35 years old. Participants' working hours per week varied significantly. Approximately 26.6% worked less than 48 hours, 36.9% worked between 48 and 96 hours,

28.4% worked between 96 and 144 hours, and 8.2% worked more than 144 hours. Regarding lifestyle, 26.2% reported having a healthy lifestyle, while 23.8% indicated that they did not have a healthy lifestyle. The majority, 50.0%, responded that they sometimes maintained a healthy lifestyle. In terms of satisfaction with their specialty, 21.6% of participants expressed a neutral opinion, 65.6% reported being satisfied, and 12.7% indicated being unsatisfied. Regarding the desire to change their specialty, 27.0% of participants responded affirmatively, while the remaining 73.0% indicated that they did not want to change their specialty. Regarding residency level, 16.3% were in R1, 23.0% were in R2, 27.0% were in R3, 24.5% were in R4, 8.5% were in R5, and only 0.8% belonged to R6 and R7 levels.

Table 1:- Sociodemographic and other parameters of all participants evaluated for Burnout:

		Frequency (n=282)	Percent
Gender	Male	133	47.2
	Female	149	52.8
Marital Status	Single	111	39.4
	Married without children	62	22.0
	Married with children	90	31.9
	Divorced	19	6.7
Age	25-30 Years	215	76.2
	31-35 Years	50	17.7
	> 35 Years	17	6.0
Working Hour Per week	< 48 Hours	75	26.6
	48 -96 Hours	104	36.9
	96 - 144 Hours	80	28.4
	> 144 Hours	23	8.2
Do You Have a Healthy Life Style	Yes	74	26.2
	No	67	23.8
	Sometimes	141	50.0
Satisfied with Specialty	Neutral	61	21.6
	Satisfied	185	65.6
	Unsatisfied	36	12.7
Want to Change Specialty	Yes	76	27.0
	No	206	73.0
Residency Level	R1	46	16.3
	R2	65	23.0
	R3	76	27.0

	R4	69	24.5
	R5	24	8.5
	R6 & R7	2	0.8

Different parameters related to duties of participants evaluated for Burnout

Table 2 shows different parameters related to the duties of the participants who were evaluated for burnout. Regarding On-Calls per month, 25.2% reported having no on-call shifts, while 4.9% had 2-4 on-call shifts. The majority, comprising 63.1% of participants, had 5-7 on-call shifts per month. A smaller proportion, 6.7%, had more than 7 on-call shifts. Regarding No. of Shifts per month, 43.3% reported having no shifts in a month. A small percentage, 4.3%, had less than 10 shifts, and the same proportion, 4.3%, had from 10 to 15 shifts. A significant portion, 36.2%, had 16 to 20 shifts per month, while 12.1% had more than 20 shifts. Regarding No. of Years Practicing as a GP, 83.3% of participants, had been practicing for 0-2 years. A smaller proportion, 13.1%, had 3-5 years of experience, while only 3.1% had more than 5 years of experience as GPs.

Table 2:- Different parameters related to duties of participants evaluated for Burnout:

		Frequency (n=282)	Percent
No. of On-Call Per Month	None	71	25.2
	2-4	14	4.9
	5-7	178	63.1
	More than 7	19	6.7
No. of Shifts per Month	None	122	43.3
	< 10	12	4.3
	10 - 15	12	4.3
	16 - 20	102	36.2
	> 20	34	12.1
No. of Years Practicing as a GP	0-2	235	83.3
	3-5	37	13.1
	>5	9	3.1

Burnout category between high emotional exhaustion, high depersonalization, and low personal accomplishment among physicians

Table 3 shows the distribution of burnout categories among physicians based on high emotional exhaustion, high depersonalization, and low personal accomplishment. The table also includes the total scores for the Maslach Burnout Inventory (MBI) scale and the burnout subscales.

