Medical Science

Current mental health status and burnout level among anesthesiologists in Riyadh, Saudi Arabia: A cross-sectional study

Authors' Affiliation:
[1]Department of Anesthesia, College of Medicine, Imam Mohammad Ibn Saud Islamic University, Riyadh, Kingdom of Saudi Arabia
[2]Medical Intern, College of Medicine, Imam Mohammad Ibn Saud Islamic University, Riyadh, Kingdom of Saudi Arabia
[3]General Practitioner, Durma General Hospital, Riyadh, Kingdom of Saudi Arabia
[4]Medical Student, College of Medicine, Almaarefa University, Riyadh, Kingdom of Saudi Arabia
[5]Department of Anesthesia, King Abdulaziz Medical City-Central Region, Riyadh, Kingdom of Saudi Arabia

*Corresponding Author
Department of Anesthesia, College of Medicine, Imam Mohammad Ibn Saud Islamic University, Riyadh, KSA
Email: waleed.a.alghamdi@gmail.com

DISCOVERY
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Waleed Abdullah Alghamdi[1*], Ahmed Maamoun Khalaf[2], Hamad Mohammed Alsuwailem[2], Khalid Nezar Khalifah[2], Hesham Sameh Abozaid[2], Khalid Abdulaziz Balbaid[3], Abdullah Adnan Rifaey[4], Mohammed Khulaif Alharbi[5]

ABSTRACT

Background: Being a healthcare professional may be exceedingly challenging physically and emotionally. Some anesthesiologists may suffer from mental health problems and burnout as a result of their exposure to lengthy working hours, unpredictable settings, and persistent stress. Our study objective is to determine the frequency and prevalence of anesthesiologists' mental health status and burnout level as well as any associated risks factors. *Method:* A cross-sectional analysis was carried out on multiple hospitals in an organized setting located in Riyadh, Saudi Arabia. At least hundred and fifty anesthetists in multiple hospitals in Riyadh participated in the study. The questionnaire contained three parts, the first part representing respondents' demographic data. The depression, anxiety and stress scale - 21 Items (DASS-21) were utilized in the second section to assess mental health status. The last part elucidated the levels of burnout using the Maslach Burnout Inventory–Human Services Survey (MBI-HSS) for Medical Personnel. *Results:* In this research, we gathered data from 152 anesthetists from different hospitals in Riyadh, Saudi Arabia. We discovered among the participants that the prevalence of depression, stress and anxiety among anesthetists was 45%, 35.1% and 51%. Furthermore, considering the extent of burnout, 22.5%, 49.7% and 47.7% had a high and prominent level of burnout, taking into account emotional exhaustion, depersonalization and a lack of personal accomplishment. Burnout was prevalent in 64.9% of participants who scored highly in one or more of these three domains. *Conclusion:* Burnout and mental illness are very common among anesthesiologists in the Riyadh, Saudi Arabia. Younger participants were the most directly affected group by these symptoms; therefore, they ought to be the focus of any methods developed to lessen this prevalence. High rates of

burnout have also been associated with higher levels of mental problems, reduced life quality and poorer healthcare services.

1. INTRODUCTION

Being a healthcare provider can be very tasking emotionally and physically. According to Yamakage et al., (2007) exposure to long working hours, unpredictable situations and constant Stress can have a detrimental effect on some anesthesiologists, causing mental health problems and burnout. Maslach et al., (2016) described burnout as a psychological term that refers to long-term exhaustion, frustration, poor work performance, apathy and diminished interest due to chronic occupational stress. Although not recognized as a distinct disorder in the diagnostic and statistical manual of mental disorders (5th edition). Anesthesiologists address the medical care of a surgical patient's status before, during and after an actual procedure and are a critical component of the surgery (Manwell et al., 2015). However, there are a plethora of obstacles they must maneuver around. The financial compensation might seem minuscule when looking at the burdens faced during the anesthesiologist's daily lifein addition to the number of hours spent working in the operating room, which could be dismal for their mental health (Manwell et al., 2015; Romito et al., 2021). Another study by Romito et al., (2021) in which mental health was defined as a condition of well-being whereby each individual fulfills his or her full potential is able to cope with daily challenges and can work effectively and meaningfully and also can contribute to her or his community.

