



## Review

# The effect of music listening on the anxiety of nursing students during their first blood draw experience☆

Serpil Ince<sup>a,\*</sup>, Kıvanç Çevik<sup>b</sup><sup>a</sup> Akdeniz University Nursing Faculty Antalya, Turkey<sup>b</sup> Celal Bayar University Manisa, Turkey

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## ABSTRACT

**Background:** Nursing education is a process aimed both at theoretical knowledge and skill development. The Fundamentals of Nursing is a course that furnishes students with professional knowledge, concepts and technical skills, and, also, is the keystone of nursing education in our country. Students experience a great deal of anxiety as they face basic nursing practices for the first time. Studies have revealed the effectiveness of music in relieving anxiety in many patient groups. However, no previous studies were found where music was used with the intent to lower the anxiety that students experience over the course of skill learning. The experimental study is aimed at determining the effect of music in decreasing anxiety during the first nursing practices of students in a laboratory setting.

**Methods:** The experimental study was conducted on nursing students of Akdeniz University attending Fundamentals of Nursing, a freshman course, during the 2013–2014 academic year. A total of 73 students, of which 34 were assigned to the experimental group and 39 to the control group, participated in the study. Data collection was carried out using (a) the student identification form prepared by the authors, (b) skill control lists and (c) the Situational Anxiety Scale. The students in the experimental group listened to music during blood draw skill practice in a laboratory environment. The students were assessed with respect to their performance of blood drawing through skill control lists using the statements “True”, “False” and “Forgotten”. The anxiety levels and vital signs of students were assessed before and after the practice.

**Results:** The mean age of the students was 19.08. 64.7% of the experimental group and 82.1% of the control group were female. The age group of 64.7% of the students in the experimental group was female. The age group of 82.1% of the students in the control group was female. After music listening, the mean anxiety score of the students was  $38.70 \pm 3.83$  in the experimental group and  $39.76 \pm 4.72$  in the control group. The difference between the mean anxiety scores of the two groups was statistically significant ( $p < 0.05$ ). The evaluation made before and after the blood draw revealed a statistically significant difference in diastolic blood pressure values in the experimental group that listened to music ( $p < 0.05$ ).

**Conclusions:** The results of the study showed that listening to music decreased the anxiety levels of nursing students during their first blood draw experience.

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## 1. Introduction

Nursing education should equip students with professional knowledge and the ability to apply this knowledge to practice. In this respect, the Fundamentals of Nursing is the first professional course where the nursing student is taught nursing knowledge, skills and behaviours, all of which are based on scientific foundations. Throughout the course,

nursing students acquire theoretical knowledge and learn how to transform it into skills (Tel et al., 2004).

Demonstration is an important technique in furnishing the students with nursing skills. Under the supervision of faculty members, students practice on dummies or other students to simulate the real work environment. By doing so, the students are encouraged to transform the targeted behaviours into skills. The next step is to ensure that the students can apply the skills they acquire in the laboratory setting on the individuals to whom they provide care and that each of these skills are improved (Tel et al., 2004). Skill laboratories help students use standard follow-up and evaluation methods in a standard educational environment (Birgili and Aydın, 2011). Although the students know how to apply the theoretical information that they received, they may

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\* Corresponding author.

E-mail addresses: [inceserpil07@gmail.com](mailto:inceserpil07@gmail.com), [serpildogan@akdeniz.edu.tr](mailto:serpildogan@akdeniz.edu.tr) (S. Ince), [kivancevik@hotmail.com](mailto:kivancevik@hotmail.com) (K. Çevik).

experience fear and anxiety when transforming the information into skills by practicing on one another or on patients in the clinical setting. It has been observed that, particularly in laboratory settings, the anxiety levels of students increase during first-time invasive interventions, such as blood draws and injections, and their hands tremble (Taşkın et al., 2010). Such anxiety has been found to hinder optimal learning and has a negative effect on student performance (Lai et al., 2008).

The causes of stress during the educational process, such as fear of failure, and the difficulties in relating theory to practice, increase student anxiety and may hamper their desire to learn, which in the end may result in feelings of failure and alienation of students from nursing (Nahas and Yam, 2001; Bayar et al., 2009; Edwards et al., 2010). To ensure that students acquire knowledge, skills and values at desired levels during nursing education, it is crucial to comprehend the experiences causing stress among students. The negative effects of these stressful experiences on the development of the students' professional identities have been treated and emphasised in numerous studies (Seyedfatemi et al., 2007; Luo and Wang, 2009).

Anxiety being, an important concept in explaining human behaviour, is a psychological reaction against the excessive energy resulting from difficulties overwhelming the individual. Anxiety is considered one of the basic human feelings. Situational anxiety occurs when the individual perceives the current situation s/he is in as threatening and endangering. Resulting from dangerous circumstances, this type of anxiety is considered temporary and normal, and it is experienced by all individuals (Erbil et al., 2006).