Table 3:- Burnout category between high emotional exhaustion, high depersonalization, and low personal accomplishment among physicians:

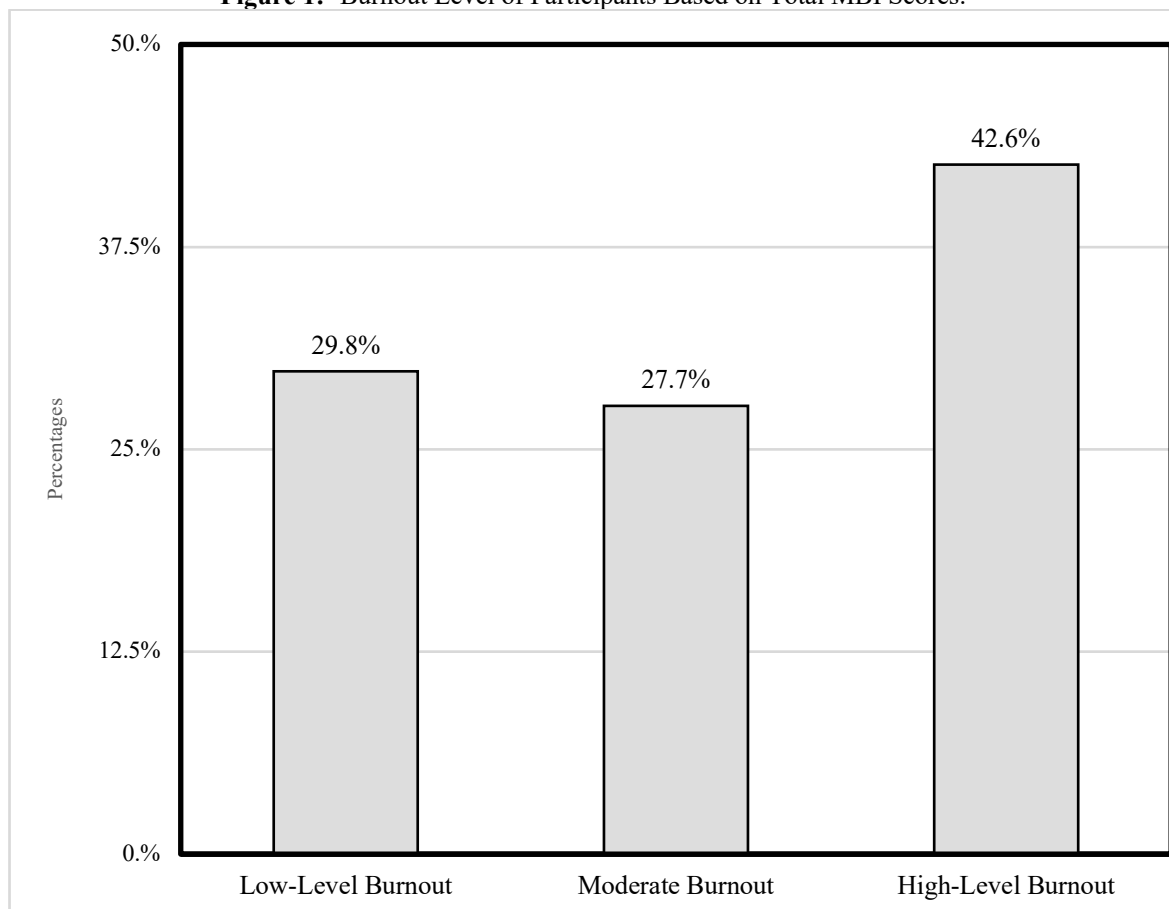
	Low-Level Burnout	Moderate-Level Burnout	High-Level Burnout
Total MBI Score	84(29.8)	78(27.7)	120(42.6)

Burnout Subscales of MBI Scale			
Emotional Exhaustion	183(64.9)	79(28.0)	20(7.1)
Depersonalization	86(30.5)	76(27)	120(46.2)
Personal Accomplishment	206(73)	32(11.3)	44(15.6)

Burnout Level of Participants Based on Total MBI Scores

Figure 1 shows the burnout level of participants based on the total MBI score. Among the physicians evaluated, 29.8% were categorized as having a low level of burnout, 27.7% had a moderate level of burnout, and 42.6% exhibited a high level of burnout based on their total MBI scores.

