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Assessment Knowledge And Perception Of Anesthesia, Anesthesiologists' And Nurses' Expertise, And Their Role Among Saudi Residing Arabia In Makah Al-Mokarramah In 2023

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ABSTRACT

Background

Approximately five million patients on yearly basis are being admitted to the critical care unit around the world. Around (77%) of these patients suffer from pain during their stay in critical care units. Undertreated pain aggravates anxiety, sleep deprivation, agitation, delirium, and depression that often lead to a chronic condition. There are various barriers toward recognition and proper management of pain such as sedation, the presence of endotracheal tube, healthcare provider's lack of knowledge etc. Therefore, it becomes essential for the Anesthesiologists and nurses to have the required knowledge related to pain, valid pain assessment tools, and proper management Anesthesiology is a specialty of medicine that focuses on inducing reversible loss of consciousness, amnesia, muscle relaxation, and analgesia. Anesthesiologists and nurses anesthesiology play an important and integral role in pain clinics, operating rooms, and intensive care units (ICU), the only opportunity patients usually have to express t[1]heir concerns and ask questions is during a preoperative visits to their anesthesiologist. ***Aim of the study****: To assessment Knowledge and Perception of Anesthesia, Anesthesiologists' and nurses expertise, and Their Role Among Saudi Residing Arabia in Makah Al-Mokarramah in 2023.* ***Methods****: A cross-sectional study was conducted between January 2023 and April 2023, with a 42-question survey administered to 406 adult Saudi citizens of both genders residing in Saudi Arabia , in Makah Al-Mokarramah city. A validated self-administered questionnaire was used. It includes questions on socio demographic variables, knowledge .* ***Results:*** *show the Four hundred and six participants completed the survey. Table 1 presents the socio-demographic characteristics of the participants. Around 35% were aged between 50 and 59 years, with females being dominant (82.8%). Nearly three-quarters (74.6%) had bachelor's degrees . The proportion of participants with chronic diseases was 23.2%. Perceived health status was very good among 38.7%. In addition, 20.9% underwent three or more surgeries.* ***Conclusion:*** *Consistent with the literature, there was a poor level of anesthesia knowledge among the population living in Saudi Arabia. Further research is needed to establish the*

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link between anesthesia knowledge about the role of the anesthesiologist, and knowledge about anesthesiology in the region.

Keywords: *Assessment, Knowledge, Perception, Anesthesia, Anesthesiologists', nurses expertise, Role, Residing, Makah , , Saudi Arabia.*

Introduction

Anesthesiology is a field of medicine that primarily focuses on leading the individual to a state of anesthesia, involving reversible loss of consciousness, blunting of stress in response to surgery, amnesia, muscle relaxation, and analgesia [1]. For many years, anesthesiology was considered a behind-the-scenes specialty. It was publicly introduced in 1846 [2], and from that time until now, anesthesiologists have played an important and sensitive role in pain clinics, operating rooms, and ICUs [3]

The perception of anesthesia as a 'behind-the-scenes' expertise has persisted over time. Despite improvements in anesthesia practice, there is still a lack of public awareness of the field, the range of an anesthetist's duties, and the crucial role anesthesiologists play in the healthcare delivery system[4]

Surgery and anesthesia are daily procedures for anesthesiologists, but they are also quite worrisome for the patient and their family. There may be adverse effects from this worry that are harmful. Due to the specifics of anesthesia practice, anesthesiologists must overcome communication barriers. [5]Typically, anesthesiologists don't spend much time with conscious patients. Assessments of communication skills should be a crucial component of the residency training program, just like in Saudi Arabia which in return added more value to this current study and its importance, because excellent physician-patient communication (verbal and nonverbal) influences factors such as patient satisfaction, patient compliance, and medical results [6]. Without much information about the patient's personality, the anesthesiologist has to provide the patient with a very personalized and intimate level of care. During anesthesia, the patient is kept under control and monitored throughout with the help of procedures that lessen consciousness, induce amnesia, and restrict autonomous movements. It is important for anesthesiologists to establish relationships with patients both preoperatively and throughout the surgery.[7] Pre-anesthesia evaluation, per procedural management, and post-anesthesia care are the three separate phases of anesthesia care and the anesthesiologist-patient relationship. Every stage has different communication difficulties for the anesthesiologists. There are opportunities to give accurate information on anesthesia and anesthesiologists, which can improve results [8]. Thus, this study aimed to assess Saudi citizens' perceptions of anesthesiologist training, expertise, role, and responsibilities, as well as their knowledge and concerns about anesthesia Moreover, efforts must be made to improve anesthesia knowledge in Saudi Arabia because it is important for people to understand the role of the doctor who is responsible for their life. Consequently, it is essential to conduct more studies on this subject. [9]