The experience and training could also affect how anesthesiologists can handle specific stressors, which adds to growing pressure, responsibilities and mental strain. As a result, some of them could suffer or face mental health abnormalities such as sleep deprivation, depression, stress, anxiety and burnout. Again, this directly affects their functional performance. Our research aims to determine the frequency and prevalence of mental health status and burnout among anesthesiologists and identify the risk factors for these troubles. Currently, there is a lack of research regarding the mental status of anesthesiologists in Saudi Arabia and more profound research is needed.

2. METHODOLOGY

This is a cross-sectional study conducted on multiple hospitals in an organized setting in Riyadh, Saudi Arabia, after obtaining permission from the Institutional Review Board (IRB) with the ethical approval number (264/2022). At least hundred and fifty anesthetists in multiple hospitals In Riyadh would participate in the study. Google form® was used, targeting all anesthetists, both Saudi and non-Saudi, as well as those currently employed in a hospital located in Riyadh, Saudi Arabia, while non-anesthetists' healthcare workers were excluded. The research was conducted over a period of 3 months, starting in 19th of July 2022 to 19th of October 2022. The questionnaire contained three parts; the first part represents respondents' demographic data, e.g., age, gender and current medical status. The second part focused on mental health status using the depression, anxiety, and stress scale - 21 items (DASS-21). The last part elucidated the burnout level using the Maslach Burnout Inventory–Human Services Survey (MBI-HSS) for medical personnel.

According to Osman et al., (2012) the DASS-21 is a validated questionnaire and it was used to measure the psychological problems in this research. The DASS-21 is a 21-item system that includes independent measures of depression (statement number 3, 5, 10, 13, 16, 17, 21; the Cronbach's of these items was 0.86 in this study), anxiety (statement number 2, 4, 7, 9, 15, 19, 20; the Cronbach's of these items was 0.81 in this study) and Stress (statement number 1, 6, 8, 11, 12, 14, 18; the Cronbach's of these items was 0.88 in this study). In this study, Cronbach's α for the entire DASS-21 was 0.94. The DASS-21 items are graded on a four-point scale ranging from 0 (not at all relevant to me) to 3 (mostly, if not always, applicable to me). The sum of the scores for each item used to indicate the frequency of symptomatology would define the severity of each condition. The cutoff scores present different severity for depression (normal 0–9, mild 10–13, moderate 14–20, severe ≧21), anxiety (normal 0–7, mild 8–9, moderate 10–14, severe ≧15) and stress (normal 0–14, mild 15–18, moderate 19–25, severe ≧26), respectively.

The MBI-HSS consisted of 22 questions divided into three subscales: Emotional Exhaustion (EE), Depersonalization (DP) and Self-perceived Lack of Personal Accomplishment (PA). For each subscale, a six-point Likert scale was used to score the responses (Ranging from 0 for never to 6 for daily) and categorized based on the MBI-HSS reference ranges into three categories (low, moderate or high): low (0–16), moderate (17–26) and high (27); low (0–6), moderate (7–12) and high (13); and finally, low (31), moderate (32–38) and high (39). The updated Maslach-recommended parameters of "high EE and high DP" or "high EE and low PA" were used to identify burnout (Maslach et al., 1997). After collecting data from the participants, data were entered, cleaned and

coded using Microsoftexcel, while SPSS version 26 was used for data analysis. Frequency and percent were used to describe the categorical variables, while the mean and standard deviation was used for the description of ongoing variables. Chi test and ANOVA test were used to determine the association between the demographic factors of the participants and burnout and mental health issues. All statements were considered significant if the p-value was lower than 0.05.

