Original Article

The Effect of Music on Anxiety and Physiologic Parameters of Patients Scheduled for Transurethral Resection

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Abstract

Objective: This study aimed to determine the effect of listening to music before surgery on anxiety and physiologic parameters (heart and respiration rate, blood pressure, and oxygen saturation) of patients scheduled for transurethral resection.

Background: Most patients slated for transurethral resection worry whether their sexual function will be affected and whether disease symptoms will be eliminated. Studies have shown that music has a positive effect on physiologic parameters and reducing anxiety. To date, there have been no studies that have specifically assessed the effect of music on anxiety and physiologic parameters of patients scheduled for transurethral resection and the satisfaction level of those who listened to music immediately prior to their procedure.

Methodology: This semi-experimental study, which had pre- and post-test control groups, was conducted with 80 patients slated for transurethral resection between November 2017 and July 2018. The patients in the experimental group (n=40) listened to music for 30 min in addition to receiving routine nursing care prior to the operation. The patients in the control group (n=40) only received routine nursing care prior to the operation. Data were collected using an introductory information form, the State-Trait Anxiety Inventory, and an inspection form for physiologic parameters. Additionally, an open-ended question was asked to the experimental group to determine their satisfaction level regarding the inclusion of music preoperatively.

Results: The post-test State-Trait Anxiety mean scores of the experimental and control groups were significantly different from each other. Music administration had a positive effect on all physiologic parameters measured except oxygen saturation. Of the participants in the experimental group, 70% expressed satisfaction with music administration.

Conclusion: According to the results of this study, listening to music before surgery should be included in nursing care as an alternative treatment due to its positive effects on anxiety and physiologic parameters.

Keywords: music, transurethral resection, preoperative anxiety, physiologic parameters, nursing

Introduction

With technologic developments, the number of outpatient surgeries has increased (Kyriakides et al., 2018). Transurethral resection (TUR) is one such procedure on the rise. TUR is performed under general, epidural, or spinal anesthesia during which excess tissue compromising the urinary tract is removed by accessing the bladder through the urethra (Dirksen, 2014; Karadakovan, 2014). Similar to other procedures, patients who are to have TUR worry whether their sexual function will be adversely affected (erectile dysfunction, infertility) and whether disease symptoms will be eliminated (Iwamoto, 2004) after the procedure.

Pharmacological and nonpharmacological methods have been used for preoperative anxiety management (Pittman & Kridli, 2011). The pharmacologic methods have various side effects;

however, music, a nonpharmacologic method, can be used to diminish the anxiety of TUR patients without causing any side effects.

Background

One in four patients scheduled to undergo a surgical procedure has severe preoperative anxiety (Hounsome et al., 2017). Stress from the primary disease and fear of pain during surgery (Aksoy, Bozkurt, Sayit, Unlu, & Karadag, 2013), type of anesthesia, operation-related worries (Ahmetovic-Djug, Hasukic, Djug, Hasukic, & Jahic, 2017; M. Yilmaz, Sezer, Gurler, & Bekar, 2012), previous experiences, personal characteristics, post-operative pain dread, fear of the unknown, and isolation from social life may all cause patient anxiety (Almalki, Hakami, & Al-Amri, 2017; Karaman Turan & Acaroglu, 2012; Yilmaz & Aydin, 2013). Anxiety is an ambiguous negativity bias which causes the occurrence of general, unpleasant, and autonomous symptoms (Almalki et al., 2017; Jimenez-Jimenez, Garcia-Escalona, Martin-Lopez, De Vera-Vera, & De Haro, 2013; Karamustafalioglu & Yumrukcal, 2011) leading people to have various physiologic symptoms such as tachycardia, increased blood pressure, and sweating (Ahmetovic-Djug et al., 2017). Thus, anxiety may result in the increased use of anesthetic substances during surgery, more pain post-operatively (Almalki et al., 2017; Hook, Songwathana, & Petpichetchian, 2008), the development of complications (Bailey, 2010; Yilmaz & Aydin, 2013), extension of recovery and discharge periods (Hook et al., 2008), and a decrease in patient satisfaction and quality of life (Yilmaz & Aydin, 2013).