Globally, more than five million patients every year are admitted to critical care units [10] Almost (77%) estimated of them complained of pain during their hospitalization (1). These numbers have significantly increased in the past three years due to the Covid-19 pandemic, which led to the ICU bed shortage across various healthcare systems across the world [11].Out of these patients, (32%) reported severe pain while (60%) reported moderate to severe pain [12]. Approximately (80%) of the pain was associated with critical care units' procedures such as wound dressing, endotracheal tube insertion, intravenous annulations, suctioning, positioning, incision, and drainage tracheostomy [13]

Persistence undertreated pain may lead to serious physiological and psychological effects. It interferes with cardiovascular and respiratory physiology, and can, therefore, impair a patient's recovery and discharge. It can be said that cognitive and psychological negative impacts are relatively common and can be found as well [14].

Literature Review

In 2014, a study was conducted in Korea to assess the public awareness of anesthesiology and the role of anesthesiologists. It was found that over 25% of people did not know that anesthesiologists oversaw anesthesia during surgery; 86.5% and 70.8% of those surveyed believed that the surgeon decided the operability and nil per os (NPO) time, respectively, and 46.2% believed that the surgeon oversaw the monitoring of vital signs during surgery, which is considered one of the primary and essential roles of anesthesiologists [15].

Studies on the awareness and knowledge of anesthesiology and the role of anesthesiologists in the Saudi population are scarce. One study conducted in 2017 among 159 citizens of Jeddah reported that 53.4% of the participants believed the surgeon was responsible for postoperative pain management. Another study in 2006 reported that most participants knew that an anesthesiologist administered the anesthetic; however, there was a lack of knowledge about their role in the operating room [16]

Worldwide, studies have revealed poor public knowledge about the specialty of anesthesiology and the role of anesthesiologists. Therefore, assessing the knowledge regarding anesthesiology in Saudi Arabia has been investigated to determine if there is a deficiency in the level of anesthetic knowledge in the region [17].

Numerous earlier studies conducted in the United States, Europe, and Australia have demonstrated that there is little public understanding of anesthesiologists' training, experience, role, and function both within and outside the operating room [18]. Another study conducted in Saudi Arabia reflected the ignorance of the public about the function of anesthesiologists, a lack of perception regarding anesthetic procedures during surgery, and the role of the anesthesiologist in monitoring resuscitation and postoperative analgesia [19]. A more recent study in Saudi Arabia revealed a relative lack of information about the role of the anesthesiologist both intraoperative and postoperatively [20]. These elements could increase preoperative anxiety and lower post-anesthesia patient satisfaction. In addition, another study in Saudi Arabia revealed that all patients (100%) after receiving an explanation of anesthesia were found to be afraid of it; hence, it was suggested that periodic surveys every five to 10 years may be helpful to gather feedback from the public on their awareness about anesthesiology and anesthesiologists to further enhance it [21] .

Rational.

In critically ill patients, negative psychological outcomes can be increased by persistence severe pain including post-traumatic stress disorder, depression, and anxiety . Actually, these effects are capable of leading to sleep deprivation, depression, anxiety, and distress . There is a positive correlation among pain and anxiety. That is why, stressor impacts of unrelieved pain are capable of increasing the levels of anxiety and hamper the daily activities like leisure activities, work, exercise, and diet. It is even able to cause insomnia at different levels. Such type of pain can even result in a person suffering from reduced concentration ability, mental confusion, and disorientation. There are various barriers toward recognition and proper management of pain in critical care units such as sedation and the presence of endotracheal

tube, etc. . Thus, it is vital to measure and manage pain properly to prevent adverse effects of undertreated pain such as compromised immunity, delirium, prolonged mechanical ventilation, and hemodynamic derangements. It also leads to psychological, hemodynamic, metabolic and neuroendocrine responses that play a major role in rising morbidity and have observable effects on staying longer time in critical care units. It is mandatory to monitor anesthesiologists' and nurses expertise, and Their Role Among Saudi Residing Arabia pain management knowledge continuously. As well as to emphasis significance of an educational programs that serve nursing practice.

Aim of the study

To assessment Knowledge and Perception of Anesthesia, Anesthesiologists' and nurses expertise, and Their Role Among Saudi Residing Arabia in Makah Al-Mokarramah in 2023

Objectives:

- To assessment Knowledge and Perception of Anesthesia, Anesthesiologists' and nurses expertise, and Their Role Among Saudi Residing Arabia in Makah Al-Mokarramah in 2023

Methodology

Study Design

A Cross-sectional descriptive study

Study area

An analytical cross-sectional study was conducted between January 2023 and April 2023 using an survey distributed to Saudi citizens aged 18 years and older living in Makah Al-Mokarramah regions of Saudi Arabia, irrespective of their gender.

