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ORIGINAL ARTICLE

Stress, Job Satisfaction and Resignation Potential Among Anesthesiologists: A Cross-Sectional Study in Saudi Arabia

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Background Anesthesiologists have diverse and stressful work tasks. Stress affects work productivity, vigilance and might result in workers' burnout and worsens patient safety outcomes. We aim to assess and address stress and job satisfaction among anesthesiologists in Saudi Arabia to improve the work environment and patient outcomes.

Methods We performed an online cross-sectional survey targeting anesthesiologists working in Saudi Arabia. Our validated tool focused on three section demographics information, Career survey and satisfaction survey. We analyzed data calculating averages and regression analysis of correlation.

Results A total of 141 responses were collected electronically. There was an overall high level of stress of 7.7/10, with most participants reporting a stress level greater than 6/10. The main factor that has been identified as contributing to stress is lack of self-control over practice. Only 23% of anesthesiologists are likely to resign from the profession, however only 31% are satisfied with their job.

Conclusions Based on our data, we conclude that anesthesiologists in Saudi Arabia have a high level of stress, a low likelihood of resigning, and a low level of job satisfaction. These findings have been aggravated by several factors but mainly feeling of less control over practice. On the other hand, several factors were identified to enhance job satisfaction. These factors included satisfaction with superiors and colleagues, as well as excellent patient outcomes. The implementation of a national plan will mitigate these factors, thereby improving job satisfaction and patient outcomes.

Keywords Anesthesiologists, financial, job satisfaction, resignation, stress.
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INTRODUCTION

The anesthesia field is fluid, stressful and diverse. Anesthesiologists have many tasks in perioperative care, pain management, outpatient clinics, Intensive care units, undergraduate education, postgraduate education and administrative tasks among many others [1]. Most of these tasks need high focus, vigilance and performance. Job satisfaction is a prime focus in achieving high presence and performance [2].

Anesthesiologists job satisfaction and burnout has been of interest over many years. Surveys found variable rates of satisfaction among anesthesiologists in different countries. In Canada the percent rate was 75% [3], In India 81% [4] and 50% in Pakistan [5]. It is of high importance to measure job satisfaction and aim for corrective measures if needed to prevent burnout and improve patient quality of care [1].

OBJECTIVES

We aim in our study-to-study stress and satisfaction of practicing anesthesiologists in Saudi Arabia to find factors to improve job satisfaction and thereby productivity.

METHODS

Design

An Online cross-sectional survey was distributed in social networks targeting anesthesiologists currently practicing in Saudi Arabia.

Participants

Anesthesiologists currently practicing in Saudi Arabia. No exclusions other than actively practicing physicians were made to gain a complete understanding of practicing anesthesiologists. Prior to distribution we obtained an Ethical approval from King Abdulaziz University Biomedical Ethics Research Committee (NCBE Registration No: (HA-02-J-008).

Settings (Measuring instruments)

We used a previously validated tool [5] with minor modifications to capture the local demographics. As part of this tool we used the Modified Job Description Index Scale, a validated tool described in the literature [5,6]. The survey is designed in 25 items, We used the same focus targets [5] namely, demographic information (gender, age, nationality, practice region, professional title); Career survey (experience in years, first practice, current practice, type of institution, professional title, and the number of years in the current position; and satisfaction survey, self-control) (degree of influencing decisions related to own practice), volubility, stress levels, resignation potential, financial compensation, satisfaction, job future, promotional opportunity, superiors and colleagues). In addition, we collected open questions data about factors affecting job satisfaction positively or negatively. The satisfaction part was measured using a 5-point Likert scale ranging from 1 (least) to 5 (most) while stress was evaluated on a scale from 1 (least) to 10 (most).

Over a four-month period from August 2024 to December 2024, we collected data from participants using a specifically designed Google Forms to survey, distribute and collect the data electronically in anesthesiologists in Saudi networks.

Main Outcome Measures

Stress, Job Satisfaction and Resignation Potential Among Anesthesiologists.

Sample Size

We included all potential participants.

Statistical analysis

We used Microsoft Excel and Python: 3.11.8 for data entry analysis. For numerical data, we calculated percentages, frequencies, averages and standard deviation as appropriate. For sub-analysis we performed a logistic regression analysis. We also performed a multivariate analysis.