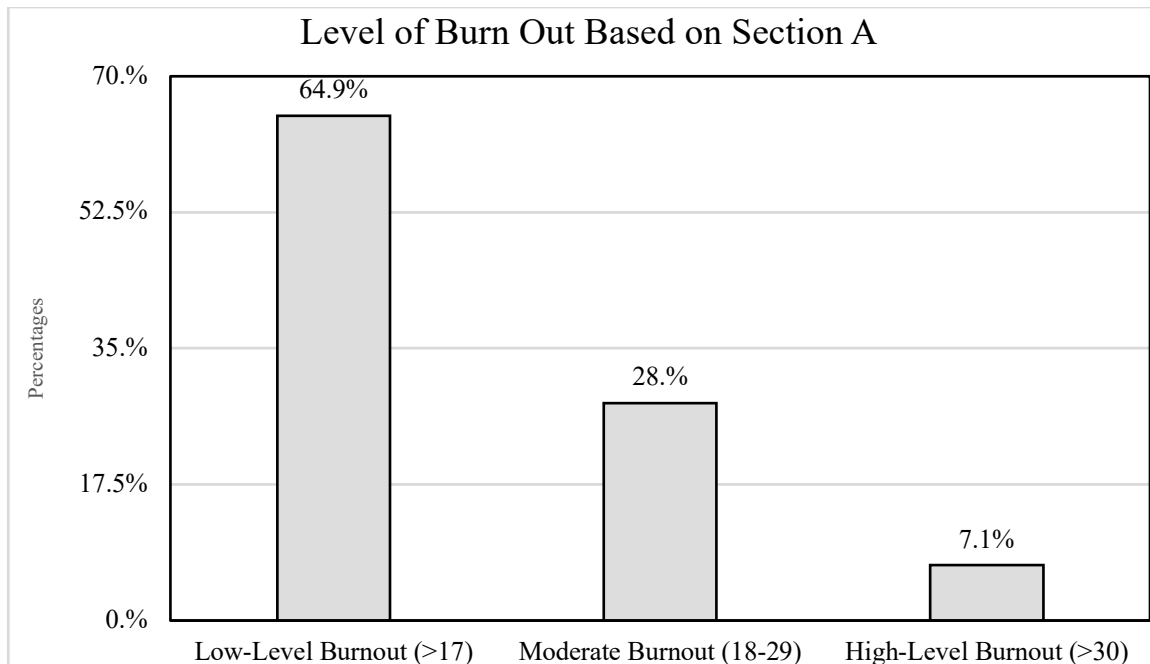
Figure 1:- Burnout Level of Participants Based on Total MBI Scores:



Burnout Level of participants Based on Emotional Exhaustion category of MBI score

In terms of emotional exhaustion, the majority of physicians, 64.9%, fell into the low-level burnout category, whereas 28.0% were categorized as having a moderate-level burnout, and only 7.1% exhibited a high-level burnout as shown in Figure 2.