Today, pharmacologic and nonpharmacologic methods are used to reduce anxiety. The pharmacologic methods used are known to cause various side effects such as agitation, amnesia, and hyperactivity (Pittman & Kridli, 2011); therefore, lately, more emphasis has been put on selecting nonpharmacologic methods to reduce patient anxiety (Biddiss, Knibbe, & McPherson, 2014). Music is one such nonpharmacologic method employed to reduce anxiety (Karamizrak, 2014) by effecting people both physically and physiologically (Arslan & Ozer, 2010). Studies have shown that music is effective in reducing anxiety before, during, and after surgery (Bae, Lim, Hur, & Lee, 2014; Biddiss et al., 2014; Binns-Turner, Wilson, Pryor, Boyd, & Prickett, 2011; Jimenez-Jimenez et al., 2013; W. P. Lee, Wu, Lee, Ho, & Shih, 2017; U. Nilsson, 2008; Ugras et al., 2018). Music enables individuals to adapt to an unknown environment and relax by shifting their focus away from anticipated pain and anxiety (Bradt, Dileo, & Shim, 2013). Music makes people relax by affecting the nervous system(Uyar & Akin Korhan, 2011) and reducing stress by initiating reflexive responses at the brain stem (Chanda & Levitin, 2013). Music reduces anxiety and affects physiologic parameters such as blood pressure, heart rate, and respiratory rate (Ugras et al., 2018).

Anxiety affects each individual differently. Diagnoses, assessments, and effective management of preoperative anxiety are vital to preserve the physiological and psychological wellness of patients (Pittman & Kridli, 2011). Nurses who are responsible for ensuring patients' safety and comfort before, during, and after surgery can use music without the threat of side effects. Music as an alternative treatment option is easy and safe to use in nursing care (Labrague & McEnroe-Petitte, 2016). In a systematic investigation of the effect of music administration on anxiety before minimal invasive procedures, it was found that music reduced anxiety in 26 studies evaluated (Gillen, Biley, & Allen, 2008). A meta-analysis of the effect of music on anxiety and pain during invasive interventions examined 81 randomized controlled studies and found that music reduced anxiety before, during, and after interventions; however, listening to music before interventions had a greater effect on reducing anxiety (Kuhlmann et al., 2018).

There are numerous studies in the literature that examined the effect of music on anxiety before, during, and after surgery (Jimenez-Jimenez et al., 2013; Labrague & McEnroe-Petitte, 2016; Liu & Petrini, 2015; U. Nilsson, 2008); however, there are no studies that specifically assessed the effect of music on the anxiety and physiologic parameters of patients scheduled for TUR and their satisfaction level with regard to the addition of music preoperatively.

Theoretical Framework

This study benefitted from the Theory of Unitary Human Beings of Martha Elizabeth Rogers. According to Rogers, the environment and humans are areas of energy that interact with each other.

Rogers defined the human as an open system integrated with the environment. Human beings and the environment should be approached as a whole to effectively treat illnesses, as the two continuously interact with each other (Inci, 2017). One outcome of human and environment interaction is anxiety which is subjective and unique to human beings. Music can influence health by changing the personal perception of anxiety which is a part of the environment. When people listen to music to reduce their anxiety, the anxiety interacts with the music and changes the environmental energy within the area.

Hypotheses

The study investigated the following hypotheses:

Anxiety levels of patients in the experimental group who listened to music preoperatively are different from those of the control group.

Physiologic parameters of patients in the experimental group who listened to music preoperatively are different from those of the control group.

Aims: This study aimed to determine the effect of listening to music preoperatively on anxiety and physiologic parameters (heart and respiration rate, blood pressure, and oxygen saturation) of patients scheduled for TUR procedures.

Methodology

Design: A semi-experimental, pre- and post-test control group research design was used for the study.

Participants: This study was conducted with patients who were to have elective TUR procedures at the urology clinic of a medical faculty hospital between October 2017 and April 2019 in Konya, Turkey. Dates of data collection was November 2017-July 2018. The researcher kept track of the list of patients who were to have TUR at the urology clinic (as the operation order and time were determined). Those who were to undergo surgery on uneven days of the week were placed in the experimental group and those who were to undergo surgery on even days of the week were placed in the control group. The study was conducted with both groups approximately 60 min before patients were taken to the operating room on the day of surgery. Patients were deemed appropriate for study involvement based on the following inclusion criteria: 18 to 65 years of age, American Society of Anesthesiologists (ASA) score of 1 or 2 according to the patient's anesthesia form, understanding of the provided study information, no physical, emotional, visual, verbal or mental problem preventing listening to music or communicating, no psychiatric diagnosis, and agreement to participate in the research. Individuals who did not read, write, or speak Turkish, had routine opioid analgesic drug therapy in their daily life, or were involved in music professionally were excluded from the study. Patients that wanted to leave the study, had a problem/complication during administration, or were called to the operating room before approximately 60 min during music administration, were also excluded from the study.