Non-numerical data was categorized based on similarity and frequency reported. We used for significance a Bonferroni-Adjusted P value of $p<0.05$ and calculated the 95% confidence interval (CI) as appropriate. Finally, we calculated the variance inflation factor (VIF) to exclude any significant multicollinearity among the predictors.

RESULTS

A total of 141 responses were collected. Demographics of participants are shown in Table (1). Average age of 43 years old Standard Deviation (SD) 7.7, average years post residency 11.9 years SD 7.8, average years in current position 8.9 years SD 6.9 and Average clinical hours per week are Mean 47 SD 24.5 with a median of 48.0 hours and a range of 0.0 to 265.0 hours. In average participants years in current practice is 8.98 years (SD7.4) with a median of 6.0 years and a range from 1.0 to 34.0 years.

Measuring Stress Levels, we found the mean stress level to be 7.7/10 (SD 2.1) with a median of 8.0, and a range from 1 to 10. Most physicians report stress levels between 6 and 10 (Figure 1). Average stress in Female participants is 8.8 (SD 1.2,) mode of 10 with a range of 6-10 compared to 7.6 (SD 2.1), mode of 10 with a range of 1-10 in Male colleagues. Various factors were tested for correlation with stress levels, including financial satisfaction, job satisfaction, workload, and gender. The Bonferroni-Adjusted significant key factors correlated to increased stress were found to include lack of self-control over practice, and female gender (Table 2).

Figure 1: How stressful (1-10) is your anesthesiology practice.

Table 1: Demographics of participants:

Gender	
Male	116
Female	25
Position	
Consultant	102
Senior Registrar	12
Registrar	5
Resident	12
Region of practice	
Western	63
Eastern	29
Central	39
Southern	2
Other	8
First Institution:	
Public	113
Private	6
Mixed (public and Private)	19
Level of care at Current Institution:	
Medical institution	15
Primary Medical Center	5
Secondary Medical Center	19
Tertiary Medical Center	102
Practice mix at Current Institution:	
Public	100
Private	17
Mixed (public and Private)	23
Affiliation of Current Institution:	
Governmental hospital	63
Educational hospital	30
Military hospital	25
Armed Forces hospital	5
Private hospital	17

Regarding financial compensation satisfaction, 44 participants were extremely dissatisfied, 35 were dissatisfied, 36 were neutral, 18 were satisfied, and 8 were extremely satisfied (Figure 2). According to the data regarding self-control over practice, 12 Extremely Disagree, 34 Disagree, 37 Neutral, 54 Agree, and 4 Extremely Agree. Concerning feeling valued, the frequency of responses was as follows: 21 Extremely Disagree, 40 Disagree, 26 Neutral, 36 Agree, and 18 Extremely Agree. In response to the question regarding the promise of the anesthesia field in Saudi Arabia (min 1-max 5), 26 participants responded 1/5, 29 responded 2/5, 20 responded 3/5, 39 responded 4/5, and 27 responded 5/5. As for the rating of promotional opportunities (min 1-max 5), 44 participants rated as 1/5, 33 rated as 2/5, 35 rated as 3/5, 21 rated as 4/5, 8 rated as 5/5. In terms of satisfaction with superiors in Anesthesiology (min 1-max 5), 30 participants received a rating of 1/5, 30 received a rating of 2/5, 37 received a rating of 3/5, 28 received a rating of 4/5, 16 received a rating of 5/5. Lastly, regarding job satisfaction, 16 participants are very satisfied, 28 participants are satisfied, 37 participants are neutral, 30 participants are unsatisfied, and 30 participants are very dissatisfied. A Score Summary (Mean, Median, and Range) is presented in Table (3).

Based on the analysis of career resignation potential, 23% of anesthesiologists are likely or extremely likely to resign (Figure 3). Furthermore, the results of the analysis indicated that individuals who are "likely" or "very likely" to resign have higher levels of stress than those at a lower risk of resignation (p-value= 0.027). A summary of the Bonferroni-Adjusted significant key factors correlated in Table (4).

