An-Najah National University

Faculty of Graduate Studies

Prevalence of Preoperative Anxiety and its Contributing Risk Factors in Adult Patients Undergoing Elective Surgery

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This Thesis is Submitted in Partial Fulfilment of the Requirements for the Degree of Masters of Anaesthesia Nursing, the Faculty of Graduate Studies, An-Najah National University, Nablus - Palestine.

2017

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Dedication

To the spirit of my father, dear God rest his soul;

To the fountain of kindness and compassion, my dear mother;

To my dear wife, who stayed up nights with me;

To my dear children;

To my respected professors;

To my colleagues who have helped me in completing this study;

To all who helped me and encouraged me,

To all of them I dedicate this research.

Acknowledgment

A special thanks and appreciation to my supervisor, Professor Waleed Sweileh, and my co-supervisor, Dr. Nooraldin Almasri for their encouragement, guidance, patience and support from the beginning to the final stages, which has enabled me to complete this thesis. I would like to acknowledge Dr. Aidah Akaissi for her interest in this thesis and follow up. I would like to express my sincere gratitude to the operation room team for their help and cooperation. I would like to thank hospital managers for the facilitation they offered to me. I would like to deeply thank all patients engaged in my study, wishing them good health. I would like also to thank my family, especially my wife for her patience, endurance and support. Finally, I wish to record my respect, thanks and appreciation for every person credited with the completion of this work.

الإقرار

أنا الموقع أدناه، مقدم الرسالة التي تحمل العنوان:

Prevalence of Preoperative Anxiety and its Contributing Risk Factors in Adult Patients Undergoing Elective Surgery

أقر بأن ما شملت عليه هذه الرسالة إنّما هو نتاج جهدي الخاص، باستثناء ما تمّت الإشارة إليه حيثما ورد، وأنّ هذه الرسالة ككل، أو أيّ جزء منها لم يقدّم من قبل لنيل أيّ درجة أو لقب علميّ لدى أيّ مؤسسة تعليمية أو بحثية أخرى.

Declaration

The work provided in this thesis, unless otherwise referenced, is the researcher's own work, and has not been submitted elsewhere for any other degree or qualification.

Student's Name: **اسم الطالب:**

Signature: **التوقيع:**

Date: **التاريخ:**

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List of Abbreviations

Abbreviation	Full name
POA	Preoperative Anxiety
ASA	American Society of Anesthesiologists
APAIS	Amsterdam Preoperative Anxiety and Information Scale
SPSS	Statistical Package for Social Sciences
SD	Standard deviation
P-value	calculated probability
GA	General Anaesthesia
RA	Regional Anaesthesia
STAI	State Trait Anxiety Inventory
STAIS	Trait Anxiety Inventory Scale
HADS	Hospital Anxiety and Depression Scale
VAS	Visual Analogue Scale
MAACL	Multiple Affect Adjective Check List
USA	United States of America
CHD	coronary heart disease
BMI	Body mass index
IRB	Institutional Review Board
IDCS	information desire components
Sum A	Sum anaesthesia
Sum S	Sum Surgery
Sum AS	Sum Anaesthesia and Surgery
CABG	coronary artery bypass graft
CRNA	Certified Registered Nurse Anaesthesia
DX	Diagnosis
KG	Kilogram
M	Male
F	Female
N	Number
B	Bound
CI	Confidence Interval
Categ	Category
Exp B	Exponentiation of the Bound coefficient
Sig	Significance
CNS	central nervous system
GABA	gamma-aminobutyric acid

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Abstract

Background: Hospitalization and waiting for a surgical operation are the main arising causes for patient anxiety preoperatively, which significantly affects the outcome of both anaesthesia and surgery. Yet, no researches have been conducted and there is currently no published data on the preoperative anxiety levels in the West Bank (Palestinian Territories). The purpose of this study is to assess the level of preoperative anxiety among patients waiting for elective surgery in Rafidia Governmental Hospital.

Methods: A cross sectional study was carried out on 320 patients scheduled for elective surgery at the preoperative care unit (recovery room) in Rafidia Governmental Hospital, Nablus, West Bank (Palestinian Territories). The patients' medical records were reviewed to obtain demographic data, the surgical and medical diagnosis, medication, and medical history of the study participants. All inpatients were assigned an ASA (American Society of Anaesthesiologists) physical status of I or II, were between 18 and 60 years old, and were able to give informed consent and answer questions were enrolled in this study. Illiterate patients, patients

with psychological impairment, pregnant women, and alcoholic patients were excluded from the study.

The Amsterdam Preoperative Anxiety and Information Scale (APAIS) was applied to assess the level of patient anxiety. SPSS was applied for statistical analysis and description.

Results: The mean age ± SD of the sample was 37.20 ± 10.99 years. The majority of interviewed patients were females (197; 61.6%), married (239, 74.7%), and had no previous surgical operations (225, 70.3%). Less than one third of studied patients had a college education (101, 31.6%) and the majority were scheduled for general anaesthesia (267, 83.4%), while the remaining were scheduled for regional anaesthesia. Approximately one third of the sample ware smokers (108, 33.8%), and less than one half were scheduled for a major operation (137, 42.8%). The majority of patients were ASA category I (267, 83.4%).

Using a cut-off point of 11, patients with an anxiety score ≥ 11 on the APAIS were considered anxious. Analysis showed that 184 (57.5%) patients were anxious. The results also indicated that 163 (50.9%) patients indicated a desire for more information about anaesthesia and surgery. Females were more anxious than males ($p<0.001$). Analysis also showed that non-smokers had significantly higher anxiety scores than smokers ($p<0.001$). There was no significant difference in anxiety scores between those who had college education and those with lesser levels of education ($p=0.83$). Patients with no previous surgery did not have significantly

higher anxiety scores than those with surgical history (p=0.052). Patients with type II ASA had significantly higher anxiety scores than those with ASA type I (p=0.001). Patients scheduled for GA had significantly higher anxiety scores than those scheduled for regional anaesthesia (p=0.001). No significant difference was found between currently married and unmarried patients in anxiety scores (p=0.58). Patients over 40 years of age had no significant difference in anxiety scores compared with those less than 40 years of age (p=0.55). The results also showed that anxious patients had a higher desire for seeking information about anaesthesia and surgery than non-anxious patients.

Conclusion:

The prevalence of preoperative anxiety in the West Bank is high compared with results from developed countries, but it correlates with the results from developing countries. Female patients, non-smokers, patients with no previous history of surgery, ASA II patients, and patients undergoing surgery under general anaesthesia had significant anxiety levels. Our study showed that patients with high information requirements, females, and patients scheduled for general anaesthesia are more anxious preoperatively.

Assessment of preoperative anxiety is an important step in developing new strategies for reducing anxiety. Assessment can be easily done with a questionnaire such as APAIS, which is a short and economical instrument, and its validity and reliability has been approved.

Recommendations:

This study advises that providing more information regarding surgery and anaesthesia might help in reducing preoperative anxiety levels. Also, it is a must to increase trust between patients and the medical team (doctors and nurses) by improving doctors' and nurses capacity in building (doctor, nurse)-patient trust through training courses.

This study was conducted in one governmental hospital and it is the first study conducted in the assessment of preoperative anxiety level, so further research should be conducted in other governmental and specialized hospitals in Palestine in this field to recognize and identify level and causes of preoperative anxiety in order to introduce effective methods and strategies to help reduce preoperative anxiety.

This study revealed a high level of preoperative anxiety among surgical patients, which emphasizes on that ,new protocols and systems must be established and followed in our government hospitals to decrease the high level of preoperative anxiety levels, which leads decrease the intra and postoperative complications.

Chapter One
Introduction

Background and Objectives:

Anxiety:

is an emotional state that is defined by unpleasant feelings of inner turmoil. Anxiety is often supplemented by nervous behaviour, such as pacing, somatic complaints, and rumination (David, David et al. 2014). Anxiety is also defined as a "psychological and physiological state characterized by somatic, emotional, cognitive, and behavioural components" (Pritchard 2009, Zhang 2011).

Preoperative anxiety:

is a common emotion that patients who are scheduled to undergo surgery experience. Preoperative anxiety is often described as an annoying feeling of tension that can be the result of the patient's uneasiness about the surgical operation (Pritchard 2009). This anxiety emerges due to negative ideas about the surgical procedure and or anaesthesia (Pritchard 2009). The surgery's success depends on a number of somatic factors as well as medical factors in addition to the psychological state of the patients. Therefore, preoperative anxiety has long been a subject of interest to researchers in medical psychology (Berth, Petrowski et al. 2007).

Patients with an increased level of preoperative anxiety need larger doses of anaesthetic drugs, on average have a higher peri- and post-operative

administration of analgesia, and have longer stays in the hospital. Because preoperative levels of anxiety can be reduced through psychological intervention, (Krohne and de Bruin 1998) (LaMontagne, Hepworth et al. 2003) it is important to assess the patient's level of preoperative anxiety.

Pathophysiology of anxiety:

In the central nervous system (CNS), the main mediators of the symptoms of anxiety disorders are norepinephrine, serotonin, dopamine, and gamma-aminobutyric acid (GABA). Other neurotransmitters and peptides, such as corticotropin-releasing factor, may be involved. Peripherally, the autonomic nervous system, especially the sympathetic nervous system, mediates many of the symptoms,(Freitas-Ferrari, Hallak et al. 2010).

Levels of anxiety:

Low levels of anxiety are observed among people with personality readiness that can make a person deny signs of coming dangers and ignore vital warnings of medical personnel. People with low anxiety can also include severe obsessives, withdrawn schizoidal personalities, and people with other avoidance disorders. Some of the persons that experience low levels of anxiety are emotional and reacting to their environment, but if annoying information is given, there is an immediate switch to a moderate degree of anxiety(Janis 2016).

Moderate anxiety is seen among persons who are strongly responsive to external stimulation. Generally, those in this group are very much

influenced by information that is provided to them. Information can have a positive influence on such people: possible dangers, how these dangers are mitigated, and protective factors help the patients understand reality and defeat worry(Janis 2016).

High levels of anxiety are found among patients with tendencies to have neurotic symptoms, especially those people who have severe difficulty with the threat of damage to their bodies. This includes those with suppressed internal struggles that are brought out by an external threat (Berth, Petrowski et al. 2007).

