

## Original Article

# The prevalence and the most significant sources of occupational burnout syndrome amongst anesthetic technicians in Saudi Arabia: A cross-sectional survey

### ABSTRACT

**Aims:** To detect the prevalence and the most significant sources of occupational burnout syndrome among anesthetic technicians in Saudi Arabia and draw recommendations that can reduce the level of this syndrome.

**Settings and Design:** A cross-sectional descriptive survey was conducted in a central hospital in Saudi Arabia.

**Methods:** Maslach Burnout Inventory and a self-created questionnaire was utilized to survey seventeen anesthesia technicians in order to capture the prevalence and most significant sources of burnout.

**Statistical Analysis Used:** Descriptive statistics were utilized to conduct the statistical analysis.

**Results:** Occupational burnout syndrome has been found in 29%. A level of emotional exhaustion was critically high in 41.2%. Likewise, a level of depersonalization was extremely high in 58.8%, while 76.5% of anesthetic technicians lacked personal accomplishments. There are several sources perceived by anesthetic technicians as the most significant sources of their occupational burnout syndrome. These sources include staff shortage, high workload, occupational hazards, and poor teamwork. However, the limited career pathway of anesthesia technicians seems to be the main predictor.

**Conclusions:** A critically high prevalence of occupational burnout syndrome was found among anesthetic technicians, which is the highest among all studies reviewed worldwide. Several recommendations have been made which require urgent implementation into practice in order to protect practitioners' wellbeing and decrease their rate of turnover. These recommendations include implementing physician-led team-based care, provision of training and resources, fostering equity in a workplace and provision of hazard pay.

**Key words:** Anesthetic technicians; burnout syndrome; Saudi Arabia

## Introduction


Anesthesia is considered to be one of the most stressful medical specialities, with daily exposure to stressful situations and with high responsibilities.<sup>[1]</sup> Therefore,

it is not surprising that there is a high incidence of Occupational Burnout Syndrome (OBS) among anesthesia teams.<sup>[2]</sup>

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The scientific definition of OBS is “a psychological syndrome of emotional exhaustion, depersonalization or cynicism and inefficacy, which is experienced in response to chronic job stressors”.<sup>[3]</sup>

Emotional exhaustion (EE) is a mentally, emotionally and physically exhaustion of workers from their work.<sup>[4]</sup> Employee suffering from EE are trying to distance themselves, both cognitively and emotionally, from their responsibilities in an attempt to deal with the pressure of their job.<sup>[5]</sup> This reinforces “depersonalization” (DP), wherein employees exhibit apathetic conduct.<sup>[5]</sup> Both EE and DP lead to a lack of achievement and unproductivity in work place known as personal accomplishment (PA) which is the third component of burnout.<sup>[5]</sup>

OBS is characterized by having low sense of PA with high levels in both EE and DP.<sup>[3]</sup>

Extensive researches in OBS show that the following factors in worklife are the main sources of OBS<sup>[6]</sup>:

- lack of independence in planning and organizing
- Overload
- Unfairness in practice
- Inadequate resources and rewards in the workplace
- Poor teamwork
- Lack of department support.

In developed countries, the prevalence rate of OBS among anesthetists ranges from 4.3% to 20%.<sup>[7,8]</sup> While the prevalence of OBS among anesthetists in developing countries is more varied, ranging from 9% to 70%.<sup>[9,10]</sup> In Saudi Arabia, Aldrees, *et al.*<sup>[11]</sup> conducted a cross-sectional survey with the Maslach burnout inventory (MBI) to detect the prevalence rate of OBS among physicians. Seventeen anesthetists participated in this study, of whom 70% showed high levels of at least one OBS dimension.