Study Population

The study was conducted among of 406 participants from the general public and Non-Saudi participants, healthcare professionals in Saudi Arabia in Makah Al-Mokarramah, during the period of study in 2023 .

Selection criteria:

A- Inclusion criteria:

- The age requirement and were citizens of Saudi Arabia.
- Non-Saudi participants,
- Both males and females.
- All nationalities.

B- Exclusion criteria:

- Individuals younger than 18 years old
- Non-Saudi participants, healthcare professionals

Sampling technique:

The study sample consisted of 406 participants from the general public in Saudi Arabia, aged 18 years and older, encompassing both genders. The selection process involved the implementation of specific inclusion and exclusion criteria. The inclusion criteria were defined to include individuals who met the age requirement and were citizens of Saudi Arabia. Non-Saudi participants, healthcare professionals, and individuals younger than 18 years old were excluded from the study.

Data collection tool:

In this study was adapted from a previously published study designed by a senior anesthesiologist with input from other anesthesiologists. The questionnaire was modified to suit the objectives and population of the current study. It included demographic data such as gender, age, education, chronic medical conditions, self-reported health, and previous surgeries. The questionnaire assessed the perception of anesthesiologists' education, expertise, role, and responsibilities. It included seven questions, with one correct answer identified according to the training and education in Saudi Arabia by a senior consultant. The questionnaire also evaluated trust in physicians and anesthesiologists, using four questions taken from the Trust in Physician Scale, which had been validated in previous studies.

Data entry and analysis:
The Statistical Package for Social Sciences (SPSS) software version 24.0 was used for data entry and analysis. Descriptive statistics (e.g., number, percentage) and analytic statistics .

Pilot study:
Was piloted among 20 participants, after permission was taken through from the researcher, with some modification and preamble letter was issued to explain the aim of the study, request to participate, and appreciation for a response. Then, the questionnaire was validated by three consultants. A pilot study was conducted in one in the same sector due to the similarity to the target group using the same questionnaire to test the methodology of the study. As a feedback, the questionnaire was clear and no defect was detected in the methodology.

Ethical considerations:
The ethical approval for this study was obtained from the ethical committee for health research in Makah (2023). The objectives of the study were explained to the participants and confidentiality was assured. Participation was voluntary. A written consent was obtained from the participants. Permission from the Makah joint program of family medicine was obtained; permission from the Directorate of Health Affairs of the Holy Capital Primary Health Care was obtained.

Budget: Self-funded

Result

Table 1: Distribution of Socio demographic characteristics of the participants (n-406)

	N	**%**
Age		
18 - 29 years	65	16
30 - 39 years	67	16.5
40 - 49 years	105	25.9
50 - 59 years	142	35
>60 years	27	6.7
Gender		
Male	70	17.2
Female	336	82.8
Educational level		
Uneducated 02 (0.50%)	12	0.5
Primary school 01 (0.20%)	01	0.20
Middle school	04	0.1
High school 42 (10.3%)	42	20.3
Bachelor's degree	303	74.6
Postgraduate	54	13.3
Chronic medical condition (e.g. HTN, DM)		

Yes	94	23.2
No	312	76.8
Self-assessment of health status		
Fair	46	11.3
Good	113	27.8
Very good	157	38.7
Excellent	90	22.2
Previous surgeries		
None 133 (32.8%)	133	32.8
One surgery 112 (27.6%)	112	27.6
Two surgeries 76 (18.7%)	76	18.7
Three or more surgeries	85	20.9

The study included 406 participant , table 1 show the Four hundred and six participants completed the survey. Table 1 presents the socio-demographic characteristics of the participants. Around 35% were aged between 50 and 59 years, with females being dominant (82.8%). Nearly three-quarters (74.6%) had bachelor's degrees . The proportion of participants with chronic diseases was 23.2%. Perceived health status was very good among 38.7%. In addition, 20.9% underwent three or more surgeries.