Causes of Anxiety:

Pre-operative anxiety is caused by many factors such as fear of complications, result of operation, concern about family, fear for one's life, post-operative pain, awareness during surgery, fear of disability, need of blood transfusion, waiting for the operation, financial loss, fear of the unknown, nothing per mouth, fear of needles, and doctor or nurse mistakes. (Millar, Jelicic et al. 1995, Akinsulore, Owojuyigbe et al. 2015) Assessment of anxiety is vital for people who will undertake surgery because anxiety affects a patient's response to anaesthesia (Jafar and Khan 2009). Anxious patients need higher doses of induction agents and postoperative analgesic drugs (Moerman, van Dam et al. 1996, Kain, Sevarino et al. 2000).

Preoperative anxiety is dependent on additional factors as well. Socio-demographic characteristics (age, sex, current partnership and level of

educational background) are one type of such factors (Karanci and Dirik 2003). Additional factors are the type of medical surgery, including the illness that is the cause for need of surgery, the expected success rate of the operation, possible complications, duration of hospital stay, and previous surgeries (Mark 2003), the type of information provided before the operation (Sjöling, Nordahl et al. 2003), the method of administration of anaesthesia, as well as psychosocial factors, such as the person's general level of anxiety, and personality traits (Weinryb, Gustavsson et al. 1997), psychological or psychiatric co-morbidity (Caumo, Schmidt et al. 2001), sensitivity to pain (Caumo, Schmidt et al. 2002), social support (Elizur and Hirsh 1999), and life satisfaction or coping style (Kopp, Bonatti et al. 2003).

In recent years, with more emphasis on day–case surgery and an increased load of surgeries in governmental hospitals, there has not been enough time for anaesthetists to conduct thorough preoperative interviews with patients. This could possibly lead to less than required information given to patients about surgery and anaesthesia. If there were a quantitative assessment tool like a questionnaire, the anaesthetist could assess the patient's level of anxiety in a short time and define the factors affecting it. Nowadays, several validated questionnaires are applied to measure anxiety. These include: the State Trait Anxiety Inventory (STAI), Hospital Anxiety and Depression Scale (HADS), Visual Analogue Scale (VAS), Amsterdam Preoperative Anxiety Information Scale (APAIS) and the Multiple Affect Adjective Check List (MAACL). The APAIS is a widely accepted rapid

and short screening tool that was translated and has been used in across the world, including the following countries: Germany (Berth, Petrowski et al. 2007); the Netherlands (Moerman, van Dam et al. 1996), Mexico (del Carmen Gavito, Corona et al. 2000); Thailand (Sirinan, Rungreungvanich et al. 2000); Turkey (Garip, Abalı et al. 2004); Korea (Shin, Kim et al. 1999); and Japan (Nishimori, Moerman et al. 2002).

Significance:

Patients with extreme preoperative anxiety tend to have bronchospasms, extreme tachycardia, hypertension, cardiac arrhythmias, operation cancel, irritability, nausea and vomiting, and many other complications that form a constant threat to life(Bailey 2010, Pokharel, Bhattarai et al. 2011).

In Palestine, no studies have been conducted on anxiety levels among patients undergoing surgery or its contributing factors. Therefore, we will assess the prevalence of preoperative anxiety and its contributing factors among patients undergoing elective surgery.

Aim of study:

The aim of this study is to assess the frequency of preoperative anxiety among patients entering the operation room for elective surgery and identify the contributing factors.

Chapter Two
Literature Review:

Reviewing the literature shows that many studies on preoperative anxiety among adults have been conducted globally.

A cross sectional study conducted in 1996 by Moerman at the University of Amsterdam, in the Department of Clinical Psychology, in the Academic Medical Centre used the Amsterdam Preoperative Anxiety and Information Scale (APAIS). During a period of 3 months with 320 consecutive patients having participated, his study showed that almost one third (32%) of the patients could be considered as having anxiety and 8 in 10 (80%) of patients though positively about obtaining information. The results showed that women were more likely to be anxious than men, patients that had a need for a large amount of information also had higher levels of anxiety, and those who had never had an operation had a higher need for information than those who had (Moerman, van Dam et al. 1996).

Also, a prospective study conducted in 2012 in Sri Lanka, University Surgical Unit, the National Hospital of Sri Lanka applied the Amsterdam Preoperative Anxiety and Information Scale (APAIS) on 100 patients scheduled for elective surgery. The study demonstrated that the prevalence of preoperative anxiety in this group of Sri Lankan patients under study was 76.7%. Females were more anxious than males, and those who had never sustained surgery were more anxious than those who previously had surgery(Matthias and Samarasekera 2012).

Another cross sectional study conducted in the Netherlands in 2007 used the Amsterdam Preoperative Anxiety and Information Scale (APAIS) on 68 inpatients of the orthopaedic department undergoing surgery of the meniscus. The findings were that females developed anxiety (48%) more than men (22%), and that those who had experienced previous surgery developed anxiety more than those who hadn't(Berth, Petrowski et al. 2007).

Across sectional study conducted in Turkey in 2004 used the Amsterdam Preoperative Anxiety and Information Scale (APAIS) as well as Spielberger's State Trait Anxiety Inventory (STAI) in assessing the anxiety of patients who were to have their third molars (or wisdom teeth) taken out in Turkey. A total of 120 patients had their molars removed with use of general anaesthesia. The results indicated that females were significantly more anxious than males; women who had not previously undergone an operation had higher levels of anxiety than other women; patients who had previously had a local anaesthetic and those who had not did not show significantly different amounts of anxiety; there were no differences in anxiety as measured by trait scores; and that patients who wanted a lot of information were more anxious (Garip, Abalı et al. 2004).

Another cross sectional study conducted in Malaysia in 2015 applied the Amsterdam Preoperative Anxiety and Information Scale (APAIS) on 200 patients in the anaesthetic clinic of University Malaya Medical Centre, and showed that females had higher anxiety scores; and that requirement for information was associated with higher anxiety scores. On the other hand,

participants who had previous surgeries had less of a need for information (Mohd, Lai et al. 2015).

A cross sectional study conducted in 1999 in Yale University School of Medicine and Yale-New Haven Hospital, New Haven used the State-Trait Anxiety Inventory (STAI), and showed that the reported incidence of preoperative anxiety in adults ranges from 11% to 80%, depending on the assessment method. The study demonstrated that there is a moderate correlation between baseline anxiety and the amount of the anaesthetic required for the induction and maintenance of anaesthesia (Maranets and Kain 1999).

Another study conducted in 2006 in a hospital in Manitoba, Canada, used the Frequency and Symptom Distress Scale and the Graphical Anxiety Rating Scale, and showed that average uncertainty and anxiety were moderate and were associated with moderate deterioration of functional status. Symptoms of distress were reported as low, although the existence of some symptoms showed a strong relationship with anxiety (P=.0002), which was triangulated with data from semi-structured interviews. Although there was an insignificant relationship between anxiety and uncertainty, interview participants indicated that positive perceptions of uncertainty as an opportunity may have dulled the relationship between uncertainty and anxiety. The study concluded that it is possible to perceive uncertainty as a danger and an opportunity at the same time. The study variables and waiting time were not found to have a statistical relationship. However, there was an insignificant trend toward deterioration of

psychological and physical conditions with longer waits, which may be clinically significant (McCormick, Naimark et al. 2006).

Another study done in the USA included persons having elective surgery and those who had had emergency operations within 24 hours of admission. Anxiety was assessed by the Jacobsen's questionnaire and the Hospital Anxiety and Depression Scale. The study found that around one quarter (23%) of participants felt anxious upon arrival at the operating theatre; 35% had some levels of anxiety at induction of anesthesia; while 12% felt anxious after induction. At start of surgery, 15% of participants had experienced anxiety during surgery A sustained flow of information lessened anxiety levels in almost half (49%) of the patients and the ability to ask questions during the intraoperative period reduced anxiety in more than half of the participants (55%). Seeing technical equipment and surgical instruments increased anxiety in 9% and 6% of the sample, respectively. Patients with more general anxiety and depression also had significantly higher levels of anxiety in the intraoperative period (Haugen, Eide et al. 2009).

A later cross-sectional study also conducted in the USA assessed the preoperative anxiety of 592 inpatients ranging in age from 18 to 60 years old who were scheduled for elective surgery. This study considered patients with an ASA physical status of I-III. The study found that “higher levels of preoperative anxiety were significantly associated with a history of having cancer (odds ratio (OR)=2.26), smoking (OR=7.47), psychiatric disorders (OR=5.93), negative future perception (OR=2.30), moderate to

intense depressive symptoms (3.22), high trait-anxiety (3.83), moderate to intense pain (2.12), medium surgery (OR=1.52), female gender (OR=2.0), ASA category III (OR=3.41), up to 12 years of education (OR=1.36), and more than 12 years of education (OR=1.68).” On the other hand, the patient having had surgery previously (OR=0.61) was associated with lower levels of preoperative anxiety (Eckhouse, Hurd et al. 2014).

A cohort study conducted in the USA in 2013 included 934 men and women with coronary heart disease. The study used the Hospital Anxiety and Depression Scale (HADS) which was administered on patients during their hospitalization for coronary angiography. Depression as well as anxiety are common issues for CHD patients, specifically while in the hospital waiting for a coronary angiography. The study found that anxious patients with co-morbid depression had a 3-fold increased risk of mortality in the 3-year follow-up period. The study recommended that patient assessments of both anxiety and depression are necessary and continually monitored. The study also suggested that patients with higher anxiety confounded by the existence of co-morbid depression are in need of treatment of their anxiety and better monitoring (Watkins, Koch et al. 2013).

A case control study was undertaken in the Ministry of Health Zekai Tahir Burak Women’s Health Training and Research Hospital, Gynaecologic Oncology Service in 2010. The study used the State-Trait Anxiety Inventory scale. The rate of preoperative anxiety was found to be slightly more than half (52%). The study concluded that the gynaecologic patients

who received preoperative instruction had significantly lower anxiety levels than patients who had regular nursing care only. Therefore, the study recommends that nurses are trained to include preoperative practices to reduce anxiety into their routine care, such as relaxation exercises (e.g. taking deep breaths and relaxing muscles). When these practices are implemented with patients, preoperative nursing is more efficient in regulating patients' emotional state (Pinar, Kurt et al. 2011).

A cross sectional study done in a Pakistani surgical hospital from April 1st, 2005 until April 30, 2006) studied 300 adult surgical in-patients with ASA physical status of I or II. The study used the Visual Analogue Scale and the State Trait Anxiety Inventory. There was found to be a significant correlation ($p=0.005$) between educational attainment of the patient and his/her preoperative anxiety. Overall frequency of preoperative anxiety was 62% among participants. Being female, of a younger age, and with a higher education level were factors that were positively correlated with preoperative anxiety. Factors that were found to reduce anxiety were the patient having had surgery previously and the patient having participated in a visit to the preoperative anaesthesia clinic. It was also concluded that the Visual Analogue Scale was matched well with the State Trait Anxiety Inventory Scale in that both scales assess preoperative anxiety effectively (Jafar and Khan 2009).

