

Preoperative Anxiety in the Tertiary Care Hospitals of Sousse, Tunisia: Prevalence and Predictors

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Abstract

Background: Preoperative anxiety is crucial for the surgery outcome, the post operative recovery and the hospitalization cost.

Aims: To determine the prevalence of preoperative anxiety and its predictors among elective surgery patients in Sousse, Tunisia.

Methods: Cross sectional study was conducted in the 2 tertiary care hospitals of the region of Sousse, Tunisia during March 2016. All patients scheduled for elective surgery in 5 randomly selected surgery departments were included. Data were collected on the hospitals wards within 24 hours before surgery using the Amsterdam Preoperative Anxiety Information Scale.

Results: Participants accounted for 332. Their mean age was 47.5 (± 15.5) years. Females represented 53%. Preoperative anxiety was identified among 67.5% of them while 42.2% had important need for information. High grade of surgery and high level of information requirement were the main predictors of preoperative anxiety with adjusted odds ratios of 9 (CI95% : 3.4-23.8) and 1.5 (CI95% : 1.3-1.7) respectively.

Conclusion: High prevalence of preoperative anxiety and important need for information were identified among elective surgery patients of Sousse. Doctors should enhance their communication skills and attribute much more time for communication with their patients before surgery.

Key words: Anxiety; Preoperative Period; Prevention And Control

Introduction

Despite the progress of surgical and anesthesia procedures during the previous decades, surgery is still a fearful experience for most patients [1]. In fact, several studies highlighted that over 60% of patients from different surgical settings have experienced preoperative anxiety [2]. These patients are usually afraid of a threatening event ranging from functional complication to the death as a consequence to the anesthesia induction or the surgical technique [3,4]. Preoperative anxiety has a great influence on the surgery outcomes. It could cause hypertension, increase heart rate, and thus, might lead to bleeding [5]. Besides, it has been shown that high level of preoperative anxiety is correlated with an increased postoperative analgesic requirement [6]. It could also increase the need for anesthetics [7]. Accordingly, because

of a decreased physical activity, an increased risk of bowel upset, phlebitis and hospital-acquired infection; preoperative anxiety may slow down postoperative recovery and increase the cost of hospitalization [8,9].

Several factors were identified to be associated with preoperative anxiety such as: the gender, the age, the education level, the surgery type, the anesthesia type, previous experiences of hospital stay...etc. However, there is contradictory results about some of these factors [4,10-19].

In Tunisia, several studies focused on the surgery outcomes but few authors focused on the psychological well being of surgery patients. Thus, the aims of this study were to determine the prevalence of preoperative anxiety among patients in the tertiary care hospitals of Sousse and to identify its related factors.

Methods

Study design

Cross sectional study was conducted in the 2 university hospitals of the region of Sousse, Tunisia during March 2016 among patients scheduled for elective surgery.

Population study

Sample size calculation based on a precision of 5%, an expected prevalence of preoperative anxiety of 70% and confidence level of 95% gave a required sample of at least 323 patients [2]. For this, all patients aged between 18 and 80 years and scheduled for elective surgery on March 2016 in 5 randomly selected surgery departments (Orthopedics, Gynecology, Urology and the 2 General surgery departments of the region) were included. Those hospitalized for urgent surgery, unable to respond to the questionnaire for psychiatric reasons, communication handicap or did not give consent were not included.

Data collection

Trained researchers collected data prospectively on the hospitals wards within 24 hours before surgery. Collected data included the socio-demographic characteristics, the patient's history, the planned surgery, the anesthesia type and the levels of

information requirement and preoperative anxiety. The planned surgeries were classified into minor, intermediate and major interventions, following the NICE (National Institute for Health and Care Excellence) guidelines [20]. The tool used to measure preoperative anxiety was the Amsterdam Preoperative Anxiety Information Scale (APAIS) developed by Nelly Moerman and previously validated against other scales with good sensitivity and strong specificity for clinically significant anxiety [21,22,23]. The cross cultural adaptation of the scale was ensured as proposed by Guiliemin: Firstly, the scale was translated in Arabic by 3 bilingual experts previously informed about the study purpose [24]. Then the Arabic scale version was retranslated to English by 3 other bilingual experts. Finally, a group of multidisciplinary experts (Psychiatry, Public Health and Sociology) ensured that the Arabic version was clear, relevant and preserves the original meaning. The final version was pretested among 20 surgical patients. The scale consists of 6 questions: 4 questions to determine global anxiety score and 2 questions to determine the information requirement score. The global anxiety scale is sub-grouped into two components: anesthesia-related anxiety (2 questions) and surgery-related anxiety (2 questions). All questions were scored on a 1 to 5 Likert scale. For the global anxiety scale, sum score range from 4 to 20. Anxious patients were those who have a sum score upper than 10 [22,23]. For the information scale, sum score range from 2 to 10 grouped into low (2 to 4), medium (5 to 7) and high (8 to 10) need for information [22,23].

