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E.mail: Solmazhalakou@gmail.com**Address:** Golestan University of
Medical Sciences, Gorgan, Iran**Received: 27 FEB 2017****Accepted: 19 JAN 2018****Introduction:** Surgery and anesthesia are the common practice for anesthetist on the one hand and very worrying for the patient and his family on the other. This fear can have potentially dangerous consequences. The aim of this study was to determine the relationship between the awareness and fear of patients and their companions towards anesthesia.**Methods:** The present study employed a descriptive-analytic design. The instrument was a questionnaire with 38 items consisting of 20 items for fear of anesthesia, 13 items for awareness of anesthesia, and 3 items for the role of anesthesia personnel. The research population included patients undergoing surgery and their companions. The sample population was selected using non-random sampling. Data was analyzed using SPSS software version 16.**Results:** In this study, 328 patients and 325 patients' companions (n = 653) were enrolled. The mean score of fear of anesthesia for patients and their companions was 77.56 ± 20.15 and 82.56 ± 20.51 , respectively. The mean score of anesthesia awareness for patients and their companions was 6.27 ± 2.33 , 33.6 ± 2.86 , respectively. No significant correlation was found between fear and anesthesia awareness among patients.**Conclusion:** The results of the study showed that patients and their companions had a relatively high degree of fear towards anesthesia and did not have enough awareness about anesthesia and its related factors. Therefore, it seems that provision of educational and anesthetic counseling before surgery can be very helpful in order to improve the conditions.**Keywords:** Anesthesia, Patient, Fear, awareness

Introduction

Patient's anesthetic process is a complex one involving many levels (2.1). It is a very common procedure for medical personnel and surgeon on the one hand but a very complicated concept for patients and their families on the other. Patients do not have the correct picture of the anesthetic profession, the function and the role of anesthesia in surgery, or their information is very contradictory (5). Public opinion is very powerful in determining social structure and norms of society. Positive public image has a significant impact on social and environmental support. The image is the same thought and perception that individuals have about a person or a profession (6). Patients undergoing surgery have a relatively positive image of surgery and its role. However, they have a vague image about the role of anesthesia (7). As studies show that patients feel anxious about anesthesia (8). Therefore, fear and anxiety towards anesthesia are the common problems of the patients undergoing surgery (9). Pourzamani et al. (2012) reported an anxiety level of 21-80% in one study. Fear and anxiety can potentially affect anesthetic procedures and their consequences (5). For example, anxious patients have more pain control problems (10). This fear and discomfort can have several reasons, but lack of sufficient information about anesthesia can be one of its main causes (11). Many patients are unaware of the fact that anesthetic profession is one of the branches of medical sciences (12). Kiyohara (2004) reported in his study that only 32% of the patients had some knowledge about anesthesiology (13). The results of Garcia-Marcinkiewicz et al (2014) found that 38% of the patients do not know the anesthesiologist as a physician (5). Bailey (2010) also notes that 42% of the patients do not know about the professional role of nurse anesthetist and his duties (8). Braun (2007) asserts that 63 to 90 percent of patients had comprehensive information and knowledge about anesthesia; however, they had an unclear image about the role of the anesthetic personnel in mind. Considering that most people have stereotypical and traditional misconceptions about anesthesia, the current study was carried out to determine the relationship between knowledge about anesthesia and its fear in the patients and their companions in teaching Hospitals of Golestan University of Medical Sciences, 2017.

Methods

The current study employs a descriptive-analytic design. The statistical population of the study included patients and their companions undergoing surgery in hospitals affiliated with Golestan University of Medical Sciences including Shahid Sayyad Shirazi, Panje-Azar, and Gonbad-Kavoos, Baqiyatallah hospital in Aliabad Katoul and Al-Jalil Aghqlla Hospital. The Sample population was estimated 268 patients and 268 companions using the sample size formula. Considering a 30% reduction, we estimated the sample size of 352. Three hundred twenty-eight participants were finally selected using non-random sampling. The inclusion criteria for research units included having age

of over 18, reading and writing literacy, lack of known psychiatric illness and elective surgery with any kind of anesthesia. The exclusion criteria included lack of willingness to complete the questionnaire or the incompleteness of the questionnaire.

Data collection was performed by a 38-item questionnaire compiled by Nagrampa (2014). It consists of 20 items for fear of anesthesia (20-100 score range), 13 items for knowledge of anesthesia (0-13 score range) and 3 items for the role of anesthesia personnel (3-6 score range).

