Does Preoperative Anxiety Decrease with BATHE Method? A Prospective Randomized Study

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ABSTRACT

Introduction: Preoperative anxiety due to anesthesia is a common situation and decreases with preoperative evaluation. The aim of this study is to determine whether utilization of BATHE method further decreases the anxiety scores of patients who are evaluated at an anesthesia clinic for preoperative examination.

Methods: The patients were randomized into "BATHE" and "Control" groups by using the closed envelope technique. State-Trait Anxiety Inventory (STAI) scores were recorded as entrance STAI for all patients. During preoperative evaluation, BATHE method was applied to the BATHE Group whereas it was not applied to the Control Group. Post-examination, STAI scores were recorded as exit STAI and the patients were later asked questions about their contentment.

Results: Data of 463 patients were included in the analysis. Demographic data was similar in the groups. In both groups the exit STAI scores (BATHE: 34.27±10.30, Control: 34.90±9.54) were lower in comparison to the entrance STAI scores (BATHE: 38.21±9.86, Control: 37.09±9.93). The mean gap between the entrance STAI and exit STAI scores of the BATHE (3.94±6.05) and Control groups (2.19±6.14) were statistically significant ($p<0.001$).

Conclusion: Utilization of BATHE method decreases the anxiety scores of preoperative patients to a greater extent, as measured by STAI index, in comparison to standard preoperative evaluation.

Keywords: BATHE method, anesthesia, anxiety, satisfaction

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INTRODUCTION

Preoperative preparation has many aims. One of the important goals is to eliminate anxiety. Anxiety affects operation, anesthesia and postoperative recovery negatively (1). Preoperative anxiety is a common experience for patients. Appearing at various rates in literature, these worries can be listed as not being able to wake up after an operation, nausea and vomiting, staying in intensive care, anesthetist's lack of knowledge and experience, lack of an anesthetist in the operation room, the behavior of anesthetist, needle phobia, death, speaking meaninglessly during anesthesia and feeling pain during operation (2).

Preoperative anxiety can increase reflex sympathetic activity during laryngoscopy and intubation, the need for anesthetics, the postoperative nausea, vomiting, pain sensation, analgesic requirement and the length of hospital stay, whereas it decreases patient satisfaction; it affects the immune system and extends wound healing (3-6). To avoid these effects, many studies measure anxiety with the STAI method. The STAI test is widely used to measure a patient's anxiety level because it is a simple, feasible and understandable (7).

Many methods have been used to reduce preoperative anxiety. This method includes preoperative listening to music, giving patients a visual

brochure about anesthesia, watching a video, and allowing patients' relatives to see them (8). We used the BATHE method in our study. The BATHE method is a psychotherapy process, which means establishing a relationship with the patients as a method to alter their concern about anesthesia or the operation (9).

The aim of this study is to compare BATHE method with the typical routine used for preoperative evaluation. It is expected that using the BATHE method will decrease anxiety in patients who come to the anesthesia clinic for preoperative examination.

METHODS

Participants and Procedure

The study was conducted at a single-centered, state research hospital's anesthesia clinic in the city of İzmir, Turkey. This hospital includes all medical branches and has one of the largest inpatient services in İzmir.

Before the study, approval from the ethics committee (Date: 26th Nov 2015, Number: 220) was received. 463 patients who were going to have surgeries other than cardiovascular operations and oncological

surgeries were included in the prospective randomized study. The main reason to exclude patients who were to have cardiovascular operations and oncological surgeries is the belief that their anxiety levels could be considerably different (most probably higher) compared to the patients who were to have other surgeries. The inclusion criteria for the study were as follows: being 18 years old or older and being literate. Exclusion criteria were as follows: being under 18 years old, being illiterate, having been diagnosed with a psychiatric illness, having a psychological trauma within the last one year, using sedatives, antidepressants, antiepileptics, stimulants or drugs, having cooperation, understanding, or hearing problems, belonging to the American Society of Anesthesiologists (ASA) physical situation III and above. All the participants were asked for consent to participate in the study.