Another cross-sectional study was conducted in Ethiopia in 2012 using the State Trait Anxiety Inventory Scale (STAIS) as well as quantitative data collection technique in Jimma University Specialized Teaching Hospital.

The study sampled 239 patients scheduled for surgery and showed that 70.3% of preoperative patients had anxiety(Nigussie, Belachew et al. 2014).

In Palestine, there is little research that talks about anxiety, and no research in assessing the prevalence of preoperative anxiety in patients undergoing surgery

Chapter Three
Methodology

Study design and settings:

This is a cross sectional study. The study was conducted in the operation theatre and the pre-anaesthetic room (recovery room) at Rafidia Surgical Hospital in Nablus city, West Bank, Palestine. This hospital represents the most surgical patients in the West Bank (according to Ministry of Health statistics) because it is a referral hospital and receives cases from different socio-economic backgrounds.

Study population:

Adult in-patients scheduled for elective surgery in Rafidia hospital.

Study sample:

A sample of, approximately, 320 patients (in-patients, age between 18 - 60 years, and able to give informed consent) in Rafidia hospital were enrolled in this study. The study sample was taken on a convenient sampling basis. To achieve confidence interval of 95% and standard error of 5%, the following equation was used to calculate the sample size:

$$n' = NZ^2 P(1-P) / d^2 (N-1) + Z^2 P(1-P)$$ [25]

where n' = sample size with finite population correction, N = Population size, Z = Z statistic for a level of confidence, = 1.96 P = Expected

proportion (in proportion of one), and d = Precision (in proportion of one). = .05.

Inclusion and Exclusion criteria:

All in patients undergoing elective surgery, assigned an ASA (American Society of Anaesthesiologists) physical status of I or II, age (18-60), able to give informed consent, and able to answer questions, were enrolled in this study. Illiterate patients, patients with a history of a psychiatric illness, patients taking psychotropic medications, pregnant women, patients of frequent intake of sleeping pills or sedatives, patients having a disease of the central nervous system, patients with cognitive impairment, and alcoholic patients were excluded from the study.

Study Time and Duration:

The duration of study was two months (from 1st April 2016 until 1st June, 2016). The number of elective surgeries who fitted the criteria during the study period was approximately 320 patients and therefore we recruited approximately 400 patients for the study.

Study Tools:

The study tool that we implemented in this study was

the Amsterdam Preoperative Anxiety and Information Scale (APAIS).This scale was first developed in the Netherlands in 1996 by Moerman and colleagues.

This questionnaire consists of six items and is, therefore, an economical instrument (Table 1). The items are rated on a five point scale with the end poles as “not at all” (1) and “extremely” (5). It represents the two scales: anxiety (items 1, 2, 4 and 5) and need-for-information (items 3 and 6). The high acceptance of the APAIS by patients was proven in different studies from which reference values are available for different groups of patients. We researched for an instrument to fulfil our objectives , we did not find a more appropriate clinically applicable instrument in the literature than APAIS, i.e., short, rapid, specifically attuned to the preoperative situation, and easy to interpret, so we decided to apply this instrument. Our main reference was the work of Miller and Mangan(Miller and Mangan 1983, Miller 1987), who studied how the patients cope with the stress of a threatening condition. They differentiated between "monitors" and "blunters," They defined monitors, that people who want to know as much as possible and search actively for information and blunters, that who have no need or even desire for information and try to avoid it (both groups had different characters from each other). This instrument should make us able to distinguish anxious from non-anxious patients and patients who want information from those who do not.

Validity and Reliability of APAIS:

The APAIS was applied in several international studies in departments of ophthalmology (Waterman, Mayer et al. 2002), internal medicine(Lydon, Mc Ginley et al. 1999), in parents of children before surgery(Cassady, Wysocki et al. 1999, Miller, Wysocki et al. 1999), and in testing

preoperative psychosocial interventions(Stoddard, White et al. 2005). The Dutch version(Moerman, van Dam et al. 1996) an English version (Boker, Brownell et al. 2002) and a Japanese version (Nishimori, Moerman et al. 2002) of the APAIS exist with several studies proving the validity with performance properties.

These studies proved a high correlation between the APAIS and the State-Trait Anxiety- Inventory scale (STAI), the Hospital Anxiety and Depression Scale (HADS), and the Visual Analogue Scale (VAS).

Further studies from research groups in Italy(Bulfone and Simone 2005), Mexico (del Carmen Gavito, Corona et al. 2000), Korea(Shin, Kim et al. 1999), Thailand (Sirinan, Rungreungvanich et al. 2000), and Turkey (Garip, Abalı et al. 2004), implementing the APAIS have been published and have proved the validity of APAIS.

Variables and Operational Definitions:

Preoperative anxiety (dependent variable): Is a "universal reaction experienced by patients who are admitted to the hospital for surgery." Just the initial idea of having a surgical procedure can bring about very high levels of anxiety in patients, and also can be described as "an unpleasant state of tension or uneasiness that results from a patient's doubts or fears (from a vast array) before an operation" (Pritchard 2009).

Independent variables: demographic, clinical and risk factors:

ASA Physical Status: The American Society of Anaesthesiologists (ASA) Physical Status classification system was initially created in 1941 by the American Society of Anaesthetists, an organization that later became the ASA. Our purpose of using this grading system is purely to assess the degree of a patient's "illness" or "physical state" prior to selecting the anaesthetic or prior to performing surgery(Owens, Felts et al. 1978).

"ASA Physical Status I - A normal healthy patient

ASA Physical Status II - A patient with mild systemic disease

ASA Physical Status III - A patient with severe systemic disease

ASA Physical Status IV - A patient with severe systemic disease that is a constant threat to life

ASA Physical Status V - A moribund patient who is not expected to survive without the operation

ASA Physical Status VI - A declared brain-dead patient whose organs are being removed for donor purposes" (Owens, Felts et al. 1978).

Age: (18-60) years

Gender: Male/female

Weight: Underweight (BMI less than 18.5), normal (BMI 18.5-24.99), overweight (BMI 25-29.99), or obese (BMI over 30) **(**Table(2)).

Educational level: Illiterate, school, university

Marital status: Single, married, widowed, divorced

Smoker: yes/no

Type of operation: Minor surgeries or major surgeries:

Minor surgery is, any invasive operative procedure in which only skin or mucus membranes and connective tissue is resected, also is any procedure that neither penetrates a body cavity, nor encourages permanent impairment of any body functions(Fingar, Stocks et al. 2006, Moore, Levit et al. 2006) e.g.(laproscopic and endoscopic operations, hernia, hydrocele,varicocele, tonsillectomy, carpal tunnel, ganglion, trigger finger, navus and basal cell carcinoma excision, diagnostic dilatation and curettage, and varicose vien ligation).

Major surgery is, any invasive operative procedure in which a more extensive resection is performed, i.e., a body cavity is entered, organs are removed, or normal anatomy is altered. In general, if a mesenchymal barrier is opened (pleural cavity, peritoneum, meninges) and any procedure related to orthopaedics or extensive tissue dissection or transection(Fingar, Stocks et al. 2006, Moore, Levit et al. 2006), e.g.(open cholecystectomy, hysterectomy, septoplasty, skin graft, maxillary operations, total hip and knee replacement, laminectomy, and bone reconstruction surgeries).

Site of operation: Head, chest, abdomen, pelvic or limb surgeries

Previous surgery: yes/no

Type of anesthesia: General, regional.

Questionnaire:

A form with three parts was designed for the study:

Part 1: contained informed consent.

Part 2: contained demographic data including name, age, gender, and medical record number, level of education, occupation, medical history, current surgery scheduled, and information about any previous surgeries and whether the patient was seen in the preoperative clinic.

Part 3: contained the APAIS

Procedure:

Eligibility of patients for the study was decided by the primary investigator after reviewing the inpatients that were scheduled for surgery on the following day. Recruited patients were visited by the primary investigator on the evening before surgery (preoperative day). After explaining the purpose of the study and instructions for filling out the APAIS, written informed consent was obtained and demographic data recorded by the primary investigator. On the operation day in the preoperative care unit (recovery room), patients were interviewed by the researcher and asked to answer the APAIS six questions and filled in the forms by the researcher at a standardized time of 5 to 10 minutes before admission to the operation room. The patients were asked to assess their level of anxiety by an imaginable scale graded from 1 to 5, in which 1 represents no anxiety, 2 mild, 3 moderate, 4 high, and 5 extreme anxiety. Also, the patients were

asked to assess their need for information about the anaesthesia and/or the operation itself. No patient was administered preoperative anxiolytic, sedative, antipsychotic, or narcotic drugs. A private room was used to recruit all participants and to conduct the interviews.

Ethical Considerations:

Approval for the investigation had been obtained from the local ethics committees and the IRB. Also, agreement was obtained from the hospital director. Potential participants were informed of the study by an information sheet at the preoperative day evening visit.

The patient was informed that taking part in the research is voluntary, so he/she may not choose to take part in this study, or he/she may withdraw from the study at any time. In either case, he/she was informed that he/she would not lose any benefits to which he/she was otherwise entitled. Also, patients were informed that they may receive no benefits from taking part in the study, although the research may give us knowledge that may help patients in the future.

The patient interview took place in the recovery room on a stretcher or chair (as the patient's condition permitted) in an enclosed area with curtains in which only the researcher was present. No real names were mentioned in the study. All data has been coded and no names appeared.

Data Analysis:

SPSS Program has been used for data analysis, and only the results of the patients who completed the study were included. Frequency tables, charts and mean and standard deviation were used to describe the participants as appropriate.

Chapter Four
Results

A total of 320 patients were recruited and interviewed. The mean age ± SD of the sample was 37.20 ± 10.99 years. The majority of interviewed patients were females (197, 61.6%), married (239, 74.7%), and had no previous surgical operations (225, 70.3%). Less than one third of studied patients had a college education (101, 31.6%) and the majority were scheduled for general anesthesia (267, 83.4%), while the remaining were scheduled for regional anesthesia. Approximately one third of the sample was smokers (108, 33.8%) and less than one half were scheduled for major operation (137, 42.8%).The majority of patients were ASA category I (267, 83.4%). **Table 1** shows the frequencies of various studied variables.