The scores of patients and their companions were divided into three levels of low, moderate, and high fear categories based on the total score related to fear of anesthesia. Thus, the highest scores were the most feared and the lowest scores had the least fear of anesthesia. In this study, the translation process was a translation-re-translation approach. In this process, first the questionnaire approved by designer was translated by a specialist in English. Then the re-translation was made in English and finally approved by the main designer of the questionnaire. The Validity of the questionnaire was verified by 14 faculty members. In order to do the validity, content validity ratio (CVR) and content validity index (CVI) were calculated. To determine the CVI index based on Waltz and Bausell content validity indexes, each item was evaluated by 14 faculty members of the anesthesiology department and Anesthesia specialists for the three criteria of easiness, clarity and relevance (based on a 4-point Likert scale). To measure the CVI, a questionnaire was designed and sent to the specialists. Accordingly, the items with a score of above 0.79 were accepted, between 0.79 and 0.7 were re-evaluated and were rejected below 0.7. Content validity index was calculated to be 0.89.

To determine CVR, 14 experts were asked to examine each item based on a 3-point Likert scale (useful, but not necessary, and not necessary). Then the CVR index was compared with the relevant table and the following formula. CVR score was generally 0.92. For the reliability of the instrument, the internal consistency of Cronbach's alpha was applied to 20 patients. Reliability was determined 0.92-0.7 (Cronbach's alpha coefficient) in the three dimensions of the questionnaire. Data collection was performed (by referring to selected hospitals) after obtaining permission from the university's ethics committee, after receiving the referral letter from the research deputy of Golestan University of Medical Sciences.

After attending the surgical wards, the researchers completed the questionnaire by providing the necessary explanations about the purpose of the study and obtaining informed consent of the patients and their companions (one of the companions of the patient who was with the patient at the time he was filling the questionnaire). If the patient were not accompanied, the research unit would be excluded from the study. The questionnaire has the same criteria for patients and their companions, as the same questionnaire was

completed by both patients and their companions. The pre-operation questionnaire related to patients was also completed. Hernial surgery, orthopedic surgery, ear and nose surgery, ophthalmology, coltistectomy, cesarean section, hysterectomy, appendectomy, gastric bypass, breast mass and urology surgeries were among those surgeries the patients underwent in this study. Data was analyzed using SPSS software version 16. In order to describe the personal characteristics, statistical indicators including mean, standard deviation and frequency distribution table were used. To investigate the normality of quantitative variables, the Kolmogorov-Smirnov test was used. To determine the relationship between the main variables, Pearson statistical test was used. Chi2 and Fisher exact tests

were used to determine the relationship between the interventional variables and the dependent variable ($P < 0.05$).

Results

The participants were 328 patients and 325 companions, out of whom 177 (54%) were female and 146 (44.5%) were male. In terms of education, 34 (44.4%) were illiterate, 60 (18.3%) had primary school degree, 139 (42.4%) had high school diplomas, 41 (12.5%) had bachelor's degree and 7 (2.1%) had master's degree. One hundred fifty of the patients (45.7%) had a history of surgery and 183 (55.8%) had hospital records. Patients' information is presented in Table 1 in terms of hospitalized patients.

Table 1: Patient information by hospital

Hospital	Number	Percent
5 Azar Gorgan	108	32/9
Martyr Sayyad Shirazi Gorgan	66	20/2
Gonbad Kavooos Hospital (Martyrs)	26	7/9
Gonbad Kavooos Hospital (Great Prophet)	7	2/1
Gonbad Kavooos Hospital (Martyr Motahhari)	14	4/3
Baghiyatallah Hospital in Ali Abad Katoul	45	13/7
Al Jalil Aq Qala	62	18/9
Total	328	100/0

The mean score of the patients and their companions fear was 56.77 ± 15.20 and 56.82 ± 15.20 , respectively (with a score range of 20-100). The units participating in the study were classified into three categories as follows:

There was no significant difference between the scores of fear in patients and their companions (Appendix 1). Findings of the study indicated that the highest score of fear of anesthesia in patients was related to the fear of **Companion of the patient:** seventy-five participants (22.9%) had low fear levels, 216 (65.9%) had moderate fear levels and 34 (10.4%) had high fear levels.