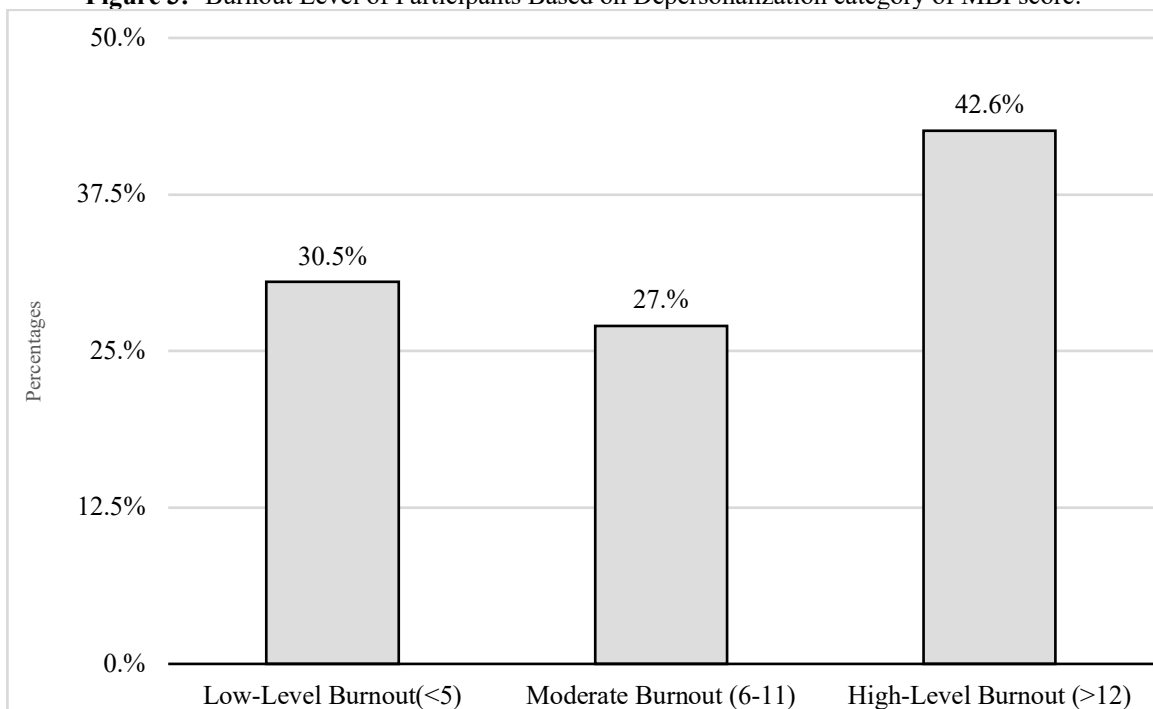
Figure 2:- Burnout Level of participants Based on Emotional Exhaustion category of MBI score:



Burnout Level of Participants Based on Depersonalization category of MBI score

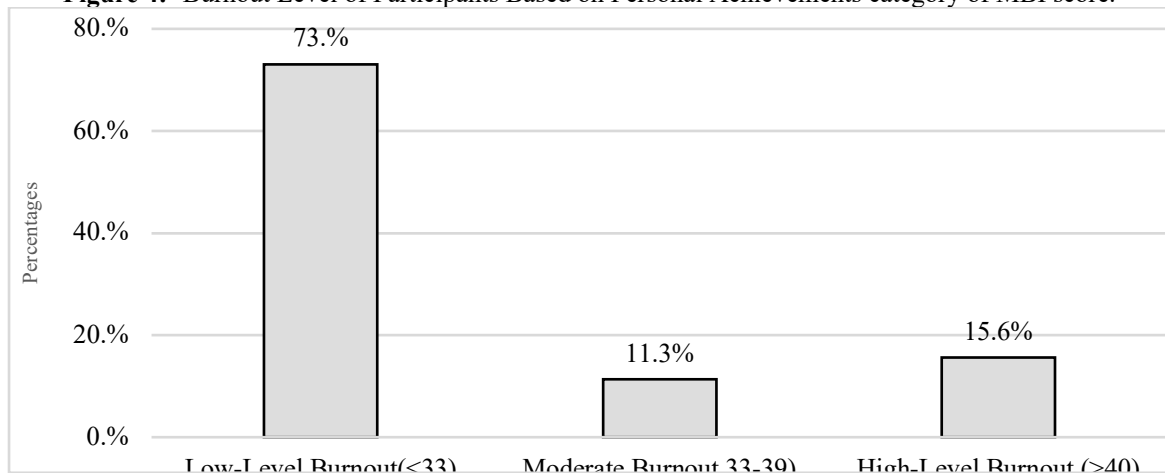
For depersonalization, 46.2% of physicians were classified as having a high-level burnout, 27.0% were in the moderate-level burnout category, and 30.5% demonstrated a low-level burnout as shown in Figure 3.

Figure 3:- Burnout Level of Participants Based on Depersonalization category of MBI score:



Burnout Level of Participants Based on Personal Achievements category of MBI score

Regarding personal accomplishment, the majority of physicians, 73.0%, showed a low-level of burnout, while 11.3% were classified as having a moderate-level burnout, and 15.6% fell into the high-level burnout category as shown in Figure 4.