There has only been one study conducted to detect OBS prevalence rate amongst anaesthetic technicians (ATs). Kluger and Bryant<sup>[12]</sup> conducted a study on 154 (51%) of 302 New Zealand ATs. This study found OBS in 20% of the participating ATs, with high levels of EE and a low level of PA in 26% of ATs, and high levels of DP in 22%. This study looked at what workplace factors might impact on the prevalence rate of OBS among ATs by exploring the ATs' dissatisfaction toward several aspects in the workplace and determined the most stressful aspects. The major indicators for ATs' dissatisfaction and increased stress levels were related to poor teamwork. In addition, the workload, insufficient resources, and staff shortages were related to their high stress levels. Moreover,

supervisor leadership style was also shown in this study as contributing to ATs' stress. Kluger and Bryant<sup>[12]</sup> also found that the limited practical nature of the ATs' job and their limited career pathway are strongly associated with their job dissatisfaction. Furthermore, this study found that the main comments on ways to improve ATs' job were enhancing decision making and improving career pathways<sup>[12]</sup>

In the context of Saudi Arabia there is a significant shortage of ATs in Saudi Arabia who support the anesthetists in the induction and maintenance of anesthesia.<sup>[13]</sup> Although the profession has been recognized since 1960,<sup>[14]</sup> the statistical yearbook of the Ministry of Health (2017) shows that there are only 1,788 ATs registered and working within 274 hospitals across the country.<sup>[15]</sup>

This present shortage in ATs who practice in anesthesia could be a result of their high leaving rate, on account of poor working environment and OBS. As no studies have been undertaken in Saudi Arabia to detect the prevalence and sources of OBS among ATs, this study aims to detect the prevalence and the most significant sources of OBS among ATs. Such a research would help to devise evidence-based approaches to take proactive steps to control OBS by addressing the causative factors. Moreover, this study would also provide new evidence which can be used in further qualitative research.

## Subjects and Methods

A cross-sectional questionnaire survey was devised, using purposive sampling to recruit all ATs who worked in the Operating Room (OR) of a central hospital in Saudi Arabia. Exclusion criteria were part time workers and students. This hospital has been selected because it covers one province of Saudi Arabia as a regional, teaching, and referral hospital.

This study was conducted with the approval of the school's research ethics committee at Cardiff University and with approval of ethic and internal review board at the central hospital.

Envelopes containing anonymous self-reported questionnaires with an information sheet were handed out by researcher to all ATs (n = 19), who were given one week to answer the questionnaire and return them to the collection area in a sealed envelope.

The questionnaire consists of three blocks of questions. The first block concerns demographic data. The second block comprises a (MBI) to detect OBS. The MBI contains

the symptoms of OBS. These symptoms are presented as 22 closed-ended rating items in order to capture the personal feelings and attitudes. The participant answers these items by indicating on a seven-point rating scale how often the event happens, ranging from zero (never) to six (every day).<sup>[4]</sup> Nine out of 22 items of MBI evaluate the EE of respondent, while five items evaluate DP, and eight items evaluate PA. The equation: the number of items for each one × how often, [0 to 6], will be used to determine The scores for EE, DP, and PA.<sup>[5]</sup> Respondents who obtain high EE and DP score, along with low PA score will diagnosed as having OBS.<sup>[4]</sup> The high, moderate, and low level for each component of OBS will be identified according to the cut-off score that predetermined in the study conducted in Saudi Arabia by Aldrees, *et al.*<sup>[11]</sup> [Table 1]. Using predetermined score in specific national groups will help to compare and understand about the prevalence of OBS in these groups.<sup>[16]</sup> The MBI have been validated among anesthesia team and the reliability coefficients for EE statements ranged from 0.85 to 0.89, for DP statements from 0.83 to 0.84 and for PA statements from 0.86 to 0.90.<sup>[11]</sup>

The third block comprises the questionnaire that developed by researchers in order to identify the most significant sources of OBS in ATs. This questionnaire contains the main sources of OBS which a review of the literature shown to contribute to OBS in ATs. These sources were stated in a closed-ended rating format ranging from one (less significant) to three (most significant), thus the respondents can rate the significance of each sources. In order to identify more OBS sources, the researchers opened this questionnaire partially by added five spaces with rating space thus respondents can add other sources and rate their significance. An expert researcher and two senior ATs confirmed the face validity of this questionnaire while the reliability been confirmed

in piloting phase. The result of two ATs who participated in the pilot phase of this study were not included in the main study's results.