Between the dates the study was conducted, 103 patients were monitored. The study was completed with 80 patients because 7 were over age 65, 9 did not want to participate, 5 could not speak Turkish, and 2 had hearing loss (Figure 1).

No interaction occurred between the experimental and control groups as the patients underwent procedures on different days and were hospitalized on the day of surgery. The literature search made reference to the Transparent Reporting of Evaluations with Nonrandomized Designs (TREND) checklist (See Supplementary File 1) (Des Jarlais, Lyles, Crepaz, & Group, 2004) and flow diagram (Figure 1) was developed.

Sample Calculation: Based on a study by Paul Man Bun Yung, Chui-Kam, French, and Chan (2002), the researchers determined that 34 patients should be included in each group due to a sample calculation with a 5% alpha error rate (bilateral) and 80% power. Considering possible attrition, 40 patients per group, 80 participants in total, were included for a sample size 20% greater.

Intervention

Control Group: Pre-test questionnaires were administered to the patients in the control group 60 min before their operation. They received routine nursing care (control of physiologic parameters, drug therapy, and giving a surgical gown to the patient, sending the patient to operating room on a stretcher) while waiting in a comfortable position in a silent environment for 30 min. A post-test was administered to the patients at the end of the 30 min period.

Experimental Group: The patients in the experimental group listened to music for 30 min in addition to routine nursing care before their operation. The study used classical Turkish music, nature sounds, and mystic music provided by the Group for the Research and Promotion of Turkish Music (TUMATA) based upon their guidance and knowledge of the literature (McClurkin & Smith, 2016; Ugras et al., 2018). The researcher recorded these musical pieces on an MP3 player in 30 min segments.

The introductory information form and State Anxiety Inventory were administered to patients by the researcher using a face-to-face interview method after generating a silent environment in their rooms approximately 60 min before the operation. The patients' physiologic parameters (heart rate, respiration rate, blood pressure, and oxygen saturation) were assessed with the calibrated tools used in the clinic and the results were recorded on the inspection form for physiologic parameters. After the researcher introduced the types of music, patients chose the type they wanted to listen to. The patients then put on a headset that covered the ears and prevented them from hearing sounds in their surroundings. Single-use covers were used for each patient. The patients were given the MP3 player to arrange the volume to what they felt comfortable with and listen to music they chose for 30 min through the headset. After the 30 min administration was completed, the headset was removed and the researcher reassessed the patient's physiologic parameters, the State Anxiety Inventory results, and satisfaction regarding the music.

Data Collection Tools

Characteristics of the participants: Questions were asked to assess the patients' sex, age, education level, profession, marital status, ASA score, name of the operation, chronic diseases, the existence of regularly used drugs, previous hospitalization, previous medical operations, number of operations, use of analgesics preoperatively, and anesthesia experiences. Finally, one question was asked of the patients in the experimental group to assess their satisfaction regarding listening to music with the following options as possible answers: 1-satisfied, 2-neutral, or 3-dissatisfied.

Outcome Measures

State Anxiety: The State Anxiety Inventory, which was developed by Spielberger et al. (1970) and adapted to Turkish by Öner and Le (1985), was used to measure the participants' anxiety levels. It is composed of 20 questions with a 4-item Likert scale to assess anxiety levels with the following options: 1-none, 2-a little, 3-very, and 4-completely. (Aydemir & Koroglu, 2009). Scores can vary between 20 and 80 with high scores indicating a high level of anxiety (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 2010). A study conducted in Turkey has found the tests' Cronbach's alpha internal consistency coefficient to be .96 (Ozen Kutanis, 2013). This study found the Cronbach's alpha coefficients for pre- and post-tests to be .91 and .93.