We defined the cut-off point for patients to be considered anxious as equal to or greater than a score of 11 on the APAIS anxiety scale. Patients who made this cut-off would therefore benefit from more attention. Using this reference point, the sensitivity, specificity, and the predictive value were calculated at different cut-off points on the anxiety scale (APAIS). Findings show that the cut-off point of 11 leads to a good balance. Sensitivity and specificity are good and the predictive value is 71% (Carus and Carus , Moerman, van Dam et al. 1996, Berth, Petrowski et al. 2007). [22, 23, 50]

The mean score of pre-operative anaesthesia anxiety (Sum-A) was 4.52 ± 1.95 while that for surgery (Sum-S) was 6.30 ± 1.28. The Sum-S scores were significantly higher than that of Sum-A (**Figure 1**). The sum of

anaesthesia and surgery anxiety scores (Sum-AS) was 10.83 ± 2.12. The mean score for the information desire component of APAIS (IDCS) was 4.48 ± 1. When data for anxiety and information desire components were analysed based on the cut-off points, the results indicated that 184 (57.5%) patients had a total anxiety score (Sum-AS) greater than or equal to 11. The results also indicated that 163 (50.9%) patients indicated a desire for more information about anaesthesia and surgery. Patients with anxiety (score ≥ 11) had significantly (P<0.001) higher IDCS than those with no anxiety (score < 11).

Analysis of Sum-A

Analysis of variables indicated that females had significantly higher Sum-A scores than males (p<0.001: males=4.12 (1.18); females=4.77(1.14)). Analysis also showed that non-smokers had significantly higher Sum-A scores than smokers (p=0.04, non-smokers=4.62 (1.19); smokers=4.33 (1.18)). There was no significant difference in Sum-A scores between those who had a college education and those with a lesser level of education (p=0.46, school education = 4.49 (1.19); college education = 4.59(1.12)). Patients with no previous surgery had significantly higher Sum-A scores than those with a surgical history (p=0.01, previous surgery=4.27 (1.19); no previous surgery =4.64 (1.17)). Patients undergoing minor surgeries had significantly higher Sum-A scores than patients with major surgeries (p=0.001, minor surgery=4.82(1.13), major =4.3(1.2)). Patients with type II ASA had significantly higher Sum-A scores than those with ASA type I (p<0.001, type I=4.43 (1.19); type II=5.00 (1.11)). Patients scheduled for

GA had significantly higher Sum-A scores than those scheduled for regional anaesthesia (p=0.003, general anaesthesia=4.61(1.20); regional anaesthesia =4.06 (1.08)). No significant difference was found between currently married and unmarried patients in Sum-A scores (p=0.44, married=4.55 (1.15); unmarried=4.43 (1.32)). Patients > 40 years of age had no significant difference in Sum-A scores compared with those ≤ 40 years (p=0.48; ≤ 40 years=4.56 (1.23); > 40 years=4.47 (1.15)).

Analysis of Sum-S

Females had significantly higher Sum-S scores than males (p<0.001, males=5.76 (1.31); females=6.64 (1.14)). Analysis also showed that non-smokers had significantly higher Sum-S scores than smokers (p=0.001, non-smokers=6.51 (1.27); smokers=6.0 (1.2)). There was no significant difference in Sum-S scores between those who had college education and those with a lesser level of education (p=0.34, school=6.32 (1.31), college education= 6.27 (1.22)). Patients with no previous surgery had no significantly higher Sum-S scores than those with a surgical history (p=0.41, previous=6.22 (1.50); no previous=6.35 (1.17)).)). Patients undergoing minor surgeries had significantly higher Sum-S scores than patients with major surgeries (p=0.001, minor surgery=6.72(1.18), major =6(1.27)). Patients with type II ASA had significantly higher Sum-S scores than those with ASA type I (p=0.014, type I=6.22 (1.28); type II=6.70 (1.27)). Patients scheduled for general anaesthesia had significantly higher Sum-S scores than those scheduled for regional anaesthesia (p=0.007, GA=6.39 (1.28); RA=5.87 (1.21)). No significant difference was

found between currently married and unmarried patients in Sum-S scores (p=0.1, married=6.23 (1.27), unmarried=6.50 (1.30)). Patients > 40 years of age had no significant difference in Sum-S scores compared with those ≤ 40 years (p= 0.74, less than 40=6.32 (1.27); older than 40=6.27 (1.30)).

Analysis of Sum-AS

Females had significantly higher Sum-AS scores than males (p<0.001, males=9.89 (2.16); females=11.41 (1.89)). Analysis also showed that non-smokers had significantly higher Sum-AS scores than smokers (p<0.001, non-smokers=11.13 (2.07); smokers=10.23 (2.11)). There was no significant difference in Sum-AS scores between those who had a college education and those with a lesser level of education (p=0.83, school=10.81 (2.14); college education=10.86 (2.08)). Patients with no previous surgery did not have significantly higher Sum-AS scores than those with a surgical history (p = 0.052, previous=10.49 (2.23); no previous surgery=10.99 (2.03)).)). Patients undergoing minor surgeries had significantly higher Sum-AS scores than patients with major surgeries (p=0.001, minor surgery=11.53(1.19), major =10.3(2.12)). Patients with type II ASA had significantly higher Sum-AS scores than those with ASA type I (p=0.001, type I=10.65 (2.12); type II=11.70 (1.93)). Patients scheduled for GA had significantly higher Sum-AS scores than those scheduled for regional anaesthesia (p=0.001, GA=11.00 (2.13); RA=9.92 (1.85)). No significant difference was found between currently married and unmarried patients in Sum-AS scores (p=0.58, married=10.79 (2.08), unmarried=10.94 (2.25)). Patients > 40 years of age had no significant difference in Sum-AS scores

compared with those < 40 years (p= 0.55; ≤40=10.88 (2.19); > 40 years=0.74 (2.02)).

Analysis of IDCS

Females did not have significantly higher IDCS scores than males (p=0.24: males=4.40 (1.0); females=4.53 (1.0)). Analysis also showed that non-smokers did not have significantly higher IDCS scores than smokers (p=0.058, smokers=4.56 (1.03); non-smokers=4.33 (0.91)). There was no significant difference in IDCS scores between those who had a college education and those with a lesser level of education (p=0.68, school=4.47 (1.01); college=4.51 (1.02)). Patients with no previous surgery had significantly higher IDCS scores than those with a surgical history (p < 0.001, previous surgery=4.1 (0.94); no previous=4.65 (0.96)). Patients with type II ASA did not have significantly higher IDCS scores than those with ASA type I (p=0.33, type I=4.46 (1.01); type II=4.6 (0.88)). Patients scheduled for GA had significantly higher IDCS scores than those scheduled for regional anaesthesia (p=0.028, GA=4.54 (1.02); RA=4.2 (0.82)). No significant difference was found between currently married and unmarried patients in IDCS scores (p=0.60, married=4.46 (1.0); un-married=4.53 (1.07)). Patients > 40 years of age did not have significant differences in IDCS scores compared with those < 40 years (p= 0.25, ≤ 40 years=4.53 (1.03); > 40 years=4.40 (0.93)).

In summary, analysis of variables associated with Sum-A scores indicated that gender, smoking, previous history of surgery, ASA category, type of

surgery and type of anaesthesia were significantly associated with level of anaesthesia anxiety. The same variables, except for history of previous surgery, were significantly associated with Sum-S and Sum-AS scores. For IDCS, the following variables were significantly associated with desire for information: type of surgery, type of anaesthesia, and previous history of surgery (**Table 1**).

Regression Analysis

Both linear and binary logistic regression were used to find significant predictors of anxiety, either as a continuous score (Sum-AS) or as categorical (cut-off point). Variables entered in the regression analysis were those that gave significant results with either Sum-A or Sum-S, plus the knowledge scores. In linear regression, significant predictors were female gender, previous surgery, type of anaesthesia, ASA category, and desire for information about anaesthesia and surgery. Similar results were obtained with binary logistic regression except that the variable ‘previous surgery’ was not found to be a significant predictor in binary logistic regression.

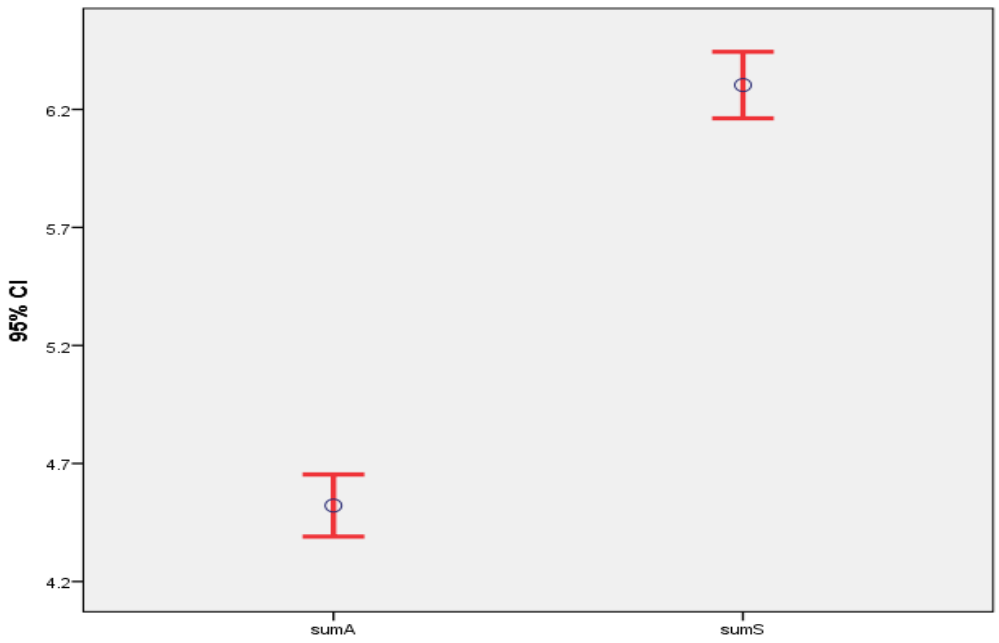
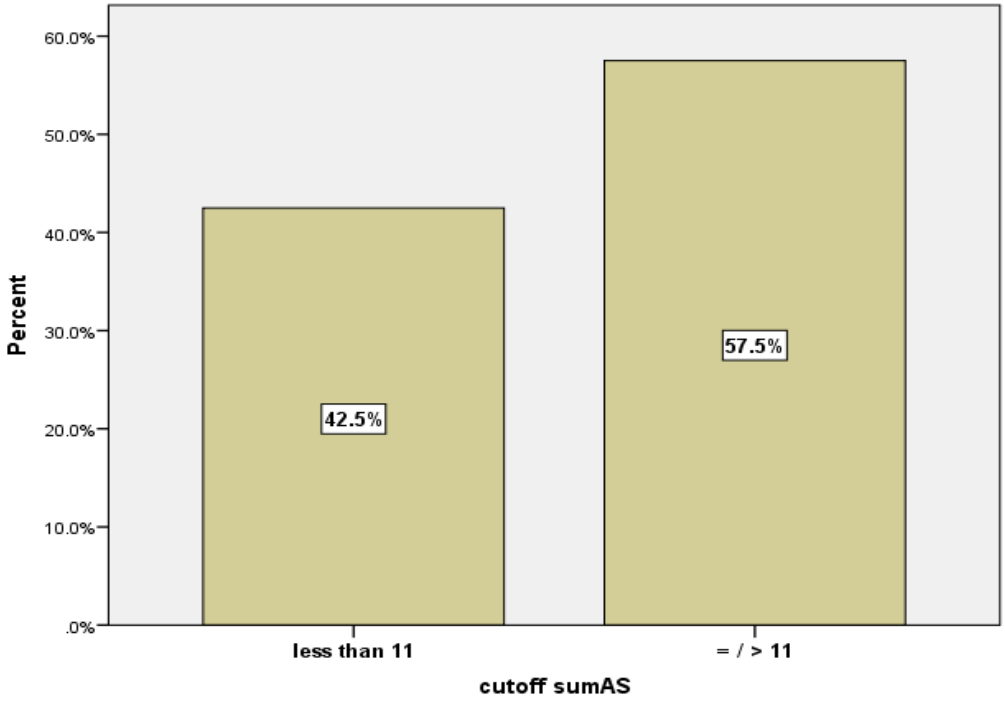