Two anesthetists on duty at the anesthesia outpatient department have reviewed our patients. A senior anesthetist who had 25 years of job experience evaluated 200 patients. The second anesthetist who had 15 years of job experience evaluated 263 patients.

The datasets used and/or analyzed during this study are available from the corresponding author on reasonable request. The study is also registered in ClinicalTrials.gov and the reference number is NCT03468517.

STAI Analysis

The State-Trait Anxiety Inventory (STAI) is accepted as a standard test to measure anxiety. There are two separate scales, state and trait anxiety scales, each consisting of 20 questions. The State anxiety scale indicates the anxiety level of a person at a certain time frame or condition. The Trait anxiety scale indicates the general anxiety level of a person independent of the conditions he has at a particular moment (7).

We used the closed envelope technique to provide randomization in the study. The envelopes have been prepared beforehand and each contained a specific number that defined the patient's group. Patients were given these closed envelopes in turn. Thus, patients were divided into two groups: the 'BATHE group' and the 'control group'.

The demographic data of the patients was recorded. This information included their names-surnames, gender, age, educational background, income level, and their previous anesthesia experience (no experience, only general anesthesia experience, only regional anesthesia experience, or both general and regional anesthesia experience). Following this, the STAI anxiety questionnaire that was validated in Turkish language was applied in order to learn the patients' anxiety levels before preoperative evaluation (10). These results were recorded as entrance STAI (Appendix I). Since we aimed to decrease the operation anxiety of the patients, we only used the state anxiety scale at that moment. After then, patients were taken to the anesthesia examination room.

BATHE Technique

The BATHE technique is one of the short therapeutic consultation techniques that strengthens the doctor-patient relationship. BATHE stands for the initials of the questions that include the titles for Background, Affect, Trouble, Handling and Empathy. It allows the clinician to evaluate the physiological stress of the patients quickly by asking key questions in an interview. In other words, the BATHE method necessitates an empathetic expression that includes the perspective of the patient (9).

All the patients were evaluated before the anesthesia. Later, by opening the envelope of the patient, his/her group has been learned. Feedback has been given with empathetic statements to those in the BATHE group after key questions and they have been informed about the possible outcomes (Appendix II). BATHE questions have been modelled and modified in order to be used in the perioperative period. The questions

Appendix I. STAI questionnaire

		Not at all	Somewhat	Moderately so	Very much so
1	I feel calm				
2	I feel secure				
3	I am tense				
4	I am regretful				
5	I feel at ease				
6	I feel upset				
7	I am presently worrying about possible misfortunes				
8	I feel rested				
9	I feel anxious				
10	I feel comfortable				
11	I feel self-confident				
12	I feel nervous				
13	I am jittery				
14	I feel "high strung"				
15	I am relaxed				
16	I feel content				
17	I am worried				
18	I feel over-excited and rattled				
19	I feel joyful				
20	I feel pleasant				

were validated in Turkish language by four scholars (11). For the patients in the control group, the interview ended by routine preoperative evaluation (without applying the BATHE technique).

Satisfaction Questionnaire

The items in our patient satisfaction questionnaire have been prepared taking the patient oriented consultation technique into mind. Questions that include courtesy, behavior, empathetic statement, non-verbal communication, explanation, trust, good treatment cooperation (rapport), the length of consultation and a general satisfaction ratio have been prepared (12).

At the end of the examination, the STAI anxiety questionnaire (Exit STAI) was repeated for patients to measure their anxiety levels. In addition, the satisfaction questionnaire, which was prepared by Leiblum et al., was also applied (Appendix III) (13). Patients were asked to rate their satisfaction level by using the five point Likert scale.

After administration of the satisfaction questionnaire, the BATHE method was also applied to the patients in the control group. This procedure was required by the ethics committee to prevent discrimination against the control group. Obviously, this did not change the results of the study as the satisfaction questionnaire was applied before the BATHE technique procedure for the control group.

The flowchart of the study is shown in Figure 1.