3. RESULTS

In this study, we collected data from 152 anesthetists from Riyadh region, Saudi Arabia hospitals. Among the participants, most were aged between 33-43 years old (44.4%), while 21.9% were between 44-54 years, 18.5% were between 55-65 years and 15.2% were between 22-32 years old. Moreover, 78.1% of the participants were males and 66.9% were non-Saudis. Regarding the participants' marital status, 85.4% were married, 12.6% were single and 43.0% had three or more children. Moreover, 41.1% were registrars and 41.1% were consultants. Nonetheless, 11.9% of the participants reported having a private practice, 29.1% reported having experience of more than 20 years and 23.2% had an experience of fewer than five years. Furthermore, 66.2% of them reported having daily working hours of more than 9 hours and 80.8% reported having less than five nights on call per month (Table 1).

Table 1 demographic data

Demographic data		Column %
Age	22-32	15.2%
	33-43	44.4%
	44-54	21.9%
	55-65	18.5%
Gender	Male	78.1%
	Female	21.9%
Nationality:	Saudi	33.1%
	Non-Saudi	66.9%
Marital status	Single	12.6%
	Married	85.4%
	Divorced/Widow	2.0%
Number of children	0	17.9%
	1-2	39.1%
	3 or more	43.0%
Current degree in Anesthesiology	Resident / Fellow (trainee)	17.8%
	Registrar (assistant consultant) / senior registrar (Associate consultant)	41.1%
	Consultant	41.1%
	Other	11.9%
Private Practice?	No	88.1%
	Yes	11.9%
Experience (in years)?	≤5	23.2%
	6-10	21.2%
	11-19	26.5%
	≥ 20	29.1%
Daily working In Hours	<9	33.8%
	≥9	66.2%
Night on calls per month	≤5	80.8%
	>5	19.2%

Among the participants, we found that the prevalence of depression, stress and anxiety among anesthetists was 45%, 35.1% and 51%. Regarding depression, it was found that 15.9% of the participants had mild depression, 17.2% had moderate depression and 11.9% had severe depression, with a mean score of 9.54 (SD=8.88). Moreover, 13.2%, 9.9%, and 11.9% of the participants had mild,

moderate and severe stress, respectively, with a mean score of 13.19 (SD=8.82). Furthermore, 9.9 % of the sample had mild anxiety, 20.5 % had moderate anxiety and 20.5% had severe anxiety, with a mean score of 8.94 (SD=7.52) (Figure 1). Considering the level of burnout, 22.5%, 49.7% and 47.7% had a high level of burnout, considering emotional burnout, depersonalization and absence of personal achievement. Moreover, 17.2%, 26.5% and 24.5% had moderate burnout considering emotional burnout, depersonalization and absence of personal achievement, respectively (Figure 2). The prevalence of burnout (participants with a high score in 1 or more of these three domains) was 64.9 %.
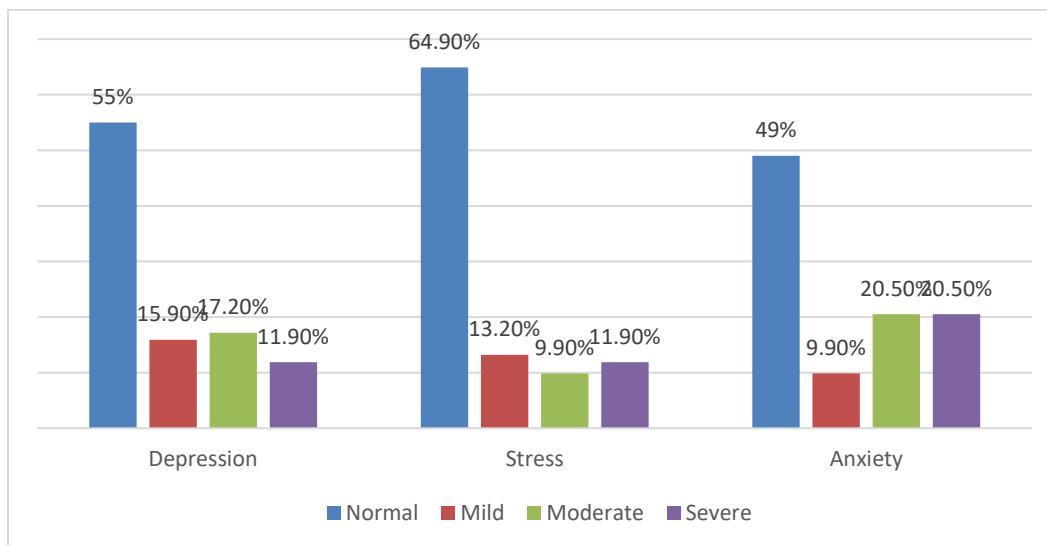