Figure (4. 1): mean ± SD for Sum-A and Sum-S scores Sum-A = APAIS scores for anaesthesia anxiety Sum-S = APAIS scores for surgical anxiety



Figure(4.2): Frequency of patients with scores higher or lesser than the cut off point for Sum-AS Sum-AS: total APAIS scores for anaesthesia and surgery anxiety Cut-off Sum-AS: patients with a total APAIS score ≥ 11 were considered to have anxiety and those less than 11 were not considered to have anxiety.

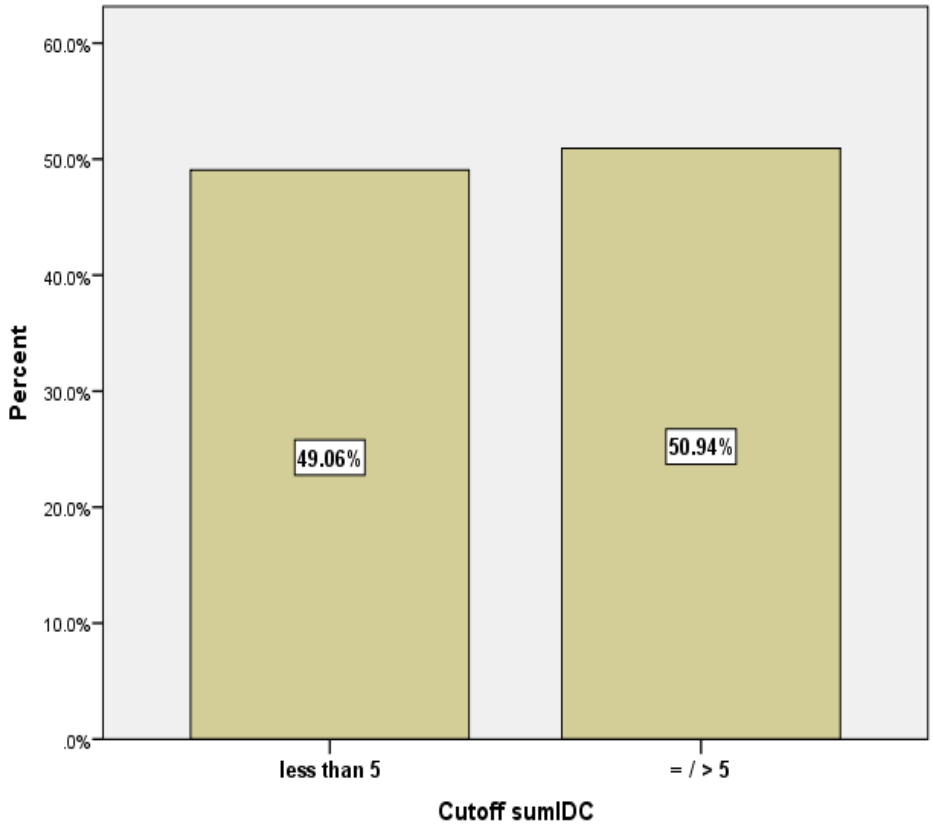


Figure (4.3): Frequency of patients with scores higher or lesser than the cut-off point for Sum-IDCS. Sum-IDCS: total APAIS scores for information desire component. Cut-off Sum-IDC: patients with a total IDC score ≥ 5 were considered to need information about anaesthesia and surgery and those less than 5 were not considered to need more information about anaesthesia and surgery.

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Table 1: Characteristics of the study sample and association of APAIS components with various variables

Characteristics	N	Sum-A	Sum-S	Sum-AS	IDCS	Comments
Age ≤ 40 years (0) >40 years (1) P value	 189 131	 4.56 (1.23) 4.47 (1.15) 0.48	 6.32 (1.27) 6.27 (1.30) 0.74	 10.88 (2.19) 10.74 (2.02) 0.55	4.53 (1.03) 4.40 (0.93) 0.25	No significant difference
Gender Male (1) Female (0) P value	 123 197	 4.12 (1.18) 4.77 (1.14) < 0.001	 5.76 (1.31) 6.64 (1.14) < 0.001	 9.89 (2.16) 11.41 (1.89) <0.001	 4.40 (1.0) 4.53 (1.0) 0.24	Females had significantly higher than males
Smoker Yes (1) No (0) P value	 108 212	 4.33 (1.18) 4.62 (1.19) 0.044	 6.0 (1.2) 6.51 (1.27) <0.001	 10.23 (2.11) 11.13 (2.07) <0.001	 4.33 (0.91) 4.56 (1.03) 0.058	Non-smokers had significantly higher scores
Education ≤school (0) ≥College (1) P value	 219 101	 4.49 (1.19) 4.59 (1.21) 0.46	 6.32 (1.31) 6.27 (1.22) 0.34	 10.81 (2.14) 10.86 (2.08) 0.83	 4.47 (1.0) 4.51 (1.02) 0.68	No significant difference
Previous Surgery Yes (1) No (0) P value	 94 225	 4.27 (1.19) 4.64 (1.17) 0.01	 6.22 (1.50) 6.35 (1.17) 0.41	 10.49 (2.23) 10.99 (2.03) 0.052	 4.1 (0.94) 4.65 (0.96) <0.001	no previous surgery had significantly higher scores
Anaesthesia GA RA P value	 267 53	 4.61 (1.20) 4.06 (1.08) 0.002	 6.39 (1.28) 5.87 (1.21) 0.007	 11.00 (2.13) 9.92 (1.85) 0.001	 4.54 (1.02) 4.21 (0.82) 0.028	GA had significantly higher scores
ASA Type I (1) Type II (2) P value	 267 53	 4.43 (1.19) 5.00 (1.11) <0.001	 6.22 (1.28) 6.70 (1.22) 0.014	 10.65 (2.12) 11.70 (1.93) 0.001	 4.46 (1.01) 4.60 (0.88) 0.33	Type II had significantly higher scores

Married Yes No P value	239 81	4.55 (1.15) 4.43 (1.32) 0.44	6.23 (1.27) 6.50 (1.30) 0.1	10.79 (2.08) 10.94 (2.25) 0.58	4.46 (1.0) 4.53 (1.07) 0.60	No significant difference
Major surgery Yes No P value	137 183	4.3 (1.2) 4.82 (1.13) <0.001	6 (1.27) 6.72 (1.18) < 0.001	10.30 (2.12) 11.53 (1.19) <0.001	4.38 (1.04) 4.62 (0.92) 0.03	major surgery had significantly lesser scores

Table 2: Sum-IDCS Category Knowledge Desire A

Variable	B	Sig.	95.0% Confidence Interval for B	
			Lower Bound	Upper Bound
Gender	-1.370	.000	-1.835	-.905
Smoking	.103	.670	-.372	.578
Previous surgery	-.591	.012	-1.050	-.133
Type of Anaesthesia	.666	.018	.116	1.215
ASA	1.087	.000	.523	1.651
Sum-IDCS categ.	1.564	.000	1.167	1.962

Table 3: Sum-IDCS Category Knowledge Desire B

Variable	B	Sig.	Exp. (B)	95% C.I.for EXP(B)	
				Lower	Upper
Gender	-1.054	.001	.349	.186	.652
Smoking	-.400	.208	.671	.360	1.249
Previous surgery	-.543	.096	.581	.307	1.101
Type of Anaesthesia	1.043	.008	2.838	1.321	6.099
ASA category	1.436	.002	4.203	1.697	10.408
Sum-IDCS categ.	1.696	.000	5.452	3.146	9.448

Chapter Five
Discussion

Anxiety is a normal response to stressful situations, such as surgery. Most patients experience anxiety preoperatively while they are waiting for surgery, which is accepted as a natural response (Yilmaz, Sezer et al. 2012). Assessment and quantifying of the preoperative anxiety it is difficult, as is the assessment of pain. Many researchers have developed various methods for quantifying anxiety, most of which are self-reporting questionnaires, or more objective measurement of stress hormones, both of which have limitations. Among these variable tools, the Amsterdam Preoperative Anxiety and Information Scale (APAIS), which is short and available in different languages, is specifically attuned to the preoperative situation and easy to interpret. The tool has shown consistent effectiveness in assessment of preoperative anxiety in different, diverse populations.

Our study showed that the prevalence of preoperative anxiety in the study group of surgical patients in Rafidia Surgical Hospital was 57.5% with an APAIS score of 11 or more. The cut-off value of 11 produces a good predictive value and is suitable for identifying anxious patients(Matthias and Samarasekera 2012).