The findings of the study showed that the mean score of the role of anesthetic personnel was 4.24 ± 1.48 and that of patients' companions was 4.9 ± 0.84 (3 to 6). In this study, the percentage of knowledge about the role of anesthesiologists was 60% in the patient group and 67.2% in the companion group. The mean scores of the patients and their companions' knowledge were 6.27 ± 2.53 and $6/33 \pm 2/86$, respectively. In this study, the percentage of people who knew about anesthesia and its related factors was 46.47% in the patients and 43.50% in the companions (Table 3)

loss of organs with 47.1% and the least was fear of getting injections (needle) 17.4%. The lowest scores of fear of anesthesia for the companions were 15.1% for fear of headaches and 15.9% for fear of vomiting after anesthesia and 42.9% for fear of losing an organ (Table 2).

Patient: seventy-two (22.9%) of the participants had low fear levels, 217 (66.2%) had moderate fear levels and 37 (11.3%) had high fear levels.

Pearson statistical test showed that there was not a significant relationship between the fear of the patient and his knowledge about the role of the anesthesia personnel ($P = 0.139$ and $r = 0.083$), and there was no significant relationship between the fear of the patients and their knowledge about anesthesia and its related factors ($P = 0/188$ and $r = -0.07$). Pearson statistical test showed that there was no significant linear relationship between the patient and their anesthesia knowledge ($P = 0.589$ and $r = 0.030$). Also, no significant linear relationship was found between the patient's fear and knowledge of anesthesia and its related aspects ($P = 0.351$ and $r = 0/052$)

Table 1: Relative frequency of patient and their companion's fear of anesthesia in terms of severity

number		Patient			Companion patient		
		High	Medium	LOW	High	Medium	LOW
1	Fear of death	41/7	27/0	31/3	39/5	27/3	33/1
2	general anesthesia (Complete Anesthesia)	26/7	36/5	36/8	27/4	34/3	38/3
3	after general anesthesia (complete anesthesia)	34/0	32/2	35/8	35/2	31/8	33/0
4	Fear of numbness in the waist	32/4	33/6	34/0	34/4	30/0	35/6
5	Fear of waking during anesthesia	32/7	26/9	40/4	29/4	29/4	41/1
6	not waking up and falling asleep for ever	47/6	22/2	30/2	42/9	27/0	30/1
7	r of nausea and vomiting after surgery	21/8	32/2	46	20/0	29/5	50/5
8	ar of getting out of anesthesia control	30/3	31/5	38/2	35/8	29/3	34/9
9	Fear of talking during sleep	26	25/4	48/6	18/9	26/9	54/2
10	Fear of nudity	37/5	24/8	37/6	40/2	22/7	37/1
11	Fear of losing memory	12/25	30/9	40/7	29/6	30/2	40/1
12	Fear of injections (needle)	17/4	23/2	59/3	16/2	27/9	55/8
13	Fear of headaches	16/3	21/3	56/4	15/1	28/3	56/6
14	Fear of paralysis	36/8	24/8	38/3	35/5	31/8	35/7
15	r of mistakes in medicine prescription	34/5	28/3	37/2	27/5	38/9	33/6
16	epression and other cognitive impairments	23/8	33/8	42/5	17/2	32/4	43/2
17	Fear of getting empty serums	17/8	23/9	58/3	18/4	21/2	60/3
18	Fear of Catheterization	37/4	26/1	58/3	29/2	31/1	39/7
19	Fear of wounds that don't heal	34/5	27/2	24/3	27/6	37/7	34/7
20	Fear of losing an organ	47/1	25/4	27/5	42/9	31/6	25/5

Table 3: Frequency of patient and their companions' awareness about anesthesia

Items	Patients' Correct answer	Companions' Correct answer
	Number (percent)	Number (percent)
1. An anesthetist is a trained specialist physician	261 (79/5%)	226 (82/1%)
2. A nurse can perform anesthesia safely under the supervision of an anesthetist	155(47/3%)	162(49/4%)
3. An anesthetist can perform epidural anesthesia (from the waist down) for cesarean section delivery.	173(52/7%)	183 (55/8%)
4. Any type of surgery requires the patient to fall asleep.	117 (35/7%)	111 (33/8%)
5. Certain surgical procedures can be performed with neurotic anesthesia.	126 (38/4%)	133 (40/5%)
6. It is important for an anesthetist to fully understand the medicine and medical history of the patients	228(69/5%)	233 (71/0%)
7. Fasting before surgery means that a patient should not eat anything by mouth.	216 (65/9%)	221 (67/4%)
8. Fasting before surgery means that a patient should not eat anything by mouth other than water	129 (39/3%)	121 (36/9%)
9. Anesthesia has full immunity	115 (35/1%)	113 (34/5%)
10. General anesthesia damages the brain.	91 (27/7%)	82 (25/0%)
11. Generally, the risk of anesthesia is higher in patients with colds	127 (39/7%)	114 (34/8%)
12. Vomiting is a side effect of complete anesthesia	168 (51/2%)	117 (52/1%)
13. During anesthesia, there is a chance to wake up	115 (35/1%)	119(36/3%)