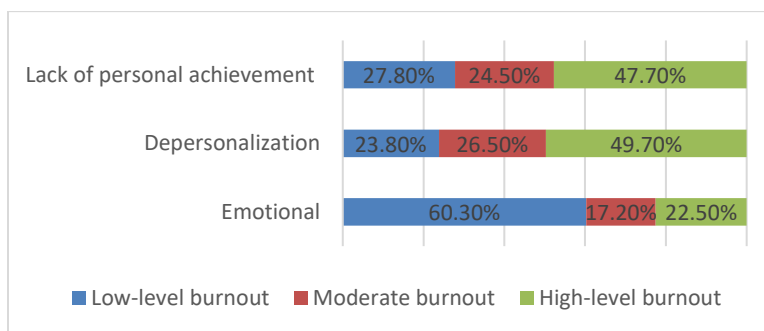**Figure 1** The prevalence of severity of depression, stress and anxiety

Figure 2 The level of burnouts among the participants

Pearson correlation and chi test were calculated to consider the factors associated with mental disorders and burnout. Age is found to have a significant factor affecting the incidence of anxiety (the prevalence of anxiety among participants with ages between 22-32, 33-43, 44-54 and 55-65 were 56.5%,62.7%, 42.4 % and 28.6 %, P=0.014) and emotional burnout (the prevalence of anxiety among participants with age between 22-32, 33-43, 44-54 and 55-65 were 56.5%, 44.8%, 39.4% and 14.3%, P=0.012). Moreover, Age and stress levels are significantly inversely correlated (r=-0.197, P=0.015), anxiety (r=-0.287, P=0.000), emotional burnout (r=-0.293, P=0.000), depersonalization (r=-0.296, P=0.001), lack of accomplishment (r=-0.257, P=0.001) and with depression, however, lack of significance (r=-0.111, P=0.175). Older participants showed more prevalence and severity of mental disorders and burnout, especially among those older than 55 years.

The prevalence of anxiety among females was significantly higher than among males (69.7% vs. 45.8%). Females were correlated with higher severity of stress (mean score=16.12 compared with 12.37, r=0.176, P=0.03) and anxiety (11.82 vs. 8.14, r=0.203, P=0.012) significantly higher than males; however, no significant difference was reported considering depression and burnout classes. Moreover, the prevalence of depression (58.0% vs. 38.6%), stress (52.0% vs. 26.7%) and emotional burnout (62.0% vs. 28.7%) were significantly higher among Saudis. Furthermore, Saudis showed higher scores considering stress (16.12 vs. 11.74, r=-0.234, P=0.004), anxiety (11.04 vs. 7.90, r=-0.197, P=0.015), emotional burnout (21.1 vs. 13.58, r=-0.238, P=0.000), DP (14.6, vs. 11.24, r=-0.199, P=0.014) and PA (31.12 vs. 34.75, r=-0.206, P=0.011).

But not depression (P=0.066). Considering the marital status of the participants, we found that single physicians showed higher anxiety, stress, depression, EE, DP and lower scores on PA; however, no significant difference was found except for anxiety (P=0.012). Moreover, residents showed worsened mental disorders characters and worsened burnout than a consultant. Having private practice was positively associated with a higher degree of stress (r=0.192, P=0.018), depression (r=0.236, P=0.004), EE (r=0.175, P=0.032), DP (r=0.205, P=0.012) and negatively correlated with the score of PA (=-0.182, P=0.025). Furthermore, the lower experience was significantly associated with more severe scores of stresses (P=0.009), anxiety (P=0.000), EE (P=0.000), DP (P=0.000) and PA (P=0.002). Moreover, increasing daily working hours increased the rate of stress among the participants significantly (42.0% vs. 21.6% P=0.0013, r=0.250, P=0.002) and emotional burnout (r= 0.256, P=0.031) without any significant correlation with other factors. Furthermore, we found a significant correlation between mental disorders and burnout factors where stress had a positive correlation with EE (r=0.733, P=0.000) and DP (r=0.656, P=0.000) and a negative correlation with PA (r=-0.511, P=0.000). The same was found considering the relationship between depression and anxiety and burnout, as reported in Table 2 and 3.