The prevalence of 57.5% is higher than in studies done in many American and European countries, which showed values ranging from 32% in a study done on patients awaiting general surgery (Moerman, van Dam et al. 1996) to 50% in patients awaiting coronary artery bypass graft surgery (CABG)

(Koivula, Paunonen-Ilmonen et al. 2001). The results, on the other hand, are consistent with the results in the developing countries, which have shown values ranging from 52% in a study done in Pakistan on surgical patients waiting for surgery(Pinar, Kurt et al. 2011) to 76% in a study conducted in Sri Lanka on adult inpatients waiting for elective surgery(Matthias and Samarasekera 2012). A relatively higher prevalence in our patients could be referred to many causes. Palestine still a developing country, with a free health care system (health care, either curative or preventive, is provided freely in government hospitals, such as Rafidia Hospital which was targeted for this study, and other governmental healthcare institutions). The governmental hospitals in Palestine mainly provide aid for poor and middle-class patients. Trust and respect of surgeons is built fairly into the Palestinian culture. Therefore, few doubts are normally raised during discussions with doctors due to the social barrier and respect for the doctors. As a result, concerns over surgery and anaesthesia are hidden. In addition, there are few conferences and patient-based support groups for discussing the issues related to their anxiety.

The analysis of variables indicated that female patients are significantly more anxious than males, which is also consistent with many other studies(Domar, Everett et al. 1989, Kindler, Harms et al. 2000, Sirinan, Rungreungvanich et al. 2000, Nishimori, Moerman et al. 2002, Berth, Petrowski et al. 2007).

This study has shown that patients scheduled for GA had significantly higher anxiety scores than those scheduled for regional anaesthesia.

Previous studies have shown that patients who are unable to cope with the additional challenges of being awake during surgery request GA(Shevde and Panagopoulos 1992, Kindler, Harms et al. 2000, Senel and Mergan 2014). In addition, fear of regional block not working and needle phobia are additional causes of anxiety preventing patients to choose RA(Jlala, Bedforth et al. 2010). Thus, preoperative anxiety due to multiple reasons may affect the patient's selection of anaesthesia type.

Patients with no previous surgery did not have significantly higher anxiety scores than those with surgical history, which is not consistent with the literature, which shows that patients who had not had previous surgery were more anxious than the experienced patients(Carus and Carus , Nishimori, Moerman et al. 2002, Matthias and Samarasekera 2012). This can be explained in that the majority of tested patients in our study were undergoing general surgery, not critical surgeries. However, the study showed higher anesthesia anxiety in patients with no previous surgery, which correlates with the literature(Carus and Carus , Kindler, Harms et al. 2000).

Also, the study showed that patients with type II ASA had significantly higher total anxiety scores than those with ASA type I, which is in line with many studies and literature(Carus and Carus , Norris and Baird 1967, Moerman, van Dam et al. 1996). This is explained in that patients with ASA type II had extra fears and concerns about their health intra-operatively than patients with ASA type I.

Results also showed that non-smokers had significantly higher Sum-AS scores than smokers, which is consistent with other studies which revealed that smoking a cigarette decreases measures of stress(Cohen and Lichtenstein 1990, Warner, Warner et al. 1999). Also nicotine in cigarette smoke may reduce anxiety by blocking the activity of the high affinity beta2 subunit containing nicotinic acetylcholine receptors(Anderson and Brunzell 2012). Moreover, this can be explained also by that, despite the awareness of risks of smoking, the majority of smoker patients are males and also smoking decreases the feeling of stress.

There was no significant difference in anxiety scores between those who had a college education and those with a lesser level of education. The educated patients were more anxious compared to the less educated, but the difference was not statistically significant. The literature also shows conformity of high levels of anxiety among educated patients due to their awareness of complications(Carus and Carus , Domar, Everett et al. 1989, Beilin, Rosenblatt et al. 1996, Boker, Brownell et al. 2002, Jafar and Khan 2009).

The results showed no significant difference in anxiety scores between patients more than 40 years and patients less than 40 years old, which is consistent with many studies and literature(Moerman, van Dam et al. 1996, Nishimori, Moerman et al. 2002, Matthias and Samarasekera 2012). This can be explained in that the patients of the two categories had at least a school education, the patients less than 40 years old trust their young health

and the patients more than 40 years old had positive beliefs in their fate, and both groups are nearly healthy.

Also, the results showed no significant difference was found between currently married and unmarried patients which correlates with literature (Sirinan, Rungreungvanich et al. 2000, Nishimori, Moerman et al. 2002, Matthias and Samarasekera 2012). This can be explained in that both married and unmarried patients had the same fears and concerns about their health in regards to their families. Unmarried patients are worried about their, health, parents and future, while married are worried about their health, children, home, and husbands or wives.

The results revealed that patients undergoing minor surgeries had significantly higher anxiety scores than patients with major surgeries. This interfere with literature(Moerman, van Dam et al. 1996, Jafar and Khan 2009). This explained in that patients with major surgery were mostly between 40 to 60 years old(nearly healthy), and most of the major operations were not critical.

The results indicated that patients of high anxiety scores showed a significant increase in desire for information IDCs (Information Desire Components). This correlates with the relevant literature and many studies(Carus and Carus , Moerman, van Dam et al. 1996, Matthias and Samarasekera 2012).

Also, the results showed that patients scheduled for general anesthesia had significantly higher information-seeking scores than those scheduled for

regional anesthesia, which is consistent with the literature and other studies(Moerman, van Dam et al. 1996, Berth, Petrowski et al. 2007, Matthias and Samarasekera 2012). Patients with no previous surgery had significantly higher information-seeking scores than those with a previous surgical history(Carus and Carus , Moerman, van Dam et al. 1996).

Generally, the variables associated with significant anesthesia-related anxiety were gender, smoking, previous history of surgery, ASA category, type of surgery and type of anaesthesia. The same variables, except for history of previous surgery, were significantly associated with surgery anxiety and anaesthesia with surgery anxiety together. For the information desire component, the following variables were significantly associated with a desire for more information: type of surgery, type of anaesthesia, and previous history of surgery.

Conclusion:

In the presented study, the prevalence of preoperative anxiety is high compared with the results of studies conducted in developed countries, but is correlated with the results from developing countries. Female patients, non-smokers, patients with no previous history of surgery, ASA II patients, minor surgery patients, and patients undergoing surgery under general anaesthesia had significant anxiety levels. Our study showed that patients with high information requirement, females and patients scheduled for general anaesthesia are more anxious preoperatively.

Testing preoperative anxiety is an important step in reducing anxiety. Testing can be easily done with a questionnaire such as APAIS, which is a short and economical instrument, and its validity and reliability has been approved.

Recommendations:

This study advises to provide more information regarding surgery and anaesthesia, which might help in reducing preoperative anxiety levels. Also, it is a must to increase the confidence between patients and (doctors and nurses) by conducting courses for doctors and nurses on building (doctor, nurses)-patient trust.

This study was conducted in one governmental hospital and it is the first study conducted in the assessment of preoperative anxiety levels in Palestine, so further research is needed to be conducted in other governmental and specialized hospitals in Palestine in this field to recognize and identify levels and causes of preoperative anxiety in order to introduce effective methods and strategies that can help in reducing this anxiety.

This study revealed a high level of preoperative anxiety among surgical patients, which emphasizes on the need for new protocols that focus on using definite systems and methods that decrease the high preoperative anxiety level.

Tables and Annexes

جامعة النجاح الوطنية

كلية الدراسات العليا

موافقة للإشتراك في البحث العلمي

الباحث :ايمن محمد مصطفى يعاقبه .رقم الهاتف0599887537 :

اخي/ اختي المشارك/ ة

أنا الباحث الطالب أيمن تخصص تمريض تخدير ,جامعة النجاح الوطنية يسرني ان أدعوك للمشاركة في بحثنا المتعلق بدراسة مدى التوتر والقلق قبل إجراء العملية الجراحية.

لك كامل الحرية والارادة في المشاركة في هذا البحث ولك الحق في اخذ الوقت الكافي للتفكير في المشاركة من عدمها وسؤال الباحث عما تراه مناسبا والتحدث لأي شخص او جهة عن هذا البحث.

كما يمكنك الاستفسار عن اي جزء يتعلق في البحث الان او فيما بعد واذا كانت هناك كلمات او اجزاء غير مفهومة بإمكانك سؤال الباحث وستجد/ين الوقت والاجابة الكافيتين.

نؤكد بان كافة المعلومات التي سوف يتم جمعها منك سوف تستخدم فقط لأغراض البحث العلمي، وسوف يتم الحفاظ على السرية التامة وعدم استخدام هذه المعلومات لأغراض أخرى.

إذا كان لديك أي أسئلة، مخاوف أو شكاوى، يرجى الاتصال بالباحث الرئيسي للدراسة على الارقام المدرجة على الصفحة الأولى من هذه الموافقة.

- **الموافقة على المشاركة في الدراسة**

لقد قرأت الوصف أعلاه من هذه الدراسة .وقد تمت الاجابة على جميع أسئلتي .وأنا أعلم أنه يمكنني ان ارفض المشاركة في أو الانسحاب من الدراسة في أي وقت .وعلى ذلك أعطي موافقتي بحرية على المشاركة في هذه الدراسة.

اسم المريض/ة:

التوقيع: التاريخ:

Prevalence of preoperative anxiety among adult patients undergoing elective surgery questionnaire

This questionnaire will be filled by CRNA in the recovery room (15-20 minutes) preoperatively to describe how much the patient experiences POA(preoperative anxiety) and its contributing factors .

Patient number:( ) **Age:** ( ) **Gender:** (**M** , F)

Weight (kg):( ) **Educational level :**(school, college) **Marital status:**(Single, married,) **Companion:**(yes , no) **Relative relation:** ( ) **Smoking:** (yes , no)

Familiar of surgeon: (yes , no)

Name of operation(Dx): ( )

Type of operation: (moderate, major)

Site of operation: (chest, abdomen, pelvis, limb)

Previous surgery: (yes , no) **Type of anaesthesia:** (general, regional) **ASA Physical Status** : ((**1**) **,** (**2**))

Table (4) Amsterdam Preoperative Anxiety and Information Scale (APAIS):

		Not at all				Very much
		1	2	3	4	5
1-	I am worried about the anaesthetic					
2-	The anaesthetic is on my mind continually					
3-	I would like to know as much as possible about the anaesthetic					
4-	I am worried about the procedure					
5-	The procedure is on my mind continually					
6-	I would like to know as much as possible about the procedure					

References

- Akinsulore, A., A. M. Owojuyigbe, A. F. Faponle and F. O. Fatoye (2015). "***Assessment of preoperative and postoperative anxiety among elective major surgery patients in a tertiary hospital in Nigeria.***" **Middle East Journal of Anesthesiology 23**: 235-240.

- Anderson, S. M. and D. H. Brunzell (2012). "**Low dose nicotine and antagonism of β2 subunit containing nicotinic acetylcholine receptors have similar effects on affective behavior in mice.**" PLoS One **7**(11): e48665.