Appendix II. BATHE method questions

		Original questions	Modified questions
B	Background	What is going on in your life?	What brings you here?
A	Affect	"How do you feel about that?" or "What is your mood?"	How have you felt about the idea of having surgery?
T	Trouble	"What about the situation troubles you the most?" or "Is there anything about that that troubles you?"	What about the surgery worries you most?
H	Handling	"How are you handling that?" or "How could you handle that?"	How are you handling that?
E	Empathy	"That must be very difficult for you."	It's perfectly normal to be nervous about surgery. Let me explain what will happen on the day of your surgery

Appendix III. Satisfaction Questionnaire

		Very bad	Bad	Middle	Good	Very good
1	Friendliness/courtesy of your doctor					
2	Explanations your doctor provided about any problem/condition you may have					
3	Concern your doctor showed for your questions/worries					
4	Your doctor's efforts to include you in decisions about your treatment					
5	Information your doctor gave you about your medications					
6	Instructions your doctor gave you about follow-up care					
7	Degree to which your doctor talked with you using words you could understand					
8	Amount of time your doctor spent with you					
9	Your confidence in this doctor					
10	Likelihood of your recommending this doctor to others					
11	Please rate your overall satisfaction with today's visit to your doctor					

Figure 1. Study flow chart.**Statistical Analysis**

Data has been evaluated by SPSS 22. STAI and satisfaction levels are expressed as mean values and standard deviations. They are compared by using the Student t test and ANOVA. For the tests, $p < 0.05$ was considered as statistically significant. On the other hand, the relationship between STAI, satisfaction level and age are expressed as correlation.

RESULTS

The average age of our patients was 39.9 years, entrance STAI score average was 37.7 and exit STAI average was 34.5 points.

When we looked at the sociodemographic data of our study group, no difference was observed between the groups (Table 1).

All of the two groups' entrance STAI ($p=0.23$) and exit STAI ($p=0.50$) scores were compared. This is not statistically significant. It means that the two groups have the same level of anxiety. However, groups' gaps between entrance and exit STAI were found to be statistically significant ($p < 0.001$). So, we notice that the BATHE method decreased the STAI to a greater extent compared with the control group. When the satisfaction levels are compared, the results are not statistically significant between the groups ($p=0.18$). (Table 2).

When we analyzed the factors affecting satisfaction in our patients, we determined that there was a positive correlation between patient age and satisfaction scores, with our elderly patients being more satisfied. On the other hand, the entrance and exit STAI had a negative correlation with satisfaction ($p < 0.00$). We determined that our anxious patients were less satisfied. The higher difference between their entrance and exit STAI, the more satisfied they were. Naturally, patients whose anxiety was lowered were more satisfied. It was also observed that married patients and patients whose income was above the minimum wage were much more satisfied ($p < 0.05$) (Table 3).

Table 1. The demographic characteristics of the study group

	BATHE	CONTROL	
	N (%)	N (%)	P value
Gender			0.191
Female	142 (55.47)	102 (49.28)	
Male	114 (44.53)	105 (50.72)	
Age (Average $\pm$ Standard Deviation)	40.15 $\pm$ 13.54	39.63 $\pm$ 14.63	0.70
Education level			0.225
12 years and below	131 (51.17)	94 (45.41)	
Above 12 years	125 (48.83)	113 (54.59)	
Income level			0.236
Minimum wage and below	80 (31.25)	76 (36.71)	
Above minimum wage	176 (68.75)	131 (63.29)	
Previous anesthesia experience			0.35
No experience	84 (32.81)	74 (35.75)	
General anesthesia	108 (42.19)	81 (39.13)	
Regional anesthesia	28 (10.94)	15 (7.25)	
General and regional	36 (14.06)	37 (17.87)	
Marital Status			0.766
Married	173 (67.58)	137 (66.18)	
Single	83 (32.42)	70 (33.82)	

* P<0.05 Chi-square and independent groups t-test

Table 2. The anxiety comparison of study groups

	BATHE	CONTROL	P value
	N: 256 (Average $\pm$ SD)	N: 207 (Average $\pm$ SD)	
Entrance STAI	38.21 $\pm$ 9.86	37.09 $\pm$ 9.93	0.23
Exit STAI	34.27 $\pm$ 10.30	34.90 $\pm$ 9.54	0.50
STAI difference	3.94 $\pm$ 6.05	2.19 $\pm$ 6.14	<0.001*
Satisfaction	4.69 $\pm$ 0.38	4.64 $\pm$ 0.49	0.18