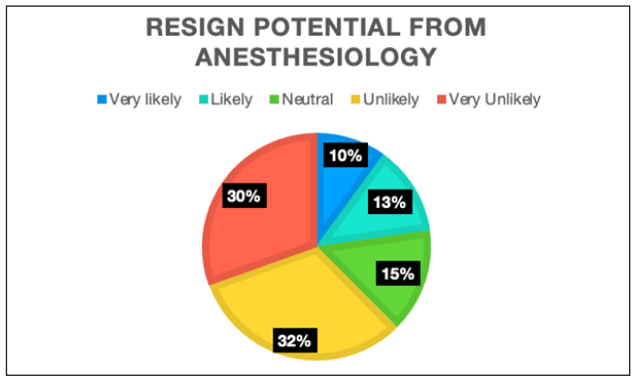

Figure 2: Anesthesia Field resign potential.

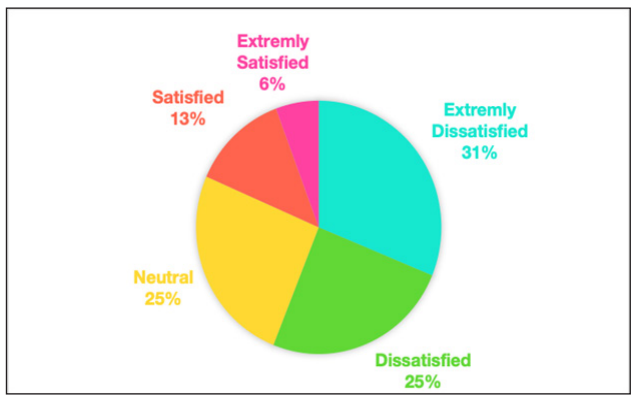

Figure 3: Satisfaction with financial compensation.

The Bonferroni-Adjusted significant key factors correlated analysis of factors affecting job satisfaction are revealed in Table (5). As for summary of positive and negative factors affecting job satisfaction, please see (Table 6). Finally All VIF values are well below 2 (Table 7), meaning no significant multicollinearity is present among the factors which shows the model is stable. Each predictor contributes unique information to the model, no redundancy affected our interpretation, and the estimates are reliable.

Table 2: Key Findings from Regression Analysis; The analysis identifies which factors significantly predict stress levels among anesthesiologists:

Predictor	Coefficient (β)	95% CI	*p*-value	Bonferroni-Adjusted p-value	Significant After Adjustment?	Interpretation
Perceived Control over Practice	−0.55	[−0.88, −0.19]	0.0015	0.013	Yes	Greater autonomy significantly reduces stress.
Weekly Clinical Hours	+0.012	[–0.0035, +0.0242]	0.085	0.767	No	More hours may increase stress, but not significant.
Satisfaction with Colleagues	−0.24	[–0.6093, +0.1148]	0.186	1.000	No	Not significant after adjustment.
Recognition by Organization	−0.13	[–0.4299, +0.1789]	0.387	1.000	No	Not a significant predictor.
Satisfaction with Superiors	+0.13	[–0.3093, +0.3236]	0.433	1.000	No	Not significant.
Years in Current Position	+0.026	[–0.0327, +0.0576]	0.255	1.000	No	No effect.
Satisfaction with Financial Compensation	−0.27	[–0.5873, +0.0352]	0.083	0.747	No	Borderline before adjustment, but not significant after.
Satisfaction with Promotion Opportunities	+0.072	[–0.2431, +0.4204]	0.658	1.000	No	No effect.
Gender (Male = 1, Female = 0)	−1.34	[–0.57, +0.04]	0.0029	0.026	Yes	Male anesthesiologists report significantly lower stress than females.

Table 3: Score Summary (Mean, Median, and Range):

Measure	Mean	Median	Range
How many years in the current position?	8.96	6.00	1.0–34.0
What is your average clinical hours in anesthesiology per week?	47.84	48.00	0.0–265.0
Do you agree that " you have some self-control over your clinical practice"?	3.03	3.00	1.0–5.0
Do you agree that " My professional abilities are valued in my organization"?	2.93	3.00	1.0–5.0
From 1 to 10 how stressful is your anesthesiology practice?	7.68	8.00	1.0–10.0
From 1 to 5 how satisfied are you with your current superiors in anesthesiology practice?	2.79	3.00	1.0–5.0
From 1 to 5 how satisfied are you with your current colleagues in anesthesiology practice?	3.40	3.00	1.0–5.0
From 1 to 5 how satisfied are you with your current job in anesthesiology practice?	3.02	3.00	1.0–5.0
How old are you?	42.99	42.50	7.7374836767847–68.0
How many years since completing residency?	11.96	11.00	0.0–40.0