Figure 4:- Burnout Level of Participants Based on Personal Achievements category of MBI score.

Burnout Category based on Total MBI (Maslach Burnout Inventory) Score among physicians of different specialty Table 4 shows the burnout categories based on the total Maslach Burnout Inventory (MBI) scores among physicians of different specialties. In terms of high-level burnout categories, some specialties stand out. Pediatric has the highest proportion with 20 physicians (16.7%) classified as high-level burnout. Other specialties with a notable presence in the high-level burnout category include Emergency Medicine with 15 physicians (12.5%), Critical care medicine with 14 physicians (11.7%), Obstetrics and Gynecology with 10 physicians (8.3%), General Surgery with 6 physicians (5.0%), and Preventive Medicine with 9 physicians (7.5%). Comparatively lower proportions of physicians in high-level burnout categories can be observed in specialties such as Ophthalmology, Orthopedic Surgery, Pediatric Surgery, and Plastic Surgery, where the numbers range from 3 to 6 physicians.

It is important to note that the significance value (<0.001) indicates that the distribution of burnout categories significantly differs across different specialties, suggesting that burnout experiences are influenced by the nature of the specific medical field.

Table 4:- Burnout Category based on Total MBI (Maslach Burnout Inventory) Score among physicians of different specialty:

	Burnout Category			Total	Sig. Value
	Low-Level	Moderate - Level	High-Level		
Cardiac Surgery	1(1.2)	2(2.6)	2(1.7)	5(1.8)	<0.001
Critical Care Medicine	0(0)	2(2.6)	14(11.7)	16(6.7)	
Dermatology	3(3.6)	2(2.6)	0(0)	5(1.8)	
Diagnostic Radiology	2(2.4)	1(1.3)	5(4.2)	8(2.8)	
Emergency Medicine	2(2.4)	8(10.3)	15(12.5)	25(8.9)	
Family Medicine	12(14.3)	3(3.8)	7(5.8)	22(7.8)	
General surgery	4(4.8)	11(14.1)	6(5.0)	21(7.4)	
internal Medicine	12(14.3)	3(3.8)	12(10.0)	27(9.6)	
Obstetrics and Gynecology	1(1.2)	11(14.11)	10(8.3)	22(7.8)	

Ophthalmology	4(4.8)	3(3.8)	3(2.3)	10(3.5)
Orthopedic Surgery	1(1.2)	3(3.8)	6(5.0)	10(3.5)
Pediatric Surgery	0(0)	2(2.6)	4(3.3)	6(2.1)
Pediatrics	9(10.7)	6(7.7)	20(16.7)	35(12.4)
Plastic Surgery	1(1.2)	4(5.1)	0(0)	5(1.8)
Preventive Medicine	25(29.8)	15(19.2)	9(7.5)	49(17.4)
Other	7(8.3)	2(2.6)	7(5.8)	16(5.7)
Total	84(100)	78(100)	120(100)	282(100)

Determinants of High-Level Burnout among Physicians

Table 5 shows the determinants of high-level burnout among physicians. The analysis examines various factors to identify determinants associated with high-level burnout among physicians. Age does not show a significant association with high-level burnout ($B = -0.108$, $\text{Sig.} = 0.281$, $\text{Exp}(B) = 0.897$). Similarly, gender does not appear to be a significant determinant, as male physicians do not exhibit a significantly higher likelihood of high-level burnout ($B = -0.159$, $\text{Sig.} = 0.704$, $\text{Exp}(B) = 0.853$). In terms of marital status, being single is considered the reference category. Physicians who are married with children ($B = 0.499$, $\text{Sig.} = 0.325$, $\text{Exp}(B) = 1.647$) and married without children ($B = 0.587$, $\text{Sig.} = 0.226$, $\text{Exp}(B) = 1.798$) show slightly higher odds of high-level burnout, but the associations are not statistically significant. Similarly, being divorced ($B = 0.495$, $\text{Sig.} = 0.542$, $\text{Exp}(B) = 1.640$) does not significantly impact the likelihood of high-level burnout.