Discussion

Fear and anxiety are one of the problems of the patients undergoing surgery. In this study, patients and

their companions reported high levels of fear and there was little difference among the various items of patients' fear of anesthesia. The highest item of fear was fear of not waking up and falling asleep forever in anesthesia. This fear has always been the first concern of patients, which is in line with the findings of Najafi et al. (2005) (15). Fear of unknown phenomena seems to be the main cause of this fear in patients and their companions. They will experience less fear if they reassure that an anesthetic team can withstand many anesthetic risks during anesthesia and will be by the patients' bed during the entire operation. In this study, the frequency of fear of death was 46.7% in patients and 39.5% in their companions. Mavridou et al. (2013) calculated the fear of death frequency to be 64.8%. It seems that cultural and religious differences in two communities are the major factors contributing to differences in scores of patients' fear (.16.14). Patients' fear of anesthesia can affect and complicate anesthesia management during surgery. The patient's pain and medical needs will rise with increased anxiety and fear, which will increase their stay in the recovery room (8). Such fears are usually related to simple issues that are left unanswered (14). Sagün et al. (2013) highlighted in their study that many patients experienced anxiety and fear before surgeries that was not merely due to the lack of knowledge about anesthesia and its related issues, but surgery itself could be the main cause of anxiety and fear (18). While the findings of present study have shown that type of surgery does not affect the level of fear in patients, the percentage of people who knew about the role of anesthesiologists was 60% and 67.2% in the patients group and the companions' group, respectively. This is in line with the findings of the Sagün study in which the patients recognized less than two thirds of anesthetized personnel as doctors. This amount is between 99-90% in advanced countries and 6-50% in developing countries (17). In the present study, the frequency of people who had knowledge about anesthesia and its related factors was 46.47% in the patients and 43.50% in the companions' group, which contradicted with the findings of Garcianv et al. (2014). In his study, he asserted that 98% of patients were aware of anesthesia and its related processes (5). However, this was only 38% in a study conducted by Jathar. Differences in demographic characteristics, such as the level of education and media education in societies seem to play a significant role in the results of studies. In this study, there was no significant relationship between the main findings of the study and the demographic data of the research units, which

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contradicts the findings of Mahtabpour et al. While García et al. reported that only gender affected fear of anesthesia. Hence, women expressed significantly higher levels of stress than men did in this regard.

Moreover, the current study reports knowledge of anesthesia as well as the professional role of anesthesia personnel and fear of patients and their companions. Since anesthesia and surgery can have great and unpleasant effects on both patients and their companions, they can have potential dangerous results. (5). Less than 50% of the patients were unaware of anesthesia; therefore, they sometimes ignored the processes of providing anesthetic care and considered them as insensitive people who did not perform their duties well. Some companions reported the side effects of anesthesia such as patient pain to be the effect of inadequate provision of anesthetic services by the personnel. The results have shown that public opinion is very powerful in determining the social structure and norms of the community. Heshmati and Arefi (2010) reported patients' companions as the most important element in the resources of nursing profession. Companions of patients are the silent customers that make up the public judgment about the profession (6). Since most people do not have a good literacy about the services offered at the hospital, especially in the anesthetic surgery room, it seems to be useful to provide them with some general education and training services before and after surgery in order to reduce their fear and increase their knowledge.

Conclusion

The results of the study indicated that patients and their companions have fairly high levels of anesthetic fear and have no knowledge about anesthesia and its related factors. Despite the advances in anesthesia and the provision of safe anesthesia for patients, patients still have a great deal of concerns. It seems that with the provision of training and anesthetic counseling before surgery, some steps could be taken to improve the current approaches of patients toward anesthesia.

This article is extracted from the research project under the IR.goums.REC.1395.252 code, which was approved by the vice chancellor of research department at Golestan University of Medical Sciences.

Acknowledgment

Hereby, the researcher's appreciation goes to respected authorities of Golestan University of Medical Sciences and all the participants in this study for their sincere cooperation.

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