Table 4: Key Findings from Regression Analysis; The analysis identifies which factors significantly predict resignation potential among anesthesiologists:

Predictor	Odds Ratio (OR)	95% CI	*p*-value	Significant After Adjustment?	Interpretation
Perceived Control over Practice	0.28	[0.09, 0.93]	0.037	Yes	Significantly reduces odds of intending to resign. More control → lower resignation risk.
Recognition by Organization	0.46	[0.21, 1.01]	0.054	No	Borderline: Higher recognition may reduce resignation likelihood.
Satisfaction with Financial Compensation	0.52	[0.24, 1.11]	0.092	No	Trend: Better compensation may lower resignation potential.
Years in Current Position	1.10	[0.97, 1.23]	0.131	No	Not statistically significant.
Satisfaction with Colleagues	0.52	[0.20, 1.33]	0.172	No	Suggests reduced resignation likelihood, but not significant.
Satisfaction with Superiors	1.37	[0.59, 3.18]	0.465	No	Not significant.
Satisfaction with Promotion Opportunities	0.66	[0.31, 1.37]	0.263	No	Not significant.
Weekly Clinical Hours	1.00	[0.95, 1.05]	0.931	No	No relationship with resignation potential.
Gender (Male = 1, Female = 0)	1.30	[0.13, 13.01]	0.822	No	No significant gender difference in resignation potential.

Table 5: Key Findings from Regression Analysis :The analysis identifies which factors significantly predict Job Satisfaction among anesthesiologists:

Predictor	Coefficient (β)	95% CI	*p*-value	Significant After Adjustment	Interpretation
Satisfaction with Colleagues	+0.29	[+0.13, +0.45]	0.001	Yes	Strong predictor: better colleague relationships = higher satisfaction.
Perceived Control over Practice	+0.27	[+0.11, +0.42]	0.001	Yes	Greater clinical autonomy significantly improves job satisfaction.
Recognition by Organization	+0.21	[+0.07, +0.35]	0.003	Yes	Feeling professionally valued is a strong satisfaction driver.
Satisfaction with Financial Compensation	+0.14	[−0.002, +0.28]	0.054	No	Borderline: Better pay may improve satisfaction.
Satisfaction with Superiors	+0.10	[−0.05, +0.25]	0.175	No	Not statistically significant.
Satisfaction with Promotion Opportunities	+0.08	[−0.07, +0.23]	0.304	No	No significant effect.
Weekly Clinical Hours	+0.001	[−0.005, +0.007]	0.794	No	No relationship with satisfaction.
Years in Current Position	+0.009	[−0.01, +0.03]	0.376	No	Not significant.
Gender (Male = 1, Female = 0)	+0.04	[−0.36, +0.44]	0.850	No	No gender effect on job satisfaction.

Table 6: Summary of positive and negative factors affecting job satisfaction:

Negative factors affecting satisfaction		**Positive factors affecting satisfaction**	
Category	**Count**	**Category**	**Count**
Higher administration attitude	27	Positive Environment and colleagues	37
Low financial incentive	25	Patient Outcomes	13
Increased workload	20	Good work life balance	8
Lack of resources/ supplies	7	Teaching Residents	8
Stress	3	Good financial compensation	3
Lack of promotion potential	5	None	19
No answer	33	No answer	42
Other	11	other	9

Table 7: Interpretation of VIF Results:

Variable	VIF	Interpretation
Weekly hours	1.08	No multicollinearity concern
Years in position	1.10	No concern
Satisfaction superiors	1.68	Acceptable
Satisfaction colleagues	1.60	Acceptable
Satisfaction financial	1.33	Acceptable
Satisfaction promotion	1.57	Acceptable
Control score	1.23	No concern
Recognition score	1.44	Acceptable
Gender binary	1.12	No concern

DISCUSSION

The Anesthesiologist is crucial in every medical institution due his diverse roles whether clinical, educational or administrative. It is of vital importance for the success of our healthcare system to measure their stress and improve their job satisfaction to improve productivity and patient safety [2,7]. In addition to decreased work productivity, stressed anesthesiologists will significantly impact patient and personal safety at all levels.

