



Determining the effect of periodic training on the basic psychomotor skills of nursing students



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SUMMARY

Background: Basic psychomotor skill training starts in the first year in nursing education. The psychomotor skills taught in the first year of nursing training constitute a foundation for all professional practices. Conducting periodic training for skills with which students are deficient can support mastery learning.

Objectives: The study was conducted as an interventional study for determining the effect of periodic training on the basic psychomotor skills learned in the Fundamentals of Nursing course.

Design: The sample consisted of 70 students attending the Fundamentals of Nursing course at nursing students in a university in Ankara, over 4 years between 2010 and 2013.

Methods: The study was conducted as an interventional study for a period of 4 years. The data were collected through a questionnaire that was applied 4 times at the end of each academic year. According to the results of the forms evaluated at the end of each year, 4 additional laboratory activities were conducted addressing the deficient psychomotor skills of students at the beginning of the new academic semester in the 2nd and 3rd years. In the 4th-year clinic practice, courses were arranged to practice still deficient psychomotor skills. Results: It was determined that students practiced nearly all of the basic psychomotor skills during clinical practice and that the practices with which they felt themselves to be inadequate gradually decreased following periodic training; this decrease was significant ($p < 0.05$). While the number of students who could practice was low at the first measurement, following 3 years of periodic training, these skills increased significantly ($p < 0.05$).

Conclusion: This study determined that periodic training addressing the deficient psychomotor skills of nursing students was effective. We recommend that students' psychomotor skills be evaluated periodically and repetitive training based on the results of this evaluation be provided throughout the undergraduate nursing education process.

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Introduction

In nursing training, structured theoretical and practical education is presented as a whole for the purpose of enabling the student to acquire a professional nursing identity and preparing him or her for professional life (Morgan, 2006; Hunt et al., 2012). In order to achieve this objective, it is necessary for nursing students to acquire cognitive, affective, and psychomotor skills (Morgan, 2006). The cognitive skills cover the methods of classifying educational objectives based on thought, while affective skills refer to behaviors such as understanding others'

emotions. Psychomotor skills refer to the necessary behaviors occurring as a result of the collaboration of sense organs, mind, and muscles (Yalin, 2002). These desired behavior changes can only be induced in students through a well-planned training process (Karabulut and Ulusoy, 2008).

The theoretical and practical training provided in the classroom and laboratory in nursing school are reinforced with practical training performed in the clinical setting (Bloomfield et al., 2010; Pitt et al., 2012). The acquisition of clinical skills is an essential part of learning to be a nurse, and a lack of clinical skill competency can compromise patient care and safety (Bloomfield et al., 2010).

Clinical experience is the most important component of nursing education, even more so than classroom learning (Walker, 2005). Clinical training is important because it enables students to achieve real experience with patients and practice the skills they have learned in the classroom (Chapman and Orb, 2000). The educational process is unique in more practical professions such as nursing because the ability to perform professional activities in real-life situations as opposed to simply expressing understanding of the principles is a requisite competency

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of graduation (Shuman, 2005). This competency cannot be achieved through classroom learning alone (Oermann et al., 2011). Learning motor skills requires practice, namely, the opportunity to repeatedly use the skill and gain feedback on performance (Quinn and Hughes, 2007). Furthermore, there is the ever-present risk that a student's actions—or lack thereof—may cause harm to patients. It is also well accepted that clinical instructors play an enormous role in this learning process (Kube, 2010).

Within this context, the regulation promulgated by the Council of Higher Education in Turkey dated February 2, 2008, emphasized that nursing training should last at least 4 years, and the curriculum should consist of both theoretical education and clinical teaching (Official Gazette, 2008).