Table 2 The relation between presence of mental disorders, burnout and demographic factors

		Depression		Stress		Anxiety		Depersonalization		Emotional		Accomplishment	
		No	Yes	No	Yes	No	Yes	Low	Moderate/ high	Low	Moderate/ high	Low	Moderate/ high
Age	22-32	52.2%	47.8%	52.2%	47.8%	43.5%	56.5%	13.0%	87.0%	43.5%	56.5%	26.1%	73.9%
	33-43	53.7%	46.3%	65.7%	34.3%	37.3%	62.7%	19.4%	80.6%	55.2%	44.8%	20.9%	79.1%
	44-54	51.5%	48.5%	63.6%	36.4%	57.6%	42.4%	24.2%	75.8%	60.6%	39.4%	36.4%	63.6%
	55-65	64.3%	35.7%	75.0%	25.0%	71.4%	28.6%	42.9%	57.1%	85.7%	14.3%	35.7%	64.3%
	P-Value	0.740		0.403		0.014*		0.051		0.012*		0.295	
Gender	Male	55.9%	44.1%	65.3%	34.7%	54.2%	45.8%	22.9%	77.1%	62.7%	37.3%	30.5%	69.5%
	Female	51.5%	48.5%	63.6%	36.4%	30.3%	69.7%	27.3%	72.7%	51.5%	48.5%	18.2%	81.8%
	P-Value	0.652		0.863		0.015*		0.601		0.245		0.162	
Nationality:	Saudi	42.0%	58.0%	48.0%	52.0%	38.0%	62.0%	16.0%	84.0%	38.0%	62.0%	22.0%	78.0%
	Non-Saudi	61.4%	38.6%	73.3%	26.7%	54.5%	45.5%	27.7%	72.3%	71.3%	28.7%	30.7%	69.3%
	P-Value	0.024*		0.002*		0.057		0.112		0.000*		0.262	
Marital status	Single	47.4%	52.6%	42.1%	57.9%	31.6%	68.4%	15.8%	84.2%	31.6%	68.4%	10.5%	89.5%
	Married	55.8%	44.2%	68.2%	31.8%	51.2%	48.8%	25.6%	74.4%	65.1%	34.9%	30.2%	69.8%
	Divorced/ Widow	66.7%	33.3%	66.7%	33.3%	66.7%	33.3%	0.0%	100.0%	33.3%	66.7%	33.3%	66.7%
	P-Value	0.724		0.084		0.232		0.400		0.013*		0.197	
Number of children:	0	48.1%	51.9%	51.9%	48.1%	29.6%	70.4%	11.1%	88.9%	33.3%	66.7%	14.8%	85.2%
	1-2	57.6%	42.4%	72.9%	27.1%	49.2%	50.8%	27.1%	72.9%	66.1%	33.9%	23.7%	76.3%
	3 or more	55.4%	44.6%	63.1%	36.9%	56.9%	43.1%	26.2%	73.8%	66.2%	33.8%	36.9%	63.1%
	P-Value	0.712		0.152		0.058		0.229		0.007*		0.066	
Current degree in Anesthesiology:	Resident / Fellow (trainee)	44.4%	55.6%	44.4%	55.6%	29.6%	70.4%	11.1%	88.9%	37.0%	63.0%	25.9%	74.1%
	Registrar (assistant consultant) / senior registrar (Associate consultant)	56.5%	43.5%	74.2%	25.8%	50.0%	50.0%	29.0%	71.0%	67.7%	32.3%	27.4%	72.6%
	Consultant	58.1%	41.9%	64.5%	35.5%	56.5%	43.5%	24.2%	75.8%	62.9%	37.1%	29.0%	71.0%
	P-Value	0.472		0.026*		0.065		0.189		0.021*		0.952	
Private Practice?	No	57.1%	42.9%	65.4%	34.6%	49.6%	50.4%	27.1%	72.9%	61.7%	38.3%	28.6%	71.4%
	Yes	38.9%	61.1%	61.1%	38.9%	44.4%	55.6%	0.0%	100.0%	50.0%	50.0%	22.2%	77.8%
	P-Value	0.144		0.720		0.680		0.011*		0.343		0.573	
Experience (in years)?	≤5	42.9%	57.1%	45.7%	54.3%	37.1%	62.9%	8.6%	91.4%	37.1%	62.9%	22.9%	77.1%
	6-10	53.1%	46.9%	75.0%	25.0%	34.4%	65.6%	18.8%	81.3%	50.0%	50.0%	15.6%	84.4%
	11-19	65.0%	35.0%	70.0%	30.0%	55.0%	45.0%	32.5%	67.5%	72.5%	27.5%	32.5%	67.5%
	≥ 20	56.8%	43.2%	68.2%	31.8%	63.6%	36.4%	31.8%	68.2%	75.0%	25.0%	36.4%	63.6%
	P-Value	0.283		0.051		0.029*		0.043*		0.001*		0.184	
Daily working In Hours:	<9	62.7%	37.3%	78.4%	21.6%	54.9%	45.1%	27.5%	72.5%	70.6%	29.4%	35.3%	64.7%
	≥9	51.0%	49.0%	58.0%	42.0%	46.0%	54.0%	22.0%	78.0%	55.0%	45.0%	24.0%	76.0%
	P-Value	0.170		0.013*		0.301		0.457		0.064		0.143	
Night on calls per month:	≤5	54.9%	45.1%	63.9%	36.1%	50.0%	50.0%	25.4%	74.6%	58.2%	41.8%	28.7%	71.3%
	>5	55.2%	44.8%	69.0%	31.0%	44.8%	55.2%	17.2%	82.8%	69.0%	31.0%	24.1%	75.9%
	P-Value	0.980		0.610		0.616		0.353		0.287		0.623	