* P<0.05 independent groups t-test

SD: Standard deviation, STAI: State-Trait Anxiety Inventory

Table 3. Factors affecting satisfaction

		Satisfaction Level	
	N	Coefficient of Correlation	P value
Age		0.17	<0.001*
Entrance STAI		-0.26	<0.001*
Exit STAI		-0.38	<0.001*
STAI difference		0.20	<0.001*
Income level		Average $\pm$ SD	
Minimum wage and below	156	4.60 $\pm$ 0.39	
Above minimum wage	307	4.70 $\pm$ 0.45	0.01*
Marital Status		Average $\pm$ SD	
Married	310	4.70 $\pm$ 0.42	<0.001*
Single	153	4.57 $\pm$ 0.44	

* P<0.05 single group t test and independent groups t-test

SD: Standard deviation, STAI: State-Trait Anxiety Inventory

When we looked at the factors affecting the anxiety level of our patients, anxiety was high in women patients and in patients whose income level was at minimum wage level or below (P<0.05) (Table 4).

Entrance and exit STAI scores of the patients examined by the senior anesthetist were slightly higher compared to the STAI scores of the patients examined by the anesthetist who had 15 years of job experience (p<0.05). On the other hand, concerning the influence of job experience of the anesthetist on anxiety, there was not a statistically significant difference between STAI values (Table 5).

DISCUSSION

According to the results of this study, it appeared that the BATHE approach could be used as a tool to reduce preoperative anxiety. Anxiety levels decreased in the cases where the BATHE approach has been used in the preoperative evaluation compared to the cases in which standard evaluation has been applied. However, the presence of a statistical correlation has not been determined between the decrease in the anxiety scores of patients and the satisfaction level.

The BATHE interview method is an acronym made by the use of the first letters of the words Background, Affect, Trouble, Handling and Empathy, which has been used as a psychotherapy approach. The procedure, which can be applied in fifteen minutes during daily patient visits, could reveal the psychological situation of the patient by using simple and suitable questions (9). In literature, it has been stated that BATHE increases the quality of medical treatment and patient satisfaction. In many sources which depict the abilities to communicate with the patient, this method is mentioned (14, 15).

It is specified that the doctor has to evaluate the patient in a psychosocial context by the BATHE method after hearing the real complaints of the patient; this therapy aims to empower patients to trust themselves and others, to improve their positive feelings about themselves and to strengthen the ability to control the situations in their lives (16). It has been stated that the BATHE method could be used as a rough screening test for anxiety, depression or for situational stress disorders because this method is accepted by patients, applied in a short time, and grapples these situations. The situations in which this method can be used are described in detail in Lieberman and Stuart's study (16).

Kim et al. found that patient satisfaction increased in the patients whom they approached using the BATHE method. However, they observed that the empathetic approach ratio of the doctors was high in the group in which they did not use BATHE as a result of the satisfaction questions. In other words, doctors who learned this method approached both groups without being aware of it (17).

Van Charante et al. indicated that patient satisfaction is the most important result that measures the quality of patient care (18). Leiblum et al., who were inspired by this study, designed a study in which four different family physicians took part. They identified a meaningful rise in the satisfaction value of the patients who were interviewed with the BATHE method. When they analyzed the results of the satisfaction questionnaire one by one, they realized that patients who were interviewed with the BATHE method showed a higher degree of satisfaction in eight of eleven questions. In the interview they conducted with the patients to check the components of BATHE, as well as in the non-BATHE group, they saw that doctors approached the patients with empathetic expressions (13).