Physiologic Parameters: Heart rate, respiration rate, blood pressure, and oxygen saturation values were assessed before the operation and recorded on the inspection form for physiologic parameters. Blood pressure was measured with a manual sphygmomanometer and heart rate and saturation values were measured with a pulse-oximeter.

Data Collection: The data were collected in patients' rooms in the urology clinic by the researcher using the pre- and post-tests, introductory information form, inspection form for physiologic parameters and State Anxiety Inventory.

Data Analysis: The data were analyzed using SPSS Statistics 22.0 and OpenMeta [Analyst] computer programs. The data were assessed at a significance level of 0.05 and summarized using numbers, percentages, means, and standard deviations. Chi-Square analysis was used to compare sociodemographic characteristics and some disease-related features of the patients in the experimental and control groups. Independent and dependent group *t*-tests were used to compare the mean scores. Pearson chi-square, as well as Yates corrected chi-square and Fisher's exact test, were used in the chi-square analyses. The effect sizes suitable for the study design and the statistical methods measuring the difference between mean scores of two groups were calculated using Hedges' g formula. Based on the calculation results, the effect size was assessed as follows: ≤ 0.20 = weak effect, between $0.20 < d < 0.80$ = moderate effect, and $d \geq 0.80$ = big effect (Yildirim, Yildirim 2011). Effect direction was determined as positive while calculating the effect size using pre- and post-test correlation data.

Ethical considerations: Ethical committee permission was obtained from the non-invasive

clinical research ethics committee of university and institutional approval was obtained from the hospital administration. The participants were informed by the researcher about the aim and administration of the study and written consent of those who agreed to participate was obtained. Study administration was conducted in line with ethical principles, human rights, and legal rights. The personal information of the participants was not used for any reason other than the study objective and data privacy was maintained.

Results

Participants' Characteristics: The analyses indicated that the patients in the experimental and control groups were similar with regard to sociodemographic characteristics (age, sex, marital status, and profession) and health-related features (ASA score, surgical intervention) ($p>0.05$). Of the patients in the experimental group, 70% were satisfied with listening to music, 27% were neutral, and only 1 patient was dissatisfied.

Anxiety Levels of Patients Before and After Listening to Music: The mean anxiety score of the experimental group decreased from 47.02 (SD 5.54) to 39.8 (SD 4.54) whereas that of the control group increased from 44.65 (SD 6.84) to 53.52 (SD 7.32). A significant difference was found between the mean anxiety scores after musical intervention in the intergroup comparison ($t= -10.038$, $p<0.01$). This study found that the effect size of musical intervention on anxiety state was positive and high level ($g=1.824$) ($p<0.05$) (Table 2).

Physiologic Parameters of Patients Before and After Listening to Music: The physiologic parameters of the experimental and control groups are provided in Table 3. No significant intergroup differences were found between the parameters measured five min before musical administration ($p>0.05$). The study found statistically significant differences between heart rate, respiration rate, systolic blood pressure (SBP) and diastolic blood pressure (DBP) between groups after musical administration ($p<0.05$); however, there were no statistically significant differences between oxygen saturation values ($p>0.05$). Heart rate, respiration rate, SBP, and DBP values of the experimental group after musical administration were lower than those of the control group.

Table 1. Introductory characteristics of study participants

Group Characteristics	Experimental (n=40)		Control (n=40)		Test Value	p-Value
	mean±SD		mean±SD			
Age	61.2±7.0		60.4±5.3		t=0.570	0.485
Sex*	**n**	**%**	**n**	**%**		
Male	35	87.5	37	92.5		0.712
Female	5	12.5	3	7.5		
Education Level						
Illiterate + literate	7	17.5	6	15.0		
Primary school	26	65.0	27	67.5	$x^2=0.096$	0.953
Secondary school and above	7	17.5	7	17.5		
Profession						
Employed	4	10.0	5	12.5	$x^2=3.778$	0.437
Unemployed	36	90.0	35	87.5		
Marital Status*						
Single	1	2.5	0	0.0		1.000
Married	39	97.5	40	100.0		
ASA score						
ASA1	0	0.0	4	10.0	$x^2=2.368$	0.124

ASA2	40	100.0	36	90.0		
Type of operation						
TUR-P	17	42.5	14	35.0	x^2 =0.474	0.491
TUR-BT	23	57.5	26	65.0		