Maintaining a healthy lifestyle is compared to not having a healthy lifestyle, which serves as the reference category. Physicians who sometimes have a healthy lifestyle ($B = -1.933$, $\text{Sig.} = 0.000$, $\text{Exp}(B) = 0.145$) and those who have a consistently healthy lifestyle ($B = -1.256$, $\text{Sig.} = 0.024$, $\text{Exp}(B) = 0.285$) show significantly lower odds of high-level burnout.

Satisfaction with specialty is analyzed with an unsatisfied specialty serving as the reference category. Physicians who report being neutral about their specialty ($B = 2.480$, $\text{Sig.} = 0.002$, $\text{Exp}(B) = 11.939$) and those who are satisfied with their specialty ($B = 1.115$, $\text{Sig.} = 0.155$, $\text{Exp}(B) = 3.050$) have significantly higher odds of experiencing high-level burnout. Additionally, physicians who express a desire to change their specialty ($B = 1.550$, $\text{Sig.} = 0.010$, $\text{Exp}(B) = 4.713$) are also more likely to exhibit high-level burnout. The number of on-call shifts per month does not have a statistically significant association with high-level burnout ($B = -0.231$, $\text{Sig.} = 0.050$, $\text{Exp}(B) = 0.793$). However, the number of shifts per month shows a significant impact. Physicians who have fewer than 10 shifts per month ($B = 3.334$, $\text{Sig.} = 0.000$, $\text{Exp}(B) = 28.044$), 10-15 shifts per month ($B = 3.852$, $\text{Sig.} = 0.000$, $\text{Exp}(B) = 47.079$), or 16-20 shifts per month ($B = 2.179$, $\text{Sig.} = 0.001$, $\text{Exp}(B) = 8.836$) demonstrate significantly higher odds of high-level burnout compared to those with no shifts. The number of working hours per week shows a significant positive association with high-level burnout ($B = 0.030$, $\text{Sig.} = 0.001$, $\text{Exp}(B) = 1.030$). However, the years of practice as a GP do not have a statistically significant impact on high-level burnout ($B = -0.364$, $\text{Sig.} = 0.097$, $\text{Exp}(B) = 0.695$).

Table 5:- Determinants of High-Level Burnout Physicians:

	B	Sig.	Exp(B)
Age	-.108	.281	.897
Gender (Male)	-.159	.704	.853
Marital status (Single)		.605	REF

Marital status (Married with Children)	.499	.325	1.647
Marital status (Married Without Children)	.587	.226	1.798
Marital status (Divorced)	.495	.542	1.640
Healthy Lifestyle (No)		.000	REF
Healthy Lifestyle (Sometimes)	-1.933	.000	.145
Healthy Lifestyle (Yes)	-1.256	.024	.285
Satisfied with Specialty (Unsatisfied)		.002	REF
Satisfied with Specialty (Neutral)	2.480	.002	11.939
Satisfied with Specialty (Satisfied)	1.115	.155	3.050
Want to Change Your Specialty (Yes)	1.550	.010	4.713
No. Of On-Calls Per Month	-.231	.050	.793
No. Of Shifts Per Month (None)		.000	REF
No. Of Shifts Per Month (< 10)	3.334	.000	28.044
No. Of Shifts Per Month (10-15)	3.852	.000	47.079
No. Of Shifts Per Month (16-20)	2.179	.001	8.836
No. Of Shifts Per Month (>20)	1.169	.162	3.219
No. Of Working Hours Per Week	.030	.001	1.030
Years of Practice as GP	-.364	.097	.695
Constant	-.374	.902	.688

Discussion:-

Our study aimed to investigate the level of burnout and its determinants among program physicians of different specialties in Makkah City during the period of 2022-2023. The findings revealed important sociodemographic characteristics and duty-related parameters of the participants, as well as their burnout levels based on the Maslach Burnout Inventory (MBI) scores.