The statistical analysis been performed by descriptive statistics via SPSS. The data were treated and reported depending of the type of data. Frequencies, descriptive, explore and crosstabs procedures were used as appropriate. The date of responders who have high level in both EE and DP alongside with low level in PA were transformed and recorded into different variables in order to be reported the prevalence of OBS.

## Results

After removing the two questionnaires form the pilot study, seventeen envelopes were distributed to ATs and seventeen returned giving a 100% response rate. Most ATs were Saudi Arabian males (94.1%). Regarding work experience, the ATs' sample comprised 41.2% seniors, while juniors ATs represented 41.2% and 17.6% of ATs had middle experience.

OBS was found in 29% of ATs. High EE was detected in 41.2% of ATs, while 58.8% had high DP. The majority of ATs 76.5% lack of PA [Table 1].

The ATs ranked the main sources of OBS in order of their significance in developing their OBS, from least significant to most significant. All ATs with OBS identified "Occupational hazards" and "Lack of independence in planning and organizing work" as the most significant source of their OBS, while the majority also perceived "Poor teamwork" and "Staff shortage" as highly significant sources of their OBS. In addition, "Lack of department support" and "High workload" were also considered by 60% of them as the most significant sources of their OBS. Forty percent of ATs who had OBS rated "Lack of fairness among employees", "Supervisor's leadership style", "Lack of respect in the workplace" and "Lack of co-worker support" as most significant sources of their OBS. Only 20% of ATs who had OBS perceived "Insufficient resources in the workplace" and "Insufficient salary" as the most significant sources of their OBS. No other sources were identified [Figure 1].

## Discussion

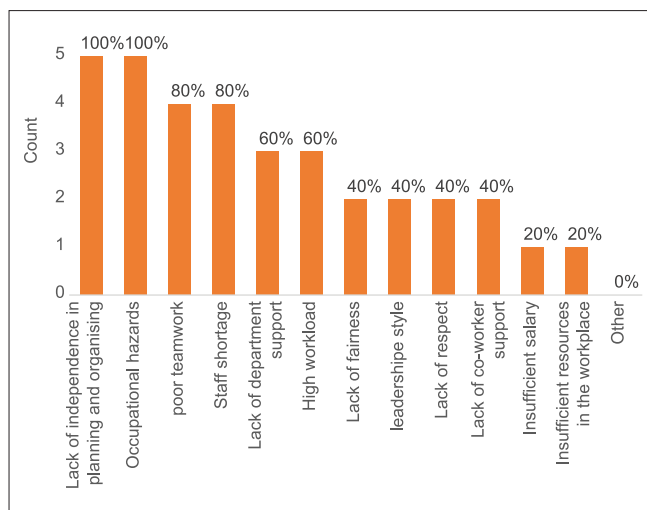
### Levels of OBS components

It is necessary to identify the levels of all three OBS components, not only to detect the prevalence of OBS, but also to identify the different workplace experiences that respondents have.<sup>[4]</sup> The current study revealed high levels of

**Table 1: Level of OBS components**

| OBS Dimensions level |          | *Cut-off point | Job title of participants |                  |
|----------------------|----------|----------------|---------------------------|------------------|
|                      |          |                | ATs                       |                  |
|                      |          |                | Count                     | Column Total n % |
| EE level             | Low      | < 18           | 2                         | 11.8%            |
|                      | Moderate | 18-26          | 8                         | 47%              |
|                      | High     | > 26           | 7                         | 41.2%            |
|                      | Total    |                | 17                        | 100.0%           |
| Level of DP          | Low      | < 7            | 2                         | 11.8%            |
|                      | Moderate | 7-12           | 5                         | 29.4%            |
|                      | High     | > 12           | 10                        | 58.8%            |
|                      | Total    |                | 17                        | 100.0%           |
| Level of PA          | High     | > 36           | 2                         | 11.8%            |
|                      | Moderate | 31-36          | 2                         | 11.8%            |
|                      | Low      | < 31           | 13                        | 76.4%            |
|                      | Total    |                | 17                        | 100.0%           |