Data analysis

Data were examined using SPSS Statistics for Windows, version 18.0 (SPSS Inc., Chicago, USA). Descriptive statistics were expressed as proportions for categorical variables and means for quantitative variables. Differences between groups were examined using Student's t-test to compare means and Chi square test to compare proportions. All factors that were significant at the 20% level were included in a multivariable model. The dependent variable "preoperative anxiety" was coded in two categories (yes and no). Then, a stepwise backward approach was used to select the independent variables significantly associated with preoperative anxiety for the final model. Results of logistic models were expressed as odds ratios (ORs) with confidence level of 95%. All statistical tests were 2-tailed, and p values <0.05 were considered statistically significant.

Ethical considerations

This study was undertaken with respect of the rights and integrity of patient. Permission was obtained from the ethical committee of the Faculty of Medicine of Sousse. Verbal informed consent was obtained from all participants. Participation was voluntary, and the patients did not receive any payment. Confidentiality and anonymity were ensured by coding data collection sheets.

Results

The responses of 332 surgical patients were obtained. Participant's mean age was 47.5 (± 15.5) years. Females represented 53% of them. More details about their socio-

demographic characteristics are shown in [Table1]. The mean waiting time for surgery was 42 (± 59) days. Among respondents, 76.5% were scheduled for an intermediate grade surgery and 65.4% were operated under general anesthesia. More details about the participant's medical characteristics are resumed in table1. The mean global anxiety score was 13.1 (± 3.5). Preoperative anxiety was identified among 67.5% of participants. Only 59 (17.7%) patients reported low need for information about the operation procedure, while 133 (40.1%) had medium need for information and 140 (42.2%) had important need for information [Table 2].

Table 1: Socio-demographic and medical characteristics of the participants (n=332):

Characteristics	N (%)
Sociodemographic characteristics	
Female	176 (53)
Urban origin	176 (53)
Illiterate or have primary educational level	181 (54.5)
Married	314 (94.6)
Medical characteristics	
Previously operated	135 (40.7)
Hospital ward	
General surgery	165 (49.7)
Urology	48 (14.5)
Gynecology	74 (22.3)
Orthopedics	45 (13.6)
Grade of surgery	
Major	78 (23.5)
Intermediate	254 (76.5)
Anesthesia type	
General	217 (65.4)
Regional	115 (34.6)

Table 2: Results of the APAIS scale among the participants. (n=332):

APAIS scale components	Mean (\pm SD)	n(%)
Global anxiety score	13.1 (3.5)	
Global anxiety score > 10		224 (67.5)
Surgery anxiety score	8.2 (1.9)	
Anesthesia anxiety score	4.9 (2.1)	
Information score	6.7 (2.2)	
2-4		59 (17.7)
5-7		133 (40.1%)
8-10		140 (42.2%)

No socio-demographic characteristic was significantly associated to preoperative anxiety among participants [Table 3]. Besides, preoperative anxiety prevalence did not vary between the different surgical departments table 3. While, it was revealed that extended waiting time before surgery was significantly associated to preoperative anxiety ($p=0.001$). In addition, information requirement was significantly more important among anxious patients with a mean score of 7.3 (± 2) compared to those not anxious with a mean score of 5.4 (± 2) ($p<0.001$). Concerning anesthesia, general anesthesia was more common

(72.3%) among anxious patients than those not anxious (50.9%) ($p<0.001$). Similarly, major grade surgery was more frequent among anxious patients (32.6%) than those not anxious (4.6%) ($p<0.001$). More details are displayed in table 3.

Binary logistic regression showed that the most influential factors on preoperative anxiety among participants were: the major grade of surgery and the high level of information requirement with adjusted odds ratios of respectively: 9 (CI95% : 3.4-23.8) and 1.5 (CI95% : 1.3-1.7) [Table 4].

Table3: Preoperative anxiety according to the sociodemographic and the medical characteristics of the participants. (n =332):

Characteristics		Preoperative anxiety		p-value
		Yes	No	
Age (years) mean (SD)		46.6 (15.4)	49.3 (15.4)	0.1
Gender	Men n (%)	111 (49.6)	45 (41.7)	0.2
	Women n (%)	113 (50.4)	63 (58.3)	
Origin	Urban n (%)	122 (54.5)	54 (50)	0.4
	Rural n (%)	102 (45.5)	54 (50)	
Study level	Analphabete n (%)	53 (23.7)	35 (32.4)	0.09
	Primary n (%)	63 (28.1)	30 (27.8)	0.9
	Secondary n (%)	80 (35.7)	30 (27.8)	0.15
	University n (%)	28 (12.5)	13 (12)	0.9
Marital status	Married n (%)	171 (77)	89 (82.4)	0.3
	Not married n (%)	51 (23)	19 (17.6)	
Medical History	Have surgical history n (%)	85 (37.9)	50 (46.3)	0.1
	Don't have surgical history n (%)	139 (62.1)	58 (53.7)	
	Duration of surgical history (years) mean(SD)	7.3 (8.7)	4.4 (4.9)	
Waiting time before surgery (days) mean(SD)		48.1 (68.1)	29.5 (30)	0.001
Information score mean(SD)		7.3 (2)	5.4 (2)	<0.001
Anesthesia type	General anesthesia n (%)	162 (72.3)	55 (50.9)	<0.001
	Regional anesthesia n (%)	62 (27.7)	53 (49.1)	
Surgery grade	Major grade	73 (32.6)	5 (4.6)	<0.001
	Intermediate grade	151 (67.4)	103 (95.4)	
Hospital ward	General surgery n(%)	109 (48.7)	56 (51.9)	0.3
	Urology n (%)	38 (17)	10 (9.3)	
	Gynecology n (%)	48 (21.4)	26 (24.1)	
	Orthopedics n (%)	29 (12.9)	16 (14.8)	