Table 2: Distribution of perceptions on anesthesiologist and nurse's education, expertise, role, responsibilities, education, and training

Assessment questions/statements & answers	**N**	**%**
Who puts you to sleep before surgery?		
Surgeon	30	07.4
Anesthesiologist	339	83.5
Nurse	17	04.2
I don't know	20	04.9
Who is responsible for waking you up after surgery?		
Surgeon	18	4.4
Anesthesiologist	175	43.1
Nurse	156	38.4
I don't know	57	14.0
Who is responsible for monitoring your vital signs throughout surgery?		
Surgeon	32	7.9
Anesthesiologist	123	30.3
Nurse 183 (45.1%)	183	45.1
I don't know	68	16.7
Statement about education and training		
The number of medical school years required for an anesthesiologist		

4 or less	34	8.4
5 or more	193	47.5
I don't know	179	44.1
The number of medical school years required for surgeons		
4 or less 06 (01.5%)	06	1.5
5 or more * 307 (75.6%)	307	75.6
I don't know	93	22.9
The number of residency training years required for an anesthesiologist		
4 or less * 106 (26.1%)	106	26.1
5 or more 81 (20.0%)	81	20
I don't know	219	53.9
The number of residency training years required for a surgeon		
4 or less	75	18.5
5 or more	138	34
I don't know	139	47.5
Level of perception		
Poor 224	224	55.2
Moderate	155	38.2
Good	27	6.7

Table 2 shows regarding the perceptions on anesthesiologist and nurse's education, expertise, role, responsibilities, education, and training that 83.5%, 43.1%, and 30.3% were aware that the anesthesiologist was responsible for putting the patient to sleep , waking him up, and monitoring vital signs before, after, and throughout the surgery, respectively. Around 47.5% and 75.6% knew that the number of medical school years required for anesthesiologists and surgeons was five years or more. However, 26.1% and 18.5% were aware that the number of residency training years required for anesthesiologists and surgeons was four years or less. Based on the above statement, with poor, moderate, and good perception levels found in 55.2%, 38.2%, and 6.7%, respectively .

Table 3: Distribution of Knowledge related to anesthesia among physicians and anesthesiologists and nurse's

Assessment questions/statements & answers	True		False		Not sure	
	N	%	N	%	N	%
An anesthesiologist is a specially trained doctor	324	79.8	32	07.9	50	12.3
A specially trained nurse can be an anesthesia provider when supervised by an anesthesiologist	105	25.9	165	40.6	136	33.5
An anesthesiologist is an expert in the treatment of pain and takes care of pain after surgery	103	25.4	157	38.7	146	36.0
An anesthesiologist can give an epidural during childbirth	265	65.3	38	9.4	103	25.4

Every type of surgery requires patients to be put to sleep	36	84.0	341	84.0	29	07.1
Certain types of surgeries can be done by blocking nerves with local anesthetics without needing to be completely put to sleep	349	86.0	40	0.9	17	4.2
It is important for the anesthesiologist to know your medical history and your medication history before surgery	360	88.7	18	4.4	28	6.9
Fasting prior to surgery means absolutely nothing by mouth	247	60.8	134	33.0	25	6.2
Fasting prior to surgery means you cannot have anything by mouth except water	232	57.1	131	32.3	43	10.6
Overall, anesthesia is extremely safe	176	43.3	128	31.5	102	25.1
General anesthesia frequently results in brain damage	87	21.4	184	45.3	135	33.3
Overall risks of anesthesia are higher in sicker patients	228	56.2	56	13.8	122	30.0
Nausea and vomiting are frequent side effects of general anesthesia	304	74.9	32	7.9	70	17.2
There is an occasional chance of being aware of what's going on under general anesthesia	127	31.3	193	47.5	86	21.2
Level of knowledge						
Poor	81	20.0	----		----	
Moderate	275	67.7	-----		-----	
Good	50	312.	-----		----	

Table 3 shows regarding Knowledge related to anesthesia among physicians and anesthesiologists and nurse's It can be observed that good knowledge related to anesthesia was seen in the statements, 'it is important for the anesthesiologist to know your medical history and your medication history before surgery' (true: 88.7%), followed by 'certain types of surgeries can be done by blocking nerves with local anesthetics without needing to be completely put to sleep' (true: 86%), 'every type of surgery requires patients to be put to sleep' (false: 84%), 'an anesthesiologist is a specially trained doctor' (true: 79.8%), and 'nausea and vomiting are frequent side effects of general anesthesia' (true: 74.9%). On the contrary, poor knowledge was seen in the statements, 'an anesthesiologist is an expert in the treatment of pain and takes care of pain after surgery' (true: 25.4%), 'there is an occasional chance of being aware of what's going on under general anesthesia' (true: 31.3%), and 'fasting prior to surgery means you cannot have anything by mouth except water' (false: 32.3%). Poor, moderate, and good knowledge were detected in 20%, 67.7%, and 12.3%, respectively .