DeMaria et al. performed the BATHE technique in the preanesthetic visits of 220 patients. They observed statistically significant differences between the two groups in the first four questions of BATHE, but it has been observed that they approached the patients whom they had routine

Table 4. Factors affecting anxiety level

		Entrance STAI	Exit STAI	STAI difference
	N	Average ± SD	Average ± SD	Average ± SD
Gender/p		<0.001*	<0.001*	0.07
Female	244	41.54±9.84	37.9±9.99	3.64±6.15
Male	219	33.44±8.07	30.83±8.53	2.61±6.11
Education level/p		0.19	0.02*	0.10
12 years and below	225	38.33±9.88	35.66±9.87	2.67±6.37
above 12 years	238	37.12±9.91	33.5±9.95	3.62±5.9
Income level/p		0.05*	0.04*	0.88
Minimum wage and below	156	38.96±10.02	35.86±9.54	3.1±5.97
Above minimum wage	307	37.07±9.79	33.89±10.12	3.19±6.24
Previous anesthesia experience/p		0.89	0.75	0.66
Anesthesia experience/p				
No experience	158	37.62±10.06	34.09±9.6	3.53±6.37
General anesthesia	189	37.86±10.07	35.1±10.02	2.76±5.55
Regional anesthesia	43	38.49±8.2	34.88±9.2	3.6±6.58
General and regional	73	37.05±10.17	33.95±11.07	3.11±6.88
Marital Status/p		0.79	0.34	0.27
Married	310	37.55±10.22	34.58±10.27	2.97±6.17
Single	153	37.26±9.62	33.55±9.42	3.71±6.41

* P<0.05 one way variance analysis (ANOVA) and independent groups t-test
SD: Standard deviation, STAI: State-Trait Anxiety Inventory

Table 5. The effect of anesthesiologist's experience on anxiety

		Entrance STAI	Exit STAI	STAI difference
	N	Mean ± SD	Mean ± SD	Mean ± SD
Experience of the anesthesiologist/p	0.364	0.01*	0.01*	0.99
15 years in the occupation	363	37.06±9.85	33.91±9.91	3.15±5.85
25 years in the occupation	100	40.05±9.78	36.89±9.86	3.16±7.14

* P<0.05 Chi-square and independent groups t-test
SD: Standard deviation, STAI: State-Trait Anxiety Inventory

preoperative visits with sympathetic feedback. When it comes to patient satisfaction, they determined that it was high in the group which they had interviewed by the BATHE method. They noticed that the demographic characteristics of the patient, the situation of ASA determining the risk, and the interviewing doctor or the duration of the interview did not affect satisfaction. They found that the only reason for the difference was the BATHE interviewing method. They emphasized that by using this simple technique, satisfaction could be increased (19).

Gebremedhn et al., in research they conducted, also could not find any difference in terms of satisfaction between the patients who declared that they had been informed about anesthesia adequately and the patients who had not been informed adequately (20).

We observed that patient satisfaction was high in two groups. We scrutinized the 11 questions asked to understand satisfaction, one by one. Even if the decline between the entrance and the exit STAI was meaningfully high, we could not notice any statistical difference between the two groups. We thought that although the level of anxiety was an important factor in determining the level of satisfaction, it was not the only factor. Therefore, we came to the conclusion that there were likely some other factors that were influential.

In other research, Gebremedhn and Nagaratnam specified that the decline of patient anxiety after anesthesia visit is a common situation (21). The importance of the doctor's communication with the patient and informing the patient adequately are known factors that increase patient trust (22). Informing the patient about the planned anesthesia technique

decreases anxiety and increases patient satisfaction (23). In the light of these studies we researched whether the BATHE technique would result in decreasing the existing anxiety in patients or not.

In our study, we found that both groups' anxiety levels decreased after interviews. However, in the group in which BATHE interview was applied, this decrease was statistically significant ($p<0.001$). We think that there are a lot of factors that decrease the anxiety of the patient when this method is used. Allowing more time for the patients, allowing them to talk about their anxieties, giving feedback which shows that the doctors understand them with an empathetic statement, informing them about the operation, and the complications are some of factors. It is surely beyond doubt that the doctors are under intense work pressure, but this does not necessarily mean that they have little time to behave more sympathetically. They should use some practical and innovative methods such as BATHE when dealing with patients.