In terms of sociodemographic characteristics, the study included a total of 282 participants, with a nearly equal distribution of gender, where 47.2% were male and 52.8% were female. The majority of participants fell within the age range of 25-30 years (76.2%), with only a small proportion over 35 years old (6.0%). This age distribution suggests that the study sample primarily comprised young physicians. The participants' working hours per week varied, with a notable percentage (8.2%) working more than 144 hours. Regarding lifestyle, a considerable number of participants (50.0%) reported occasionally maintaining a healthy lifestyle, indicating a need for interventions to promote healthier habits among physicians. Additionally, satisfaction with specialty was relatively high, with 65.6% of participants expressing satisfaction and 12.7% reporting dissatisfaction.

The burnout levels among the participants were assessed based on three dimensions of the MBI: emotional exhaustion, depersonalization, and personal accomplishment. The results showed that 29.8% of physicians had a low level of burnout, 27.7% had a moderate level, and 42.6% exhibited a high level of burnout based on their total MBI scores. Analyzing each dimension separately, the majority of physicians experienced a low level of emotional

exhaustion (64.9%) but a higher proportion had high depersonalization (46.2%). However, a majority showed low levels of burnout in terms of personal accomplishment (73.0%). Our study results are consistent with previous research indicating a high prevalence of burnout among physicians. A study by Rotenstein et al. (2018) reported similar levels of burnout among physicians in a different geographical region, suggesting that burnout is a global issue among healthcare professionals (8). Additionally, a study conducted by Patel et al. (2018) found that physicians across various specialties experience high levels of burnout, emphasizing the need for comprehensive interventions to address this problem (9).

Analyzing the burnout categories across different specialties, our study revealed significant differences in burnout experiences among physicians in various medical fields. Pediatric, Emergency Medicine, Critical care medicine, Obstetrics and Gynecology, General Surgery, and Preventive Medicine were identified as specialties with a notable presence in the high-level burnout category. Conversely, specialties such as Ophthalmology, Orthopedic Surgery, Pediatric Surgery, and Plastic Surgery had comparatively lower proportions of physicians experiencing high-level burnout. These findings suggest that the nature of the medical specialty can influence burnout levels among physicians (10), (11).

The determinants of high-level burnout among physicians were also investigated in our study. The analysis revealed several significant factors associated with high-level burnout. Maintaining a healthy lifestyle, including occasional or consistent healthy habits, was found to be negatively associated with high-level burnout. This finding aligns with previous research highlighting the importance of self-care and wellness interventions in mitigating burnout among healthcare professionals (12), (13).

Furthermore, satisfaction with specialty played a crucial role in burnout levels. Physicians who expressed neutrality or satisfaction with their specialty were more likely to experience high-level burnout compared to those who were unsatisfied. This finding suggests that despite satisfaction with their chosen field, physicians may still face significant burnout challenges due to various work-related factors. Similar results were reported in a study by Rao et al. (2020), emphasizing the complex relationship between specialty satisfaction and burnout (14).

Additionally, physicians who expressed a desire to change their specialty exhibited a higher likelihood of high-level burnout. This finding supports the idea that dissatisfaction or mismatch between a physician's career choice and their actual preferences can contribute to burnout (15). The number of shifts per month and the number of working hours per week were positively associated with high-level burnout, indicating that excessive workload and long working hours contribute to burnout among physicians. These findings align with previous research linking workload factors to burnout (16).

It is essential to note some limitations of our study. First, the study sample was limited to program physicians in Makkah City, which may limit the generalizability of the findings to other regions or healthcare systems. Second, the cross-sectional design of the study prevents the establishment of causal relationships between the determinants and burnout. Future research could consider longitudinal studies to explore the temporal associations between these factors. Lastly, the self-reported nature of the data may be subject to response bias or social desirability effects.

Conclusion:-

This study sheds light on the prevalence of burnout and its determinants among program physicians in Makkah City. The findings underscore the significance of addressing burnout as a pressing concern within the healthcare profession. Interventions targeting workload management, career satisfaction, healthy lifestyle promotion, and specialty-specific support may be crucial in mitigating burnout and enhancing the well-being of physicians. Further research is warranted to explore additional factors contributing to burnout and to develop comprehensive interventions tailored to the specific needs of physicians in different specialties and stages of their careers.

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