\*Cut-off scores derived from normative data in Saudi Arabia



**Figure 1: The most significant sources of OBS in Anesthesia Technicians**

EE among 41% of ATs and 47.1% had moderate levels. Kluger and Bryant<sup>[12]</sup> found that only 26% of ATs in New Zealand had high EE, while 22% had moderate levels. However, it cannot be confirmed that the ATs in Saudi Arabia had higher EE than the ATs in New Zealand, since Kluger and Bryant<sup>[12]</sup> did not state the cut-off point that they used to define high levels of EE. Thus, justification for this comparison would not be based on sound evidence. However, the high workload that ATs experience in Saudi Arabia, as they are responsible for the most tasks during anesthesia, such as providing technical support and preparing and cleaning the equipment, might justify why ATs show higher levels of EE.

Another component of OBS is DP which was found to be at a critically high level among ATs. Fifty-eight percent of ATs had high DP levels. As the characteristics of OR environment make difficulties to the OR staff to establish a closely relationships with patients. Therefore, they could loose their empathy and thereafter depersonalization.<sup>[17]</sup>

The lack of PA is the third components of OBS. The present study has demonstrated that a significant proportion of ATs (76.5%) had lack of PA. This significant lack of PA contrasts with Kluger and Bryant<sup>[12]</sup> results, which show that only 26% of ATs in New Zealand experienced lack of PA. Arguably, the low sense of efficacy held by the majority of ATs in this study could be due to the perceived limited practical nature of ATs in Saudi Arabia, which can impede their ability to influence decisions in the workplace. From the researcher's experience, ATs in Saudi Arabia have severely limited career pathways. Even though some of them studied for five years to obtain a BSc degree, their tasks are limited to preparing and clearing equipment. Maslach<sup>[4]</sup> argued that a sense of accomplishment is unlikely if workers feel limited within the organization.

### Prevalence of OBS among ATs

The findings show critically high prevalence of OBS among ATs. Twenty-nine percent of ATs had full-blown burnout (OBS), with high EE and DP and a lack of sense of PA. This high prevalence of OBS sounds the alarm that there are significant issues in the occupational health of ATs in Saudi Arabia. This high prevalence among ATs exceeds that in any of the studies reviewed. Kluger and Bryant<sup>[12]</sup> found that only 20% of ATs in New Zealand had full-blown burnout syndrome. Interestingly, the prevalence of OBS among ATs in Saudi Arabia detected in this study is higher than the prevalence rate of OBS detected among anesthetists worldwide. Rui, *et al.*<sup>[8]</sup> found that only 4.4% of Chinese anesthetists had full-blown burnout syndrome, while Magalhães, *et al.*<sup>[9]</sup> and Barbosa, *et al.*<sup>[10]</sup> detected this syndrome in only 10% of Brazilian anesthetists. In Saudi Arabia context, the findings of this study show that the prevalence of OBS among ATs is higher than that detected among anesthetists. Aldrees, *et al.*<sup>[11]</sup> show that 70% of anesthetists have at least one high level either in EE or DP or one low level in their PA, while this study found that 88.2% have at least one high level either in EE or DP or one low level in their PA.

The main predictor that contributed to the rising prevalence of OBS among ATs in this study is the lack of PA, as the majority of ATs had a low sense of efficacy. This low sense of personal accomplishment can be linked back to the limited practical nature of ATs' role in Saudi Arabia, as mentioned above. Leiter, and Shaughnessy<sup>[18]</sup> confirmed that when workers have limited authority in their job, their vulnerability to OBS is likely to increase. In addition, Kluger and Bryant<sup>[12]</sup> found a strong tendency that the limited practical nature of the ATs' job and their limited career pathway in New Zealand were strongly associated with their job dissatisfaction.

### The most significant sources of OBS in ATs

In this study, the ATs ranked the main sources of OBS in order of their significance in developing their OBS. They were also given the chance to affix any other sources and rank their significance, but no other sources were specified.