- Bailey, L. (2010). "***Strategies for decreasing patient anxiety in the perioperative setting.***" **AORN journal 92**(4): 445-460.

- Beilin, Y., M. Rosenblatt, C. Bodian, M. Lagmay-Aroesty and H. Bernstein (1996). ***"Information and concerns about obstetric anesthesia: a survey of 320 obstetric patients.***" **International journal of obstetric anesthesia 5**(3): 145-151.

- Berth, H., K. Petrowski and F. Balck (2007). "**The Amsterdam Preoperative Anxiety and Information Scale (APAIS)-the first trial of a German version."** GMS Psycho-Social Medicine **4**.

- Boker, A., L. Brownell and N. Donen (2002). ***"The Amsterdam preoperative anxiety and information scale provides a simple and reliable measure of preoperative anxiety."*** **Canadian Journal of Anesthesia 49**(8): 792-798.

- Bulfone, G. and R. Simone (2005). "**Ansia e fabbisogno informativo nella fase preoperatoria.**" Nurs Oggi **4**: 40-46.

- Carus, K. P.-U. C. G. and F. B.-U. C. G. Carus "**The Amsterdam Preoperative Anxiety and Information Scale (APAIS)-the first trial of a German version Die Amsterdam Preoperative Anxiety and Information Scale (APAIS)-erste Erprobung einer deutschsprachigen Version".**

- Cassady, J. F., T. T. Wysocki, K. M. Miller, D. D. Cancel and N. Izenberg (1999). "**Use of a preanesthetic video for facilitation of parental education and anxiolysis before pediatric ambulatory surgery.**" Anesthesia & Analgesia **88**(2): 246-250.

- Caumo, W., A. Schmidt, C. Schneider, J. Bergmann, C. Iwamoto, L. Adamatti, D. Bandeira and M. Ferreira (2002). "**Preoperative predictors of moderate to intense acute postoperative pain in patients undergoing abdominal surgery.**" Acta Anaesthesiologica Scandinavica **46**(10): 1265-1271.

- Caumo, W., A. P. Schmidt, C. N. Schneider, J. Bergmann, C. Iwamoto, D. Bandeira and M. B. C. Ferreira (2001). "**Risk factors for preoperative anxiety in adults.**" Acta Anaesthesiologica Scandinavica **45**(3): 298-307.

- Cohen, S. and E. Lichtenstein (1990). "**Perceived stress, quitting smoking, and smoking relapse.**" Health Psychology **9**(4): 466.

- David, S., S. A. David, A. C. Ayers and I. Boniwell (2014). **The Oxford handbook of happiness,** Oxford University Press.

- del Carmen Gavito, M., M. Á. Corona, M. E. Villagrán, J. Morales, J. L. Tellez and H. A. Ortega-Soto (2000). "**La información anestésica quirúrgica: su efecto sobre la ansiedad y el dolor de los pacientes toracotomizados.**" Rev. Inst .Nal Enf Resp Mex **13**(3): 153-156.

- Domar, A. D., L. L. Everett and M. G. Keller (1989). "**Preoperative Anxiety: Is It a Predictable Entity?"** Anesthesia & Analgesia **69**(6): 763-767.

- Eckhouse, D. R., M. Hurd, S. Cotter-Schaufele, S. Sulo, M. Sokolowski and L .Barbour (2014). **"A randomized controlled trial to determine the effects of music and relaxation interventions on perceived anxiety in hospitalized patients receiving orthopaedic or cancer treatment.**" Orthopaedic Nursing **33**(6): 342-351.

- Elizur, Y. and E. Hirsh (1999). "***Psychosocial adjustment and mental health two months after coronary artery bypass surgery: A multisystemic analysis of patients' resources.***" **Journal of Behavioral Medicine 22**(2): 157-177.

- Fingar, K., C. Stocks, A. Weiss and C. Steiner (2006**" .**(**Most Frequent Operating Room Procedures Performed in US Hospitals**, 2003–2012: Statistical Brief# 186".

- Freitas-Ferrari, M. C., J. E. Hallak, C. Trzesniak, A. Santos Filho, J. P. Machado-de-Sousa, M. H. N. Chagas, A. E. Nardi and J. A. S. Crippa (2010**" .(Neuroimaging in social anxiety disorder: a systematic review of the literature."** Progress in Neuro-Psychopharmacology and Biological Psychiatry **34**(4): 565-580.

- Garip, H., O. Abalı, K. Göker, Ü. Göktürk and Y. Garip (2004). ***"Anxiety and extraction of third molars in Turkish patients.***" **British Journal of Oral and Maxillofacial Surgery 42**(6): 551-554.

- Haugen, A. S., G. E. Eide, M. V. Olsen, B. Haukeland, Å. R. Remme and A. K. Wahl (2009). ***"Anxiety in the operating theatre: a study of frequency and environmental impact in patients having local, plexus or regional anaesthesia."*** **Journal of clinical Nursing 18**(16): 2301-2310.

- Jafar, M. F. and F. A. Khan (2009). ***"Frequency of preoperative anxiety in Pakistani surgical patients."*** **Journal of the Pakistan Medical Association 59**(6): 359.

- Janis, I. L. (2016). **Psychological stress: Psychoanalytic and behavioral studies of surgical patients,** Academic Press.

- Jlala, H. A., N. M. Bedforth and J. G. Hardman (2010). "**Anesthesiologists' perception of patients' anxiety under regional anesthesia.**" Local Reg Anesth **3**(8): 65-71.

- Kain, Z. N., F. Sevarino, G. M. Alexander, S. Pincus and L. C. Mayes (2000). "***Preoperative anxiety and postoperative pain in women undergoing hysterectomy: A repeated-measures design.***" **Journal of psychosomatic research 49**(6): 417-422.

- Karanci, A. and G. Dirik (2003). ***"Predictors of pre-and postoperative anxiety in emergency surgery patients."*** **Journal of psychosomatic research 55**(4): 363-369.

- Kindler, C. H., C. Harms, F. Amsler, T. Ihde-Scholl and D. Scheidegger (2000). "**The visual analog scale allows effective measurement of preoperative anxiety and detection of patients' anesthetic concerns."** Anesthesia & Analgesia **90**(3): 706-712.

- Koivula, M., M. Paunonen-Ilmonen, M.-T. Tarkka, M. Tarkka and P. Laippala (2001). "***Fear and anxiety in patients awaiting coronary artery bypass grafting."*** **Heart & Lung: The Journal of Acute and Critical Care** 30(4): 302-311.

- Kopp, M., H. Bonatti, C. Haller, G. Rumpold, W. Söllner, B. Holzner, H. Schweigkofler, F. Aigner, H. Hinterhuber and V. Günther (2003). ***"Life satisfaction and active coping style are important predictors of recovery from surgery."*** **Journal of psychosomatic research 55**(4): 371-377.

- Krohne, H. W. and T. de Bruin (1998). "**Streß bei medizinischen Eingriffen: Kritischer Überblick über verschiedene Interventionsansätze."** Zeitschrift für Medizinische Psychologie **7**(1): 3-39.

- LaMontagne, L. L., J. T. Hepworth, F. Cohen and M. H. Salisbury (2003). **"Cognitive-behavioral intervention effects on adolescents' anxiety and pain following spinal fusion surgery."** Nursing Research **52**(3): 183-190.

- Lydon, A., J. Mc Ginley, T. Cooke, P. Duggan and G. Shorten (1999). "**Effect of Anxiety on the Rate of Gastric Emptying of Liquids.**" Survey of Anesthesiology **43**(3): 162-163.

- Maranets ,I. and Z. N. Kain (1999). **"Preoperative anxiety and intraoperative anesthetic requirements."** Anesthesia & Analgesia **89**(6): 1346.

- Mark, M. (2003). "***Patient anxiety and modern elective surgery: a literature review.***" **Journal of clinical nursing 12**(6): 806-8.15

- Matthias, A. T. and D. N. Samarasekera (2012). **"Preoperative anxiety in surgical patients-experience of a single unit."** Acta Anaesthesiologica Taiwanica **50**(1): 3-6.

- McCormick, K. M., B. J. Naimark and R. B. Tate (2006). ***"Uncertainty, symptom distress ,anxiety, and functional status in patients awaiting coronary artery bypass surgery."*** **Heart & Lung: The Journal of Acute and Critical Care 35**(1): 34-45.

- Millar, K., M. Jelicic, B. Bonke and A. Asbury (1995). ***"Assessment of preoperative anxiety: comparison of measures in patients awaiting surgery for breast cancer."*** **British Journal of Anaesthesia 74**(2): 180-183.

- Miller, K. M., T. Wysocki, J. F. Cassady, D. Cancel and N. Izenberg (1999). **"Validation of measures of parents' preoperative anxiety and anesthesia knowledge."** Anesthesia & Analgesia **88**(2): 251-257.

- Miller, S. M. (1987). ***"Monitoring and blunting: validation of a questionnaire to assess styles of information seeking under threat."*** **Journal of personality and social psychology 52**(2): 345.

- Miller, S. M .and C. E. Mangan (1983). ***"Interacting effects of information and coping style in adapting to gynecologic stress: should the doctor tell all?"*** **Journal of personality and social psychology 45**(1): 223.

- Moerman, N., F. S. van Dam, M. J. Muller and H. Oosting (1996). **"The Amsterdam preoperative anxiety and information scale (APAIS).**" Anesthesia & Analgesia **82**(3): 445-451.

- Mohd, F. Z., L. Lai and P. Loh (2015). "***Validation of the Malay version of the Amsterdam Preoperative Anxiety and Information Scale (APAIS* ".(The Medical journal of Malaysia 70**(4): 243.

- Moore, B., K. Levit and A. Elixhauser (2006). "**Costs for hospital stays in the United States**, 2012: statistical Brief# 181".

- Nigussie, S., T. Belachew and W. Wolancho (2014). **"Predictors of preoperative anxiety among surgical patients in Jimma University Specialized Teaching Hospital, South Western Ethiopia**." BMC surgery **14**(1): 67.

- Nishimori, M., N. Moerman, S. Fukuhara, F. van Dam, M. Muller, K. Hanaoka and Y. Yamada (2002). "**Translation and validation of the Amsterdam preoperative anxiety and information scale (APAIS) for use in Japan."** Quality of Life Research **11**(4): 361-364.

- Norris, W. and W. Baird (1967). *"**Pre-operative anxiety: a study of the incidence and aetiology**."* **British journal of anaesthesia 39** (6) : 509-503.