It is a common situation for patients who are going to be operated to be anxious. It has been observed in several studies that there is a wide range in the frequency and intensity of preoperative anxiety (24, 25). Many researchers measured the level of anxiety during preoperative visits (24, 26). Suspecting that the anxiety levels of patients might be very high on the operation day, the anxiety questionnaire was given to patients well before the operation day.

Mackenzie et al. could not determine a meaningful difference between gender and anxiety on the first day when they saw their patients in their studies. However, when they observed them on the operation day they

determined that anxiety levels were higher (27). The relationship between gender and the preoperative anxiety score has been shown in many studies that women have more anxiety in the preoperative period when compared to men (25, 26, 28). In our study, the anxiety level before and after the examination was found higher in female patients when compared to males. This situation was compatible with the studies in literature.

When we looked at the relationship between age and preoperative anxiety, different results stand out in literature. Some researchers have found that the anxiety levels are lower in elderly patients (29, 30); however, some others discovered that the anxiety levels are not correlated with age (26, 28). We determined that there was no correlation between age and anxiety, but we found that there was a correlation regarding satisfaction and age. The satisfaction level was higher in elderly patients. We saw that young people are less satisfied because they have less experience in the hospital. We think that the expectations of mature individuals are more realistic as mourning also brings maturity.

We determined a negative correlation between anxiety level and satisfaction. Patients who had high anxiety levels left the clinic less satisfied.

In some studies, it was determined that education level did not affect degrees of anxiety (30), whereas in others it was stated that preoperative anxiety levels were higher in people who were educated more than 12 years (4, 6). In our study, on the other hand, we noticed that people who were educated more than 12 years had lower anxiety levels after examination. This showed us that educated people benefited more from being informed about anesthesia.

It has been observed that while anxiety level was high in the individuals whose income level was below the minimum wage, satisfaction was low. We believe that the reason for their low level of satisfaction and high level of anxiety might be because of their perceived obligation of going back to work immediately in order to keep earning money.

There are some studies showing that patients having anesthesia experience beforehand is an important factor for preoperative anxiety (27, 28). Opposing this, some studies claim that anesthesia experience does not change anxiety level (24). We observed that anesthesia experience was neither correlated with anxiety nor with satisfaction.

Similar to the study conducted by Taşdemir et al. (24), in our study we also observed that living alone or being married did not change anxiety; however, being married increased satisfaction.

There are a few limitations of this study. First, we asked whether the patient had a psychological trauma within the last one year or not, with a yes/no question. This exclusion criterion could have been checked by examining patients' medical history, instead of asking this question directly to the patients. Second, we informed the patients while receiving consent from them. This might have led the patients to view the doctor from a different perspective. This fact and Hawthorne effect may have affected their satisfaction and anxiety levels unwittingly. Because of this reason, the patients whom we interviewed with standard procedure might have had higher satisfaction levels although the routine procedure was applied. A critical point in our questionnaire study was the fact that the patient filled in the questionnaire right before the preoperative evaluation (Entrance STAI) and he/she had to fill in the same questionnaire again right after the evaluation. Therefore, it is possible that the patients might have given the same answers in a rush to complete their duty of filling the questionnaire again after the evaluation. It could also be misleading to conduct the satisfaction questionnaire and the "exit STAI" questionnaire during the perioperative period (sometime after the evaluation), because the patient could have been affected from a lot of factors in the intervening period.

The Turkish validity study of the BATHE method was performed in diabetic patients. In our study, sentences were changed and adapted to perioperative patients but validity and reliability studies were not performed.

Another limitation is the fact that doctors who learned the BATHE technique could have unwittingly applied the technique on the control group. There was not a way to fully understand whether the doctors who conducted the intervention, did not use the BATHE technique in the standard care conditions. This might have led to a decrease of the anxiety levels of the control group.

Although there are some recent studies that evaluate the psychological tests and psychological findings together, in our study the anesthesia outpatient department did not have the necessary equipment to measure psychological situations of the patients. Therefore, in our study, we had to use the psychological tests (BATHE and Satisfaction Tests) only.