DISCUSSION

In the current study, many participants knew what an anesthesiologist does and how long it takes both anesthesiologists and physicians in general . However, not much was known about how long anesthesiologists spent in residency. Another study found that just 32% of participants felt fully informed about anesthesia. This might be due to a general lack of familiarity with the work of anesthesiologists and the mechanisms of anesthetics [22]

Another study had shown that patients in this group had high average education and health literacy, yet many still needed to understand what anesthesiologists do. Patients desire to learn as much as possible during the preoperative appointment. The most effective means

of disseminating this data was via an informative pamphlet [23]. Most patients were aware that anesthesiologists administered anesthesia. Anesthesiologists were valued, but their role during surgery and the anesthetics they used were unknown. In another study, these findings suggest that anesthesiologists should educate surgical patients before surgery to establish rapport, distribute anesthesia education materials and use the media to educate illiterate people about anesthesia [24]

Another study reported that no significant differences were observed in between perception and knowledge scores regarding age group, region of residence, and self-assessment of health status. A higher perception score was more associated with having a chronic medical condition (Z=1.965; p=0.049), while a higher knowledge score was more associated with being female (Z=1.446; p=0.020). Another similar study looked at how much people in the Qassim area of Saudi Arabia know about the field of anesthesia and the role of anesthesiologists. The results showed that individuals with a bachelor's degree or higher were more likely to have had surgery before. Anesthesia awareness was improved by knowing about regional anesthesia, but the sample showed that people didn't know much about anesthesia [25]

Table 3 shows that Table 3 shows regarding Knowledge related to anesthesia among physicians and anesthesiologists and nurse's It can be observed that good knowledge related to anesthesia was seen in the statements, 'it is important for the anesthesiologist to know your medical history and your medication history before surgery' (true: 88.7%), followed by 'certain types of surgeries can be done by blocking nerves with local anesthetics without needing to be completely put to sleep' (true: 86%), 'every type of surgery requires patients to be put to sleep' (false: 84%), This will discuss professionalism in anesthesiology, with an emphasis on empathy, social media usage, and awareness of drug use disorders, aiming to enhance the public image of anesthesiologists. Patient empathy can significantly enhance patient-provider trust [26] .

In a similar study, it was found that 68% of patients trusted their doctors. The study also highlights the public's expectation for anesthesiologists to possess a certain level of clinical competence and technical knowledge to provide care for patients and maintain this competence throughout their careers [27]. Trust is the cornerstone of the relationship between patients and their physicians, and without it, the healthcare journey will be full of difficulties and obstacles. In our country, the culture of medical insurance wasn’t common among the Saudi population due to the governmental pledge to provide health care services for free to Saudi citizens.[28] However, the recent trends of the Saudi government center around the privatization of governmental hospitals and reliance on health care insurance policies. [29]The new strategy may influence the level of trust between Saudi patients and their anesthesiologists. In our survey, about 51% of the respondents were confident that their anesthesiologist’s decisions would not be influenced by insurance companies. This result represents a high level of trust when compared with another survey that was conducted among a predominantly Hispanic patient population in California, USA , where only 34.7% of their participants were sure about that. Fear and anxiety about surgical procedures and anesthesia are common; some researchers found that 88.9% of preoperative patients showed an overall fear, whereas 10.8% of the surveyed participants were exclusively
worried about anesthesia [30]. In this study, we noticed that the fear of dying during surgery was at the top of the list of our subjects' concerns toward anesthesia, as 26.6% of them addressed it as a significant concern. On the other hand, two prior studies [15,16] found that only 16.9% and 12.1% of their respondents showed the same level of fear. Nagrampa et al.'s results were similar to ours, where 29.3% of their patients were assessed to be "very concerned" about dying during surgery [31]. Interestingly, 24.9% of our participants chose nudity as a major fear, while in a Canadian study [32] only 3.6% of their respondents estimated it as a "very concerned" idea. This could be attributable to the nature of our sample, which is female-dominant, anther- strong adherence to religious and cultural rules in our nation.

CONCLUSION

The study also highlights the importance of increasing public awareness about anesthesia and addressing common concerns, particularly the fear of dying during anesthesia. However, studies at a large scale were warranted at various hospitals with a very large size of sample for having a better understanding of reasons just why the level of knowledge is less than adequate and its implications on the outcome of patient care. There was a poor nurses' overall pain management knowledge and attitude. Furthermore, there wasn't a significant relation of nurses' knowledge and attitude regarding pain management with demographic variables. Therefore, it is imperative that regardless of the level, nurses' continuous education program might assist in proving the skills and knowledge of pain assessment and management. Healthcare providers should take steps to educate patients and address their concerns to improve patient satisfaction and trust. Overall, this study provides a foundation for future research on anesthesia perceptions and knowledge, which can inform efforts to enhance patient safety and satisfaction.

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