All ATs who had OBS rated "the lack of independence in planning and organizing work" as one of the most significant source of their OBS. In Saudi Arabia, non-physician practitioners facing a limited career pathway because the national healthcare system is strongly depend on a physician-based care.<sup>[19]</sup> This strategy is supposed to improve patient safety but it could threatens patient safety by increasing the risk of OBS among non-physician practitioners. Physician-led team-based care could solve this dilemma by redistributing the tasks among healthcare practitioner and engage allied health professionals in patient

care, as conducting pre-assessment and post-visit care. Implementation such system would not only reduce the risk of non-physician practitioners burnout but also would help physician to concentrate in complicated tasks.<sup>[20]</sup> However, physicians must ensure patient safety and quality of care by launching and implementing quality control programs for non-physicians who provide medical care.<sup>[20]</sup>

The limited career pathway of ATs could deepen poor teamwork, which in turn contribute in OBS.<sup>[21]</sup> This study result showing that “lack of co-worker support” and “the lack of respect in the workplace” contributed significantly in OBS of ATs. The contribution of poor teamwork to OBS has been detected by Kluger and Bryant<sup>[12]</sup> who found that the major indicators for ATs’ dissatisfaction and increased stress levels were related to poor teamwork, such as demanding anesthetists and a lack of respect from other staff, especially from OR nurses.

Occupational hazard is the other source of OBS. All burned out ATs in this study perceived occupational hazard as one of the most significant source of their OBS. Worldwide, healthcare practitioners are exposed to a variety of occupational hazards and it is estimated that they are exposed to 300 chemicals in their workplace.<sup>[22]</sup> In order to tackle this source, the provision of hazard pay, which has not been offered to ATs in Saudi Arabia, could significantly decrease the risk of OBS resulting from occupational hazards. In addition, Hu, *et al.*<sup>[23]</sup> recommended that identifying sources of occupational hazards and implementing safety training within departments with supportive supervisors would minimize the risk of OBS among staff. However, in this study there is a strong perception among ATs that there is insufficient departmental support and supervision style were undesirable, which also contributes to their OBS. The contribution of insufficient department support and undesirable supervisors to stress and OBS has also been found among anesthesia teams worldwide. Kluger and Bryant<sup>[12]</sup> found that incompetent, unjust, and unsupportive managers are considered by New Zealand ATs as sources of stress in the workplace. Arguably, when the departmental support is absent, the resources including staffing and rewards will be insufficient which in turn magnify OBS issue. Moreover, low staffing boosts the high workload in workplace, which in turn also contribute to OBS. The results of this study is supporting this argument, as the high workload and staff shortage contributed significant to the OBS of majority of ATs, while insufficient reward were perceived by ATs with lesser severity. The contribution of these factors to OBS and stress has also been shown in the literature.

The last source of OBS is lack of fairness in workplace which contributed in almost half of AT burnout in this study.

Unfairness practice would include wage gap, unfair supervisors in distribution duty, holiday time, and on-call. The contribution of unfairness practice to stress has been shown by Kluger and Bryant,<sup>[12]</sup> who found that New Zealand ATs consider supervisor injustice as a stressful aspect in the workplace.

## Conclusion

This study’s results show a critically high prevalence of OBS among ATs working in one center in Saudi Arabia. The main predictor that contributed to the rising prevalence of OBS is the lack of PA. Several sources of OBS are highly contribute to OBS of ATs. However, “The lack of independence in planning and organizing work” were found to be the main source and predictor OBS in ATs. In order to reduce the level of OBS in ATs, we recommend to implementing physician-led team-based care, provision of training and resources, fostering equity in a workplace and provision of hazard pay.

These results must be interpreted with caution due to small sample size in specific geographic location. Thus, the generalizability of this study finding is limited. In addition, the study was limited by the research approach used. Thus, there is a limitation to the depth of information received. We recommend to repeat this study using a multicenter mixed methods study in order to gain a comprehensive understanding of the prevalence of OBS and its sources among ATs in Saudi Arabia.

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## Conflicts of interest

There are no conflicts of interest.

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