There is no person or institution that gives a BATHE practice education in our country. We have learned and tried to perform this method by reading the articles in other languages before the start of this study. State anxiety survey which measures the anxiety level of a person at a specific moment and condition has been used in this study. In order to maintain routine workflow at the outpatient department we could not conduct trait anxiety survey. If we had been able to apply this survey, then we would have been able to understand the anxiety level of a patient independent of their conditions. In this way it would be possible to detect people who already had an anxious personality and exclude them from the study.

Utilization of BATHE method can decline the anxiety scores of preoperative patients as measured by STAI index. However, we were unable to demonstrate whether this decline in anxiety scores affects patients' satisfaction scores. These results encouraged us to use BATHE method as a part of our routine preoperative evaluation process at our institution.

CONCLUSION

Preoperative anxiety is a common situation. One of the reasons for preoperative anxiety is the fear of anesthesia. Therefore, decreasing the anxiety levels of patients, should be one of the important objectives of preoperative anesthesia examination. In this study, we tried a practical method in the anesthesia outpatient department where the patients meet with the anesthesiologists. BATHE is an interview technique that can increase the quality of communication between doctors and patients. When we used the BATHE technique, we found out that the decrease in the anxiety levels of these patients was statistically significant. Being able to make a positive impact on the psychology of the patients was also a fulfilling experience for the practitioners. We also measured the satisfaction levels between the groups. Although there was a slight increase in the satisfaction levels of the BATHE Group, this increase did not turn out to be statistically significant.

In conclusion, we experienced that BATHE technique can easily be utilized and is effective in decreasing the anxiety levels of the patients (even in the busiest settings such as an anesthesia outpatient department). Nevertheless, we believe that further studies should be conducted to find out some other methods to decrease the anxiety levels of the patients.

Ethics Committee Approval: Before the study, approval was obtained from the Izmir Katip Celebi University Non-Interventional Clinical Research Ethics Committee (Date: 26th Nov 2015, Number: 220)..

Informed Consent: All the participants were asked for consent to participate in the study.

Peer-review: Externally peer-reviewed.