* *Fisher exact test was used.* Abbreviations TUR-P = Transurethral resection of the prostate; TURBT = Transurethral resection of a bladder tumor

Table 2. Intra- and inter-group comparisons of State Anxiety Inventory mean scores

Pre-operation	**Experimental group (n=40)**	**Control group (n=40)**	**t value**	**p-value**	**Effect Size**
	mean± SD	**mean± SD**			
5 min before administration	47.02±5.54	44.65±6.84	1.705	0.092	(95% Cl) 1.824 (1.302-2.345)
30 min after administration	39.85±4.54	53.52±7.32	-10.038	**<0.01**	
t value	8.805	-10.326			
p value	**<0.001**	**<0.001**			

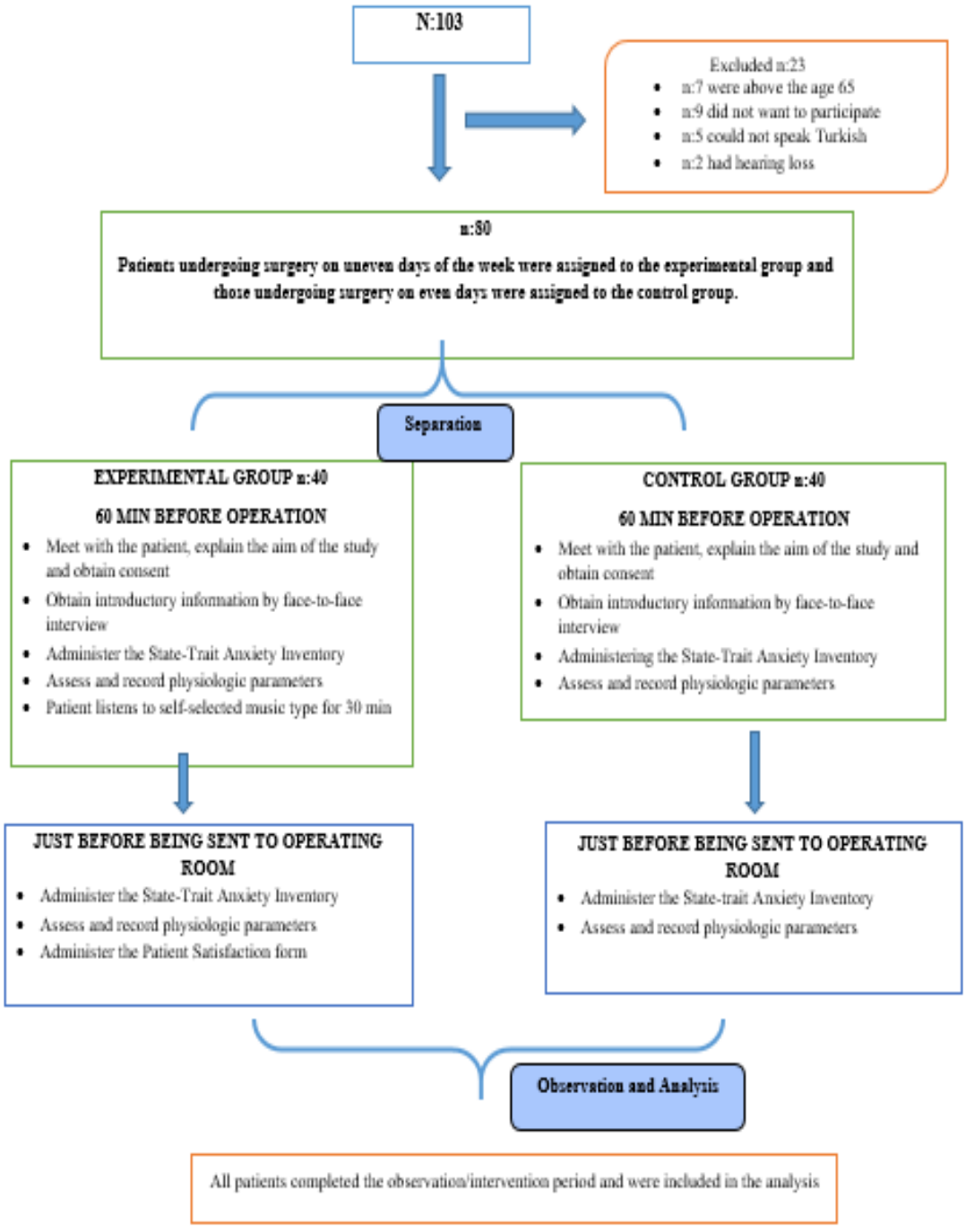

Figure 1. Study Flow Chart

Figure 1. Flow diagram for inclusion of participants in the study

Table 3. Comparison of physiologic parameters per group

Physiologic Parameters	Experimental group (n=40)	Control group (n=40)	Test and p-value	Effect size
	mean± SD	mean± SD		
Heart Rate				
5 min before administration	75.98±9.34	78.33±9.7	t=-3.802; p=0.770	1.394 (0.905-1.882)
30 min after administration	73.15±8.91	81.18±9.93	t=-1.098; **p=0.001**	
Test and p-value	t=5.459; **p=0.001**	t=-5.990; **p=0.001**		
Respiration				
5 min before administration	18.70±1.40	18.25±1.37	t=1.452; p=0.151	1.292 (0.811-1.774)
30 min after administration	17.25±2.29	19.75±2.31	t=-4.847; **p=0.001**	
Test and p-value	t=4.647; **p=0.001**	t=-4.491; **p=0.001**		
SBP*				
5 min before administration	120.2±10.4	118.25±9.0	t=0.914; p=0.364	1.300 (0.817-1.782)
30 min after administration	114.75±11.3	123.75±8.96	t=-3.941; **p=0.001**	
Test and p-value	t=5.135; **p=0.001**	t=-5.135; **p=0.001**		
DBP**				
5 min before administration	74.0±6.71	75.0±8.16	t=-0.598; p=0.551	0.726 (0.274-1.179)
30 min after administration	71.2±6.86	77.25±7.84	t=-3.642; **p=0.01**	
Test and p-value	t=2.905; **p=0.006**	t=-1.940; p=0.060		
Saturation				
5 min before administration	95.53±1.56	95.45±1.70	t=0.204; p=0.859	-0174 (-0.6138-1.264)
30 min after administration	95.28±2.00	95.45±2.05	-0.386; p:0.700	
Test and p-value	t=0.944; p=0.351	t=0.000, p=1.000		