There are studies on different patient groups support the idea that music is an effective method in the management of anxiety (Malathum, 2004; Lee et al., 2005; Yıldırım and Gürkan, 2007; Uyar and Akin Korhan, 2011). Music is a natural method that is easy to apply and inexpensive. Moreover, it has no side effects and plays an important role in physical, psychological, social, emotional and spiritual improvement. Music has been used not only in hospitals, but also in the field of education (Edelman and Ficarelli, 2005; Lai et al., 2008). However, the number of studies on the effect of music on nursing students is limited (Summers et al., 1990). A study by Lai et al. (2008) on nursing students found that listening to music reduces test anxiety. There are some studies in the literature concerning different interventions (i.e., aromatherapy, massage) aimed at reducing anxiety and stress during the applications that take place in the clinical and laboratory settings (Kutlu et al., 2008; McCaffrey et al., 2009). However, our review of the literature did not reveal any studies evaluating the efficiency of music in reducing anxiety during the laboratory practices of nursing students.

The present study was conducted in a skill laboratory and involved nursing students who were enrolled in Fundamentals of Nursing. It was aimed at determining the effect of music listening before blood draw, an invasive intervention, on the students' mean anxiety scores and skill levels. Given the results of this study, the anxiety levels experienced by nurses as they acquire invasive interventions skills should be examined, and alternative methods to control anxiety should be implemented.

## 2. Design and Methods

### 2.1. Participants

The experimental study was conducted on nursing students of Akdeniz University attending Fundamentals of Nursing, a freshman course, during the 2013–2014 academic year (April 2014). The total number of freshmen in the Faculty of Nursing was 255. The education of the students is conducted through two departments. Each of these departments divides the students into study groups of 12 or 13 members, and each department consists of seven study groups in total. Three groups each were selected from departments A and B as the experimental and control groups. During sample calculation, a power

analysis could not be performed due to the lack of a similar study in the literature. Considering the limitations regarding time and space and aiming to reach the recommended number of samples ( $n = 30$ ), 73 students were selected, with 34 assigned to the experimental group and 39 to the control group. The students were randomly assigned to the laboratory groups. The method of drawing lots from probability sampling procedures was used for the selection of experimental and control groups.

### 2.2. Inclusion Criteria

The following students were not included in the study: those who had previously attended the course, those who did not want to participate in the study, those with previous hospital experience, those who graduated from high schools for health professions and those who were absent during the procedure.

### 2.3. Instruments

Data collection was carried out using (a) the student identification form prepared by the authors, (b) skill control lists and (c) the Situational Anxiety Scale included in Spielberger's Situational-Continuous Anxiety Inventory, of which the validity and reliability were analysed by Öner and Le Compte (1983). Student anxiety was evaluated using the Situational Anxiety Scale and physiological parameters, including pulse rate and blood pressure.

#### 2.3.1. Student Identification Form

It consisted of 12 questions about the socio-demographic characteristics of the students.

#### 2.3.2. Skill Control Lists

Skill control lists are forms based on the literature that are used on a routine basis during the laboratory practices of the Fundamentals of Nursing course. Every year, they are revised by the faculty members in the Department of Nursing in accordance with the literature. The form includes the procedural steps of a certain skill that the student must acquire, and a faculty member observes and evaluates each student to see whether s/he achieves the aim in a given step.

#### 2.3.3. Situational-Continuous Anxiety Inventory

The Situational-Continuous Anxiety Inventory includes two separate scales with a total of 40 items. The aim of the Continuous Anxiety Scale is to determine how an individual feels him/herself in general. The reliability coefficient calculated via alpha correlations is between 0.83 and 0.87. The Situational Anxiety Scale, on the other hand, determines how an individual feels during a certain moment and under certain circumstances, and its reliability coefficient varies between 0.83 and 0.96. Each scale consists of 20 items. Higher scores indicate higher levels of anxiety. This study used the Situational Anxiety Scale.

### 2.4. Data Collection Procedure

The students in the laboratory study groups who were assigned to the experimental and control groups were informed about the study, and the students who did not meet the inclusion criteria were excluded. In the laboratory, skill training is carried out in a series of steps. Firstly, the faculty members in charge of each group introduce the skill learning task by demonstrating the related procedure step-by-step. Then, the student is asked to perform the procedure in the given order and given the chance to practice on a dummy for as long as s/he wants. Finally, as the students perform the task on one another, the faculty members supervise each step using the skill control lists, and the faculty members evaluate each step as 'correct', 'wrong' or 'forgotten'. Students in both the experimental and control groups were asked to fill in the Situational Anxiety Scale. The pulse rate and blood pressure of the students

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