Table 3 The correlation between severity of mental health conditions, burnout and demographic factors

		Stress	Anxiety	Depression	Emotional	Depersonalization	Accomplishment
Age	Pearson Correlation	-.197*	-.287**	-.111	-.293**	-.269**	.257**
	Sig. (2-tailed)	.015	.000	.175	.000	.001	.001
Gender	Pearson Correlation	.176*	.203*	.067	.048	-.039	-.105
	Sig. (2-tailed)	.030	.012	.416	.556	.631	.201
Nationality	Pearson Correlation	-.234**	-.197*	-.150	-.283**	-.199*	.206*
	Sig. (2-tailed)	.004	.015	.066	.000	.014	.011
Marital status	Pearson Correlation	-.146	-.205*	-.088	-.170*	-.114	.148
	Sig. (2-tailed)	.074	.012	.282	.036	.162	.070
Number of children	Pearson Correlation	-.124	-.213**	-.058	-.181*	-.136	.253**
	Sig. (2-tailed)	.130	.009	.483	.026	.097	.002
Current degree in Anesthesiology	Pearson Correlation	-.086	-.257**	-.035	-.176*	-.174*	.123
	Sig. (2-tailed)	.293	.001	.670	.031	.032	.132
Private Practice	Pearson Correlation	.192*	.107	.236**	.175*	.205*	-.182*
	Sig. (2-tailed)	.018	.193	.004	.032	.012	.025
Experience (in years)	Pearson Correlation	-.212**	-.304**	-.144	-.337**	-.325**	.252**
	Sig. (2-tailed)	.009	.000	.078	.000	.000	.002
Daily working In Hours	Pearson Correlation	.250**	.149	.141	.176*	.093	-.133
	Sig. (2-tailed)	.002	.067	.085	.031	.256	.102
Night on calls per month	Pearson Correlation	.060	.020	.025	-.128	-.064	-.053
	Sig. (2-tailed)	.464	.811	.763	.117	.437	.521
Stress	Pearson Correlation	1	.763**	.801**	.733**	.656**	-.511**
	Sig. (2-tailed)		.000	.000	.000	.000	.000
Anxiety	Pearson Correlation	.763**	1	.652**	.623**	.630**	-.369**
	Sig. (2-tailed)	.000		.000	.000	.000	.000
Depression	Pearson Correlation	.801**	.652**	1	.764**	.685**	-.419**
	Sig. (2-tailed)	.000	.000		.000	.000	.000