Table 4: Binary logistic regression analysis for factors related to preoperative anxiety among the participants. (n =332):

Characteristics	Crude OR (CI _{95%})	p-value	Adjusted OR (CI _{95%})	p-value
Major grade surgery	10 (3.9-25.5)	<0.001	9(3.4-23.8)	<0.001
Intermediate grade surgery	1	-	1	-
Information score	1.5 (1.4-1.7)	<0.001	1.5 (1.3-1.7)	<0.001

Discussion

The current study revealed that preoperative anxiety is frequent among surgery patients reaching 67.5% of them. The main predictors of preoperative anxiety identified among participants were the major grade of surgery and the high level of information requirement.

The prevalence of preoperative anxiety among participants is almost similar to some previous studies in other countries [25,26]. While, other studies reported different rates of anxiety among surgery patients ranging from 32% to 94% [4,19]. This wide range could be explained by the use of different scales to assess preoperative anxiety and by different groups of patients [4].

Concerning the socio-demographic characteristics, the univariable analysis showed no significant difference between males and females within anxiety prevalence which was in conformity with the results of previous studies [1,10]. Whereas, other studies showed that females were more anxious than males [4,11]. In addition, age did not influence the anxiety level among participants. This was in line with the finding of a previous study [4]. However, other authors found that younger patients were more anxious than elder patients [12,27]. While, other authors reported a positive association between age and anxiety [13]. Furthermore, no significant association was found between educational level, marital status, previous surgery and preoperative anxiety; in opposition to other studies [4,14,15]. These findings substantiate that further studies with larger sample size are required to clarify the socio-demographic predictors of preoperative anxiety. The univariable analysis showed also that an extended waiting time of surgery was associated with higher anxiety score among participants. This finding is consistent with several previous studies which suggested that preoperative waiting represents a trigger for anxiety [28,29]. Besides, compared to local anesthesia, general anesthesia was significantly associated to preoperative anxiety. A previous study among patients selecting either general or regional anesthesia showed higher anxiety level in patients selecting general anesthesia compared to those opting for regional anesthesia [18]. It seems that the use of needles and mask during anesthesia induction as well as fear of waking up during the surgery or not waking afterwards are the most sources of anxiety [30].

The multivariable analysis showed that major grade surgery was the main predictor of preoperative anxiety. Earlier studies showed that the highest scores of anxiety were recorded during complex surgeries such in oncology, cardiac surgery and neurosurgery [5,16,17,31,32].

Nevertheless, other studies highlighted a higher level of anxiety in patients undergoing intermediate surgery [4,17]. These findings might be explained by different conceptions of both: the disease and the operation risks [17].

The multivariable analysis highlighted that high information requirement is another predictor of preoperative anxiety among participants which join previous studies findings showing that

receiving information about their surgery method, its risks and the recovery delay reduces preoperative anxiety [5,15].

In Tunisia, most studies conducted in surgical patients focused on the surgical outcomes. The current study is one of the rare studies focusing on the psychological well being of surgical patients. In addition, unlike several other studies, the current study has the advantage of measuring preoperative anxiety in 5 different surgery departments. However, the present study has some limitations that should be mentioned. Firstly, because of the cross-sectional nature of the study, it was not possible to report causal relationships but only simple associations. Another limitation is that preoperative anxiety was measured within 24 hours before surgery which could not reflect the anxiety level just before surgery and may lead to underestimate the real anxiety level. While measuring anxiety just before surgery could interfere with operation preparation and may be disconcerting for the care givers. Finally, cutoff values used to identify significant anxiety and the level of information requirement were based on previous studies in other countries and may not be the adapted cutoff for the Tunisian population. This could be an area of further research.

Surgery patients, especially those undergoing high grade surgery or general anesthesia, should get more attention from both the surgeon and the anesthesiologist in order to redress erroneous beliefs and give the adequate explanations about the operation. Maximizing surgical capacity, better management of waitlists, improving teamwork and optimizing operating room might contribute to reduce waiting time before surgery and provide much more time for communication with patient. Improvement of the communication skills among doctors may contribute to decrease anxiety levels and increase confidence in the healthcare system. Further research on the impact of behavioral preparation, humorous distraction, music therapy and social support before surgery is recommended.

Conclusion

The current study highlighted the high prevalence of preoperative anxiety among elective surgery patients in the tertiary care hospitals of Sousse in different surgical departments. High grade surgery and high level of information requirement were the main predictors of preoperative anxiety. Doctor-patient communication should be enhanced in order to manage preoperative anxiety more efficiently.

Conflicts of interest

The authors declare that they have no competing interests.

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