In Turkey, basic psychomotor skill teaching starts in the first year with the “Fundamentals of Nursing” course (Görgülü, 2002). After theoretical information is conveyed in the classroom setting, students are taught basic psychomotor skills in this course through practice on a manikin in the laboratory with a setting and materials as similar as possible to reality. Students are provided the opportunity to practice with warnings and guidance. Students who complete the theoretical and laboratory training continue into the clinical practice setting to reinforce their practical clinical skills. Despite this extensive training regimen, students demonstrate substantial differences in skill learning for nearly all of the requisite nursing skills. For instance, Bloom (2012) found that at the end of a long learning period, some students learned a large proportion of new behaviors that the school wished for them to learn, while others learned only a portion of these (Bloom, 2012). However, the basic psychomotor skills taught in the first year of nursing school are the basis for all professional practice. Thus, students are expected to have competence in all of these psychomotor skills. The expectation of nurse training institutions, graduates, and institutions employing nurses is that all students engage in “mastery learning” of the necessary psychomotor skills. Students find the opportunity to acquire the skills they have learned about throughout their 4-year training by repeating them in the clinical setting. However, often students are unable to find the opportunity to perform all the necessary skills in the clinical setting for several reasons, such as detriments in their instructors' theoretical knowledge-based applications; inadequate comprehension of how to use theoretical knowledge in practice; differences between what is taught in the classroom and what is taught in the hospital; inadequacy of time for practice; unsuitability of physical conditions; high number of students; and the challenges of moving from working with a manikin in the laboratory to practicing on real patients in the hospital (Aytekin et al., 2009; Fitzgerald et al., 2012). Furthermore, the relation established by medical staff with students and the negative attitudes they demonstrate toward students often affect how well students benefit from practicing in a clinical setting (Smedley and Morey, 2009; Aytekin et al., 2009; Karaöz, 2003). Under such conditions, students may lose their motivation and will eventually forget the necessary skills because the students will have no opportunity to practice them. Thus, the objectives of clinical practice are not satisfied, and “mastery learning” is not achieved.

The Mastery Learning Model, developed by Benjamin S. Bloom in 1956, is based on the hypothesis that “students are provided planned and sensitive teaching service, those experiencing learning difficulties are provided appropriate and timely assistance, and if the mastery learning criterion is determined, nearly all students learn at a high level.” According to the Mastery Learning Model, in order for a student to be able to demonstrate a skill, it is necessary for the student to perform that skill properly without receiving assistance and then use the learned skill in another similar circumstance. For this purpose, students should be provided rich stimuli and experiences in the classroom setting. These rich stimuli ensure the students' active participation in the lesson. Whether the students have achieved the intended teaching objectives or not is ensured through instant feedback. When evaluations are performed at the end of learning, students are provided with

essential feedback; and by having the opportunity to make the necessary corrections, each student may achieve the intended objective—namely, mastery learning (Bloom, 2012; Tan, 2011). Specifically for our study, in order for students to demonstrate the skills taught in nursing school, it is important that they receive necessary feedback and corrections after the skills are learned with a guide—in other words, an instructor. However, the effective observation of students participating in various clinical settings and providing adequate feedback and corrections immediately can be considerably difficult. Thus, it is necessary to create the most suitable learning settings in order to facilitate students' learning in the clinical training process (Karabulut and Ulusoy, 2008). However, in order to establish a suitable clinical learning setting and to improve students' basic psychomotor skills as much as possible, it is highly important to receive feedback from students regarding practice conditions. Through this feedback and by means of periodic training on subjects in which students are deficient, we believe that these deficiencies can be minimized, and mastery learning can be achieved. Thus, it is assumed that the results of our study will demonstrate the role of periodic training over 4 years in which students practice learned psychomotor skills in the clinic setting and improve themselves in subjects with which they feel inadequate.

The aim of the present study was to determine the effect of periodic training on the basic psychomotor skills learned in the Fundamentals of Nursing course.

Hypotheses of the study

- H0.** Periodic training has no effect on basic psychomotor skills.
- H1.** Periodic training has an effect on basic psychomotor skills.

Methods

Design

The interventional study was conducted for a period of 4 years.

Sample of the study

The study population consisted of all students enrolled in the Fundamentals of Nursing Course at the Department of Nursing of the Faculty of Health Sciences in a university in Ankara, the capital of Turkey, over 4 years between 2010 and 2013 ($N = 90$). The study sample consisted of those students taking the Fundamentals of Nursing Course for the first time ($n = 80$). As the study continued for a period of 4 years and 10 students failed the course during the study period, the study was completed with 70 students. The rate of participation was 77.7%.

Ethical considerations

Written permission was received from the institution at which the study was conducted (Permission Date: 01.06.2010, Number: B.30.2.GÜN/031.00.00/507). Participating students were told that the purpose and method of the study and that participation was voluntary, and their verbal consent was received.

Instruments

Data were collected through a data collection form developed by the investigators through a review of the literature (Potter and Perry, 2005; HUÇEP, 2009; Perry and Potter, 2011). The data collection form consisted of two sections.

The first section consisted of 5 questions on the introductory characteristics of students, and the second included 76 psychomotor skills necessary for 14 basic practices for use in clinical settings. “The National

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