Significant at p value < 0.001

Significant at p value < 0.05

4. DISCUSSION

The practice of medicine is unique and considered challenging work compared with any other profession in the world. It is associated with a great degree of personal and professional satisfaction; however, it is associated with a high level of occupational stress and burnout (Elbarazi et al., 2017). On the other hand, high levels of mental disorders and burnout significantly negatively impact the performance of physicians, including anesthesiologists. Therefore, the continuous assessment of the prevalence of those

variables and related factors is considered essential to improve the healthcare services provided to patients. In the current study, we found that the prevalence of depression, stress and anxiety among anesthetists was 45%, 35.1% and 51%. This prevalence is higher than reported by other studies conducted during COVID-19, including the study of Guo et al., (2022) among anesthesiologists in China, which reported a prevalence of depression, stress and anxiety of 26.5%, 19.9% and 35.5%, respectively. Moreover, according to a different study, the prevalence of depression using PHQ-9 among medical professionals was 30.1% and 80.2% reported having symptoms of stress using PSS (Grover et al., 2018). Furthermore, some other studies used the hospital anxiety depression scale and beck depression inventory to assess the depression prevalence among healthcare professionals and reported prevalence between 8.2% and 27% (Erdur, 2006; Atif et al., 2016). Moreover, the result of our study supports the existing literature, which shows that there are higher rates of stress among medical professionals, including medical students (Shah et al., 2010; Dyrbye et al., 2006; Sherina et al., 2004; Elsayed et al., 2022).

Moreover, the current study reported that younger participants, Saudis, residents, those with private practice and longer daily working hours were associated with higher stress levels, depression and anxiety. Many previous studies confirmed our results, considering that there is a high level of depression among residents, doctors and younger participants (Grover et al., 2018; Murthy, 2017). Furthermore, a study conducted by Elgohary et al., (2021) reported that younger age, female gender, decreased sleep hours, history of psychiatric disease, fear of COVID-19 infection and fear of death with COVID-19 was considered significant predictors for the major depressive disorder. On the other hand, another study conducted by Zheng et al., (2021) among 480 anesthesiologists reported that gender, marital status, job title, position, hospital type and the amount of overtime work per week were all statistically significant differences in mood (all P < 0.05).

Considering the level of burnout among anesthesiologists in the current study, the widespread presence of burnout was 64.9%, where 22.5%, 49.7% and 47.7 % had a high level of burnout. Emotional burnout, depersonalization, lack of personal achievement and 15.23 % reported high burnout in the three categories. In a previous study conducted among 205 anesthesiologists, the authors reported that the presence of burnout among the participants was 6.34% (having high burnout in the three categories of burnout). In contrast, high emotional exhaustion, high depersonalization and low personal accomplishment were 52.7, 12.2 and 28.8%, respectively (Milenović et al., 2016). Nonetheless, in another large-scale study conducted among 3,898 anesthesiologists in the United States, the authors reported that 59.2 % of the participants were at high risk for burnout, and 13.8% met the criteria for burnout syndrome (Afonso et al., 2021). Furthermore, another study conducted among Italian anesthesiologists showed that 10.2% of the respondents had high EE, high DP and low PA together, whereas 39.4%, 25.5% and 42.3% of the respondents had high burnout considering EE, PA and DP respectively (Vargas et al., 2020).