- Owens, W. D., J. A. Felts and E. Spitznagel Jr (1978). **"ASA physical status classifications: a study of consistency of ratings."** Anesthesiology **49**(4): 239-243.

- Pinar, G., A. Kurt and T. Gungor (2011). ***"The efficacy of preopoerative instruction in reducing anxiety following gyneoncological surgery: a case control study."*** **World journal of surgical oncology 9**(1): 38.

- Pokharel, K., B. Bhattarai, M. Tripathi, S. Khatiwada and A. Subedi (2011). ***"Nepalese patients' anxiety and concerns before surgery."*** **Journal of clinical anesthesia 23**(5): 372-378.

- Pritchard, M. J. (2009). **"Identifying and assessing anxiety in pre-operative patients."** Nursing Standard **23**(51): 35-40.

- Senel, A. C. and F. Mergan (2014). **"Premedication with midazolam prior to caesarean section has no neonatal adverse effects."** Revista Brasileira de Anestesiologia **64**(1): 16-21.

- Shevde, K. and G. Panagopoulos (1992). **"A Survey of 800 Patients' Knowledge, Attitudes, and Concerns Regarding Anesthesia."** Survey of Anesthesiology **36**(2): 77.

- Shin, W. J., Y. C. Kim, J. H. Yeom, S. Y. Cho, D. H. Lee and D. W. Kim (1999). ***"The Validity of Amsterdam Preoperative Anxiety Information Scale in the Assessment of the Preoperative Anxiety-Compared with hospital anxiety depression scale and visual analogue scale."*** **Korean Journal of Anesthesiology 37**(2): 179-187.

- Sirinan, C., M. Rungreungvanich, A. Vijitpavan and C. Morkchareonpong (2000). ***"Preanesthetic anxiety assessment: HADS versus APAIS."*** **Thai J Anesth 26**: 155-163.

- Sjöling, M., G. Nordahl, N. Olofsson and K. Asplund (2003). **"The impact of preoperative information on state anxiety, postoperative pain and satisfaction with pain management."** Patient education and counseling **51**(2): 169-176.

- Stoddard, J. A., K. S. White, N. A. Covino and L. Strauss (2005) . "***Impact of a brief intervention on patient anxiety prior to day surgery***." **Journal of Clinical Psychology in Medical Settings 12**(2): 99-110.

- Warner, D. O., M. A. Warner, K. P. Offord, D. R. Schroeder, P. Maxson and P. D. Scanlon (1999). ***"Airway obstruction and perioperative complications in smokers undergoing abdominal surgery."*** **The Journal of the American Society of Anesthesiologists 90**(2): 372-379.

- Waterman, H., S. Mayer, M. Lavin, A. Spencer and C. Waterman (2002). "***An evaluation of the administration of sub-Tenon local anaesthesia by a nurse practitioner."*** **British journal of ophthalmology 86**(5): 524-526.

- Watkins, L. L., G. G. Koch, A. Sherwood, J. A. Blumenthal, J. R. Davidson, C. O'Connor and M. H. Sketch (2013). ***"Association of anxiety and depression with all-cause mortality in individuals with coronary heart disease."*** **Journal of the American Heart Association** **2**(2): e000068.

- Weinryb, R. M., J. P. Gustavsson and J. P. Barber (1997). "**Personality predictors of dimensions of psychosocial adjustment after surgery**." Psychosomatic medicine **59**(6): 626-631.

- Yilmaz, M., H. Sezer, H. Gürler and M. Bekar (2012). ***"Predictors of preoperative anxiety in surgical inpatients.***" **Journal of clinical nursing 21**(7- 8): 956-964.

- Zhang, H. (2011). Language anxiety in ESL classroom: a**nalysis of turn-taking patterns in ESL classroom discourse**. 2011 International Conference on Education, Research and Innovation IPEDR.

جامعة النجاح الوطنية
كلية الدراسات العليا

انتشار القلق قبل العمليات الجراحية وعوامل الخطورة المساهمة في تسببه في المرضى البالغين الذين يخضعون لعمليات جراحية مبرمجة

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قدمت هذه الأطروحة استكمالا لمتطلبات الحصول على درجة الماجستير في تمريض التخدير بكلية الدراسات العليا، في جامعة النجاح الوطنية، في نابلس – فلسطين.
2017

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الملخص

الخلفية: يعتبر المبيت في المستشفى وانتظار العملية الجراحية من الاسباب الناشئة الرئيسية للقلق عند المرضى قبل العملية، مما يؤثر بشكل كبير على كل من التخدير والجراحة. حتى الان لم تجرى ابحاث وليس هناك اية بيانات نشرت على مستويات القلق قبل الجراحة في الضفة الغربية(الاراضي الفلسطينية). الغرض من هذه الدراسة هو تقييم مستوى القلق قبل الجراحة بين المرضى الذين ينتظرون لإجراء عملية جراحية مبرمجة في مستشفى رفيديا الحكومي .

منهج البحث: اجريت دراسة مقطعية على 320 مريضا مقرر لهم اجاء عملية جراحية مبرمجة في وحدة العناية قبل الجراحة في مستشفى رفيديا الحكومي في نابلس، الضفة الغربية (الاراضي الفلسطينية). تم استعراض السجلات الطبية للمرضى للحصول على البيانات الديموغرافية، التشخيص الجراحي و الطبي، الادوية، والتاريخ الطبي للمشاركين في الدراسة. جميع المرضى المنومين الذين تم تعيينهم على انهم من الحالة المادية الاولى او الثانية(ASA 1 OR 2) حسب تصنيف جمعية اخصائيي التخدير الامريكية، اعمارهم بين ال 18 و60 سنة، وكانوا قادرين على اعطاء الاجابة عن علم والاجابة على الاسئلة تم ادراجهم في هذه الدراسة. المرضى الاميين، اللذين يعانون من امراض واضطرابات نفسية، النساء الحوامل، والمرضى اللذين يتعاطون الكحول تم استبعادهم من هذه الدراسة. تم تطبيق مقياس امستردام للقلق والمعلومات قبل الجراحة (APAIS) لتقييم مستوى القلق لدى المرضى، وتم تطبيق برنامج SPSS للتحليل الاحصائي والوصف.

النتائج: كان متوسط عمر العينة 10.99 ± 37.20 عاما، كانت الغالبية العظمى من المرضى اناث(197;61.6%)، متزوجون (239;74.7%) ليس لديهم عمليات جراحية سابقة (225;70.3%). اقل من ثلث المرضى حصلوا على التعليم الجامعي(101;31.6%)، واغلبيتهم مقرر لهم التخدير العام(267;83.4%) ، بينما البقية مقرر لهم التخدير الناحي. ما يقارب ثلث العينة كانوا مدخنين(108;33%)، واقل من النصف كان مقرر لهم عملية كبيرة (137;42.8%) غالبية المرضى كانوا من الحالة المادية الاولى (267;83.4%)ASA1 .

باستخدام النقطة الفاصلة ;11المرضى اللذين يسجل لهم درجة قلق 11≤ على مقياس القلق ال APAIS يعتبروا قلقين. التحليل اظهر ان (57.5%)184 من المرضى كانوا قلقين. كما اشارت النتائج ان (50.9%)163 من المرضى ابدى رغبة في مزيد من المعلومات حول التخدير والجراحة. الاناث اكثر قلقا من الذكور .(p<0.001) اظهر التحليل ايضا ان غير المدخنين اكثر قلقا من المدخنين(p<0.001) . لم يكن هناك اختلاف كبير في درجات القلق بين اولئك الذين لديهم التعليم الجامعي والذين لديهم مستويات اقل من التعليم(p=0.83) . المرضى الذين ليس لديهم عمليات سابقة ليس لديهم مستوى قلق اعلى من الذين لديهم عمليات سابقة (p=0.052). المرضى الذين لديهم ASAII درجات القلق لديهم اعلى بكثير من الذين لديهم ASAI. وكذلك كانت درجات القلق عند المرضى المقرر لهم التخدير العام اعلى بكثير من المرضى المقرر لهم التخدير الناحي (p=0.001). لم يتم العثور على اختلاف كبير بين المرضى المتزوجين و غير المتزوجين حاليا في درجات القلق (p=0.58). وكذلك تبين عدم وجود فرق كبير في درجات القلق بين المرضى الذين اعمارهم فوق الاربعين واللذين اعمارهم تحت الاربعين عاما (p=0.55).

اظهرت النتائج ايضا ان المرضى القلقين لديهم رغبة اكثر في الحصول على معلومات عن التخدير والجراحة من المرضى غير القلقين.

الاستنتاج: ان مستوى انتشار القلق قبل الجراحة في الضفة الغربية مرتفع مقارنة بالدول المتقدمة، ولكنه يتماشى مع مستوى الانتشار في الدول النامية. وكان المرضى الاناث، الغير مدخنين، اللذين ليس لهم تاريخ جراحي سابق، والمرضى المقرر لهم عملية جراحية تحت التخدير العام اكثر قلقا

قبل الجراحة. وكذلك تبين ان المرضى الذين ابدوا رغبة عالية في الحصول على مزيد من المعلمات حول التخدير والجراحة كانوا اكثر قلقا.

ان فحص مستوى القلق قبل الجراحة يعتبر خطوة هامة في الحد من القلق. ان عملية الاختبار يمكن القيام بها بسهولة واختصار للوقت مع استبيان مثل APAIS، وهو اداة اقتصادية وقصيرة وتمت الموافقة على صحتها وموثوقيتها.

التوصيات: تنصح هذه الدراسة بتقديم المزيد من المعلومات للمرضى حول الجراحة والتخدير التي بدورها قد تساعد في خفض مستويات القلق قبل الجراحة. ايضا، فانه امر لا بد منه لزيادة الثقة بين المرضى والفريق الطبي(الاطباء والتمريض تحديدا) من خلال عقد دورات تدريبية للأطباء والتمريض على بناء الثقة بين الاطباء والتمريض من جهة وبين المريض من جهة اخرى.

هذه الدراسة اجريت في مستشفى حكومي مركزي واحد وهذه اول دراسة اجريت في تقييم مستويات القلق قبل الجراحة في مستشفيات الضفة الغربية، لذلك هناك حاجة لإجراء مزيد من الابحاث في المستشفيات الحكومية والخاصة في الضفة الغربية في هذا المجال للتعرف على القلق قبل الجراحة وتحديد مستوياته واسبابه بشكل اشمل من اجل ادخال الاساليب والاستراتيجيات الفعالة التي يمكن ان تساعد في الحد من هذا القلق.