*Systolic blood pressure **Diastolic blood pressure

Discussion

Anxiety, which negatively affects patients' adherence to treatment, disease recovery, and quality of life, starts with the decision to have surgery and increases with admission to the hospital (Yilmaz, 2016). Whether or not the operation is complex is not important for the development of anxiety (Erdil, 2008b). Although it is an expected situation, anxiety negatively affects post-operation recovery due to the psychological and physiological changes it causes. Extension of the recovery period results in the extension of the duration of hospital stay and patient dissatisfaction.

This study found the anxiety level of the experimental group which listened to music before surgery to be lower than that of the control group. Similarly, studies conducted with patients who were to have different operations have found that listening to music decreased anxiety levels (Arslan, Ozer, & Ozyurt, 2008; Bringman, Giesecke, Thorne, & Bringman, 2009; Cooke, Chaboyer, Schluter, & Hiratos, 2005; D. Lee, Henderson, & Shum, 2004; K. C. Lee et al., 2012; McClurkin &

Smith, 2016; Ni, Tsai, Lee, Kao, & Chen, 2011; Ugras et al., 2018). In a systematic investigation which examined the effect of music administration on anxiety before minimally invasive procedures, 26 studies found that music reduced anxiety (Gillen et al., 2008). A meta-analysis examining the effect of music administration during urological interventions on anxiety and pain of patients found that music administration decreased anxiety and increased patient satisfaction (Kyriakides et al., 2018). In contrast, some studies have reported that music administration did not affect anxiety during (Chantawong & Charoenkwan, 2017) and after surgery (Cutshall et al., 2011; U. Nilsson, Rawal, EnQvist, & Unosson, 2003; Reza, Mohammad Alı, Saeed, Abul-Qasım, & Reza, 2007). This study reported that listening to music before surgery might have reduced stress and anxiety by relaxing the nervous system and affecting reflexive responses to the brain stem.