Our study sample showed that most anesthesiologists have high stress in their work. The average stress level was 7.7/10 with 75% of them rated the stress to be more than 6/10. Factors predicting more stress were found to be decrease control over practice and female gender. However other factors such as decreased Job satisfaction, low financial satisfaction, longer clinical hours, lack of promotional opportunities, rank, years after residency, region of practice and type of institution are not correlated statistically with stress. Addressing aggravating factors systemically through governmental or scientific societies effort might decrease stress levels among our community of anesthesiologists [8,7].

These high levels of stress might lead to burn-out [9] and resignation for anesthesiology however there were no significant relationship between stress and resignation potential in our sample. The only factor that is significant for resignation potential from the field is loss of control over practice. Other than that we found low financial satisfaction, low job satisfaction, low perception about the field, decreased feeling of value, dissatisfaction with superiors (1-5 Scale), dissatisfaction with colleagues, and promotional opportunities are correlated but not Bonferroni-Adjusted significant with increased resignation potential. It is important to avoid resignation as this will increase the hiring deficit in our community and might increase stress on remaining anesthesiologists [9,10].

Our statistically significant factors indicate possible better job satisfaction with Satisfaction with Colleagues, Perceived Control over Practice and Recognition by Organization. When it comes to financial compensation only 18% of participants were extremely satisfied or satisfied with current income. This is an alarming rate especially that anesthesiologists are considered one of the highly paid physicians in the Western World like the United States and Canada [11,12]. However, our data found that this is correlated with increased stress, decreased job satisfaction and increased resignation potential but not Bonferroni-Adjusted significant. Which might lead to shortages and immigration of our anesthesiologists' physicians. Another important factor is promotional opportunities. Only 20% of participants rated satisfaction more than 3/5 scale.

Other factors that mandate further explorations are the reasons our anesthesiologists feel they have no control over their practice. This might be explained by the frequent comments of long clinical hours, feeling less valued and environmental (non-anesthesia colleagues) pressure. Also, we should address why female anesthesiologists have higher stress ratings than their male colleagues. This phenomena has been described in the literature [13], nevertheless we have to further explore any social, cultural or financial causes unique to our community [14]. Which was beyond the scope of this work.

On the other hand, an encouraging finding of this study is that good patient outcomes were frequently reported by our participants to be a positive factor in their practice enhancing their job satisfaction. Also, most participants are satisfied with their anesthesia superiors and colleagues' support which explains their perseverance to continue in the field despite the high stress. However, noticeably despite satisfaction with the internal anesthesia team, many participants pointed dissatisfaction with higher administration and surgeons as a negative job factor. This dissatisfaction might decrease productivity and increase burn out [8].

CONCLUSIONS AND RECOMMENDATIONS

Based on our data, we conclude that anesthesiologists in Saudi Arabia have a high level of stress, a low likelihood of resigning, and a low level of job satisfaction. These findings have been aggravated by several factors but mainly feeling of less control over practice. On the other hand, several factors were identified to enhance job satisfaction. These factors included satisfaction with superiors and colleagues, as well as excellent patient outcomes. The implementation of a national plan to improve working conditions will mitigate these factors, thereby improving job satisfaction and patient outcomes.

LIMITATIONS

A shortcoming of our survey is that most of our sample are consultants however the level of position was not found

to be significantly correlated with any finding. Also, we aimed to have more participants from the Central region - one of the largest medical services- however the region of practice was also found to be statistically insignificant.

CONFLICT OF INTERESTS

There are no conflicts of interest.

DISCLOSURE

During the preparation of this work, the authors utilized Julius AI to verify the independently conducted statistical analyses. The tool was used solely for verification purposes to enhance accuracy. Following its use, the authors thoroughly reviewed and edited the content and assume full responsibility for the integrity and accuracy of the final manuscript.

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AUTHORS CONTRIBUTIONS

Author/s testify that all persons designated as authors qualify for authorship and have checked the article for plagiarism. If plagiarism is detected, all authors will be held equally responsible and will bear the resulting sanctions imposed by the journal thereafter.

All authors meet all four of the following criteria:

- Substantial contributions to the conception or design of the work; or the acquisition, analysis, or interpretation of data for the work AND?
- Drafting the work or revising it critically for important intellectual content AND?
- Final approval of the version to be published AND?
- Agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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