Moreover, in another study by Capuzzo et al., (2007) the authors reported an incidence of burnout of 22% among anesthesiologists and nurses. In contrast, Orena et al., (2013) reported that high EE and DP scores were found in 22.2% of respondents while low PA in 66.7% of participants. In Brazil, Barbosa et al., (2012) reported that 41.8% of the participants showed high emotional exhaustion. In comparison, 37.3% had high depersonalization and 58.2% had high burnout considering a lack of personal accomplishment. In Portugal, Morais et al., (2006) reported that 33% of the participants reported high emotional exhaustion.

In comparison, 27.0% had a high level of depersonalization and 23% had a high lack of personal accomplishment. And a similar study conducted in Lithuania, the authors reported that 19.3% of the participants had high emotional exhaustion, 25.9% had a high level of depersonalization and 42.3% had high lack of personal accomplishment (Mikalauskas et al., 2012). In a previous systematic review conducted among physicians in the Arab countries, a high level of emotional tiredness was present in 20.0%–81% of Arab physicians, while high depersonalization was reported in 9.2-80.0% of the participants and low personal accomplishment in 13.3–85.8% (Elbarazi et al., 2017). These results showed that there is a high prevalence of burnout reported in the current study. Some of the previous studies were conducted during COVID-19 or post-COVID-19 as our study; therefore, the impact of COVID-19 could be minimized and excluded as a reason for the high burnout level. Burnout is a considerable health problem associated with decreased quality of care, professionalism, patient safety and physician quality of life (Lacy and Chan, 2018; Panagioti et al., 2018; Salyers et al., 2017; Shanafelt et al., 2010). Therefore, it is vital to determine the main factors associated with burnout to reduce its impact.

The current study confirmed the results of previous studies that concluded that mental disorders such as depression, anxiety and stress are significantly correlated with burnout among the participants (Podhorodecka et al., 2022; Blackstone et al., 2021; Sun et al., 2019; Looseley et al., 2019; Sousa and Mourão, 2018; Al-Humadi et al., 2021). Higher levels of stress, anxiety and depression were substantially correlated with higher levels of burnout in EE, DP and lack of accomplishment. However, this correlation is 2-tailed as, on the one hand, this study's high rate of burnout may be caused by mental illnesses. At the same time, high burnout may be the reason for the high prevalence of mental disorders reported in the current study. Younger age, Saudis, residents, those with private practice and longer working hours were associated with a higher level of burnout.

In addition, being single was associated with higher emotional exhaustion, which was also reported in some previous studies (West et al., 2009; Wright et al., 2011), where Orton et al., (2012) reported that the non-professional side of life plays a protective role and may be the best predictor of individual satisfaction. Moreover, some previous studies confirmed our results that anesthesiologists with shorter experience and age were more exposed to burnout than more experienced physicians (Milenović et al., 2016; Houkes et al., 2011).

5. CONCLUSION

There is a high prevalence of mental disorders and burnout among anesthesiologists in Riyadh region, Saudi Arabia. Younger participants were the most affected group by these symptoms and should be considered a targeted group when preparing strategies to reduce this prevalence. In addition, high levels of burnout have been linked to higher rates of mental illnesses, a poorer quality of life and inadequate healthcare services.

Author Contributions
WAA, AMK, HMA and KNK contributed to the design and idea of the study. KAB, HMA, KNK and HSA contributed to the data collection and interpretation of the result. WAA, AMK and AAR contributed to drafting of the manuscript. WAA, AMK, MKA contributed to reviewing and editing the manuscript. All authors approved the final version of the manuscript.

Ethical approval
The study was approved by the Medical Ethics Committee of Imam Mohammad Ibn Saud Islamic University (ethical approval code: HAPO-01-R-011, Project No. 264-2022, Session No. 55).

Consent for publication
Informed consent was obtained from all the participants.

Conflict of interest
The authors declare that there is no conflict of interests.

Data and materials availability
All data sets collected during this study are available upon reasonable request from the corresponding author.

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