Anxiety has psychological and physiological effects on the human body. Pritchard (2009b) stated that anxiety increases people's blood pressure, heart rate, and body temperature. Bansal and Joon (2016) report objective data that indicate preoperative anxiety affect heart rate, blood pressure, and skin conduction. The experimental groups' heart rate, respiration rate, SBP, and DBP values after music administration were lower than those of the control group. Similarly, other studies found that listening to music before surgery decreased heart rate (Bringman et al., 2009; Chang, Peng, Wang, & Lai, 2011; Paul M. B. Yung, Kam, Lau, & Chan, 2003), respiration rate (Gillen et al., 2008; Kushnir, Friedman, Ehrenfeld, & Kushnir, 2012; Pittman & Kridli, 2011; Paul, Yung et al., 2003), and blood pressure (Kushnir et al., 2012; Labrague & McEnroe-Petitte, 2016; D. Lee et al., 2004; Mohammadi, Mirbagher Ajorpaz, Torabi, Mirsane, & Moradi, 2014; Ugras et al., 2018; Paul , Yung et al., 2003). Meta-analyses examining the effect of music on blood pressure and heart rate have reported that music decreased heart rate and blood pressure (Jayakar & Alter, 2017; Loomba, Arora, Shah, Chandrasekar, & Molnar, 2012). Some studies have reported that music listened to during different periods did not affect blood pressure (Buffum et al., 2006; Ni et al., 2011) and respiration rate (Song et al., 2018). According to a meta-analysis by Song et al. (2018), two of nine studies reported that music did not affect heart rate. Similarly, according to a compilation study by Pittman and Kridli (2011), four of seven studies reported that music did not affect heart rate.

One of the two systematic investigations of listening to music reported that heart rate and blood pressure values of the patients in the experimental group were lower than that of the control group (Nilsson, 2008) whereas the other study found that music had a small effect on heart rate, decreased DBP, and had no effect on SBP (Bradt et al., 2013). Five of 11 studies examined in another systematic compilation found that music decreased DBP (Daniel, 2016).

This study reported that music listened to by the experimental group with its effect on decreasing the patients' cortisol and stress might have decreased the patients' heart rate, SBP, and DBP by reducing their anxiety. Heart rate and respiration rate of the patients in the control group increased because their anxiety levels were high.

No differences were found between the post-administration oxygen saturation levels of patients in the experimental and control groups. No studies reported in the literature have examined the effect of music administration before surgery on oxygen saturation. Similarly, studies have reported that music administration during and after operations (Nilsson, Unosson, & Rawal, 2005) and during interventions (Ucan, Ovayolu, & Savas, 2007; Yilmaz et al., 2003) did not affect saturation values. Two studies in a compilation study reported that music had significantly improved oxygen saturation (Nilsson, 2008). This study found that listening to music before surgery did not affect oxygen saturation.

According to the relevant literature, when patients chose the type of music they listen to their health is positively affected (Bringman et al., 2009; Leardi et al., 2007). This study might have enabled music to have a greater effect on blood pressure, heart rate, respiration, SBP, and DBP as the patients had the opportunity to choose which music to listen to. In accordance with the theory used in the study, anxiety interacted with the music and changed the personal perception of anxiety. In this way, music reduced anxiety of patients.

Limitations of the Study: This study was unable to have a randomized study population as the

incoming patient population had not been foreseen. Also, blinding was not performed as the researcher collected the data and performed treatment administration. However, the statistical analysis of the study was not performed by the researcher. The patients were asked to choose between the types of music designated in the study rather than which type of music they wanted. Moreover, the study only included patients who were to have TUR. The study setting was limited to a urology clinic of a medical faculty; therefore, the results of this study can only be generalized to patients who have the features of this sampling.

Conclusion: In conclusion, the study found that listening to music before surgery reduced the anxiety of patients who were to have TUR, positively affected their physiologic parameters, and increased their satisfaction. Music can be used as an alternative pre-operative treatment in nursing care as it reduces anxiety, provides comfort, is inexpensive, has no side effects, and is easy and safe to use.

Relevance to Clinical Practice: Preoperative anxiety and subsequent physiological complications are a vital problem on patients and their families. Patients who are to have TUR worry about whether their sexual function will be adversely affected (erectile dysfunction, infertility) and whether disease symptoms will be eliminated after the procedure. Music, a nonpharmacologic method, can be used to diminish the anxiety of TUR patients without causing any side effects. Our results provide additional evidence that musical intervention may be incorporated into routine nursing care for patients undergoing TUR.

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