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REFERENCES

- Boeke S, Jellic M, Bonke B. Pre-operative anxiety variables as possible predictors of post-operative stay in hospital. *Br J Clin Psychol* 1992;31:366–368. [CrossRef]
- Hume MA, Kennedy B, Asbury AJ. Patient knowledge of anaesthesia and peri-operative care. *Anaesthesia* 1994;49:715–718. [CrossRef]
- Pritchard MJ. Using the Hospital Anxiety and Depression Scale in surgical patients. *Nurs Stand* 2011;25:35–41. [CrossRef]
- Kim WS, Byeon GJ, Song BJ, Lee HJ. Availability of preoperative anxiety scale as a predictive factor for hemodynamic changes during induction of anesthesia. *Korean J Anesthesiol* 2010;58:328–333. [CrossRef]
- Carr E, Brockbank K, Allen S, Strike P. Patterns and frequency of anxiety in women undergoing gynaecological surgery. *J Clin Nurs* 2006;15:341–352. [CrossRef]
- Caumo W, Schmidt AP, Schneider CN, Bergmann J, Iwamoto CW, Adamatti LC, Bandeira D, Ferreira MBC. Risk factors for postoperative anxiety in adults. *Anaesthesia* 2001;56:720–728. [CrossRef]
- Spielberger CD, Gorsuch RL, Lushene RE. Test manual for the State-Trait Anxiety Inventory. California: Palo Alto; 1970.
- Stamenkovic DM, Rancic NK, Latas MB, Neskovic V, Rondovic GM, Wu JD, Cattano D. Preoperative anxiety and implications on postoperative recovery: what can we do to change our history. *Minerva Anesthesiol* 2018;84:1307–1317. [CrossRef]
- Stuart MR, Lieberman JA. The fifteen minute hour: Applied psychotherapy for the primary care physician 2nd ed. Westport: Praeger Publications; 1993.
- Oner N, Le Compe A. State trait anxiety inventory handbook. Istanbul: Bogazici University Publications; 1985.
- Akturan S, Kaya CA, Unalan PC, Akman M. The effect of the BATHE interview technique on the empowerment of diabetic patients in primary care: a cluster randomised controlled study. *Prim Care Diabetes* 2017;11:154–161. [CrossRef]
- Silverman J, Kurtz SM, Draper J. Skills for communicating with patients, 2nd ed. Oxford: Radcliffe Publisher; 2005.
- Leiblum SR, Schnall E, Seehuus M, DeMaria A. To BATHE or not to BATHE. patient satisfaction with visits to their family physician. *Fam Med* 2008;40:407–411.
- Lieberman JA, Stuart MR. Practicing biopsychosocial medicine. In: Rakel RE, editor. Textbook of Family Practice 6th ed. Philadelphia: Saunders; 2002.
- Stuart MR, Lieberman JA. The fifteen minute hour: a short-term approach to psychotherapy in primary care. Philadelphia: FA Davis Company; 2001. pp.1205–1211.
- Lieberman JA, Stuart MR. The BATHE Method: Incorporating Counseling and Psychotherapy Into the Everyday Management of Patients. *Prim Care Companion J Clin Psychiatry* 1999;1:35–38. [CrossRef]
- Kim JH, Park YN, Park EW, Cheong YS, Choi EY. Effects of BATHE interview protocol on patient satisfaction. *Korean J Fam Med* 2012;33:366–371. [CrossRef]
- Moll van Charante E, Giesen P, Mokkink H, Oort F, Grol R, Klazinga N, Bindels, P. Patient satisfaction with large-scale out-of-hours primary health care in The Netherlands: development of a postal questionnaire. *Fam Pract* 2006;23:437–443. [CrossRef]
- DeMaria S, DeMaria AP, Silvay G, Flynn BC. Use of the BATHE method in the preanesthetic clinic visit. *Anesth Analg* 2011;113:1020–1026. [CrossRef]
- Gebremedhn EG, Chekol WB, Amberbir WD, Flatie TD. Patient satisfaction with anaesthesia services and associated factors at the University of Gondar Hospital, 2013: a cross-sectional study. *BMC Res Notes* 2015;8:377. [CrossRef]
- Gebremedhn EG, Nagaratnam V. Assessment of patient satisfaction with the preoperative anesthetic evaluation. *Patient Relat Outcome Meas* 2014;5:105–110. [CrossRef]
- Thom DH; Stanford Trust Study Physicians. Physician behaviors that predict patient trust. *J Fam Pract* 2001;50:323–328.
- Manani G, Facco E, Favero G, Favero L, Mazzoleni S, Stellini E, Berengo A, Mazzuchin M, Zanette, G. Patients appreciation for information on anesthesia and anxiolysis in dentistry. *Minerva Stomatol* 2010;59:489–506.
- Taşdemir A, Erakgun A, Deniz MN, Çertuğ A. Comparison of preoperative and postoperative anxiety levels with state-trait anxiety inventory test in preoperatively informed patients. *Turkish J Anaesthesiol Reanim* 2013;41:44–49. [CrossRef]
- Jawaid M, Mushtaq A, Mukhtar S, Khan Z. Preoperative anxiety before elective surgery. *Neurosciences (Riyadh)* 2007;12:145–148.
- Moerman N, Van Dam FS, Muller MJ, Oosting H. The Amsterdam preoperative anxiety and information scale (APAIS). *Anesth Analg* 1996;82:445–451. [CrossRef]
- Mackenzie JW. Daycase anaesthesia and anxiety A study of anxiety profiles amongst patients attending a Day Bed Unit. *Anaesthesia* 1989;44:437–440. [CrossRef]
- Badner NH, Nielson WR, Munk S, Kwiatkowska C, Gelb AW. Preoperative anxiety: detection and contributing factors. *Can J Anaesth* 1990;37:444–447. [CrossRef]
- Shafer A, Fish MP, Gregg KM, Seavello J, Kosek P. Preoperative anxiety and fear: a comparison of assessments by patients and anesthesia and surgery residents. *Anesth Analg* 1996;83:1285–1291. [CrossRef]
- Shevde K, Panagopoulos G. A survey of 800 patients' knowledge, attitudes, and concerns regarding anesthesia. *Anesth Analg* 1991;73:190–198. [CrossRef]