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The efficacy of an educational intervention on health behaviors in a sample of Turkish female nursing students: A longitudinal, quasi-experimental study

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SUMMARY

Background: Unhealthy behaviors are a key factors leading to health problems. It remains unclear whether an educational intervention has a long term effect on health behaviors of nursing students.
Objectives: The aim of this study was to evaluate the long term effect of an educational intervention on the health behaviors and examine predictors of change in these behaviors in Turkish female baccalaureate nursing students.
Design: Quasi-experimental design with one-group, pre- and posttest, and 3-year follow-up.
Setting: The study was conducted in a school of nursing in Turkey.
Participants: One hundred-eight students participated in this study.
Methods: Data were collected before and after the implementation of the educational intervention by using the Health-Promoting Lifestyle Profile-I (HPLP-I). Descriptive statistics, the one-way analysis of variance for repeated measures and multiple linear regression analysis were used.
Results: There were significant differences among the three time points in terms of the HPLP-I total and subscales scores (self-actualization, health responsibility, exercise, nutrition and stress management), except for interpersonal support ($p < .05$). The positive effect of intervention on the HPLP-I total and health responsibility subscale scores was maintained during the 3-year follow-up period ($p < .05$). The amount of change from pretest to posttest in the total HPLP-I score was the only predictor of the 3-year change in the total scale score (unstandardized $\beta = 0.538$; $p < .001$), after adjustment for the potential confounding factors.
Conclusions: The educational intervention was partially effective in improving all health behaviors of the nursing students over the long term. Nursing students who demonstrated higher levels of benefit from the intervention were more likely to have more positive health behaviors at the 3-year point. The findings of this study highlight the importance of the integration of health behaviors within the nursing curriculum.

Introduction

The Global Status Report on Noncommunicable Diseases (2010) prepared by the World Health Organization (WHO, 2011a) demonstrates that noncommunicable diseases are the major cause of death worldwide (63%). It is estimated that noncommunicable diseases accounted for approximately 85% of all deaths in Turkey in 2008, and the majority of these deaths are attributed to cardiovascular diseases (49%), cancers (18%), chronic respiratory diseases (9%) and diabetes (2%). These diseases can be largely prevented or reduced by addressing behavioral risk factors and increasing people's awareness of the importance of health promotion activities (WHO, 2011b). Within this context, in Turkey, the Health Transformation Program (Republic of Turkey Ministry of Health, 2003) and a new strategic plan for the years 2013–2017 (Republic of Turkey Ministry of Health, 2012) were prepared and have been implemented. Based on the criteria of the European Union, the Nursing National Core Education Program (NNCEP) was also developed in order to establish standards for nursing education programs (NNCEP Commission, 2003). In this study, we evaluated the long term effect of an educational intervention designed according to this program on health behaviors of Turkish female baccalaureate nursing students and factors affecting change in these behaviors.

Background

Health promotion is defined by the WHO (2009) as "the process of enabling people to increase control over, and to improve, their health" (*p.* 1). The WHO stresses that an individual or group must recognize aspirations, satisfy all needs, and change or cope with the environment to achieve a state of total well-being in terms of physical, mental and social. In the Ottowa Charter for Health Promotion, five health promotion action areas were identified: building healthy public policy,

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creating supportive environments, developing personal skills, strengthening community action, and reorienting health services (WHO, 1986). Health education is an important part of developing a personal skill, which provides health protection and promotion, reducing disease risks and coping with chronic illness and injuries. The WHO supports school health programs to prevent major health problems among youth and recommends education programs providing stable and lasting changes in health behaviors (WHO, 2012).

Nurses as health educators play a key role in promoting health of their patients and communities (Healy and Mc Sharry, 2011). In addition, the personal health practices of nurses may influence counseling to their patients about health issues (Clément et al., 2002). The literature suggests that nurses tend to compare the unhealthy behaviors of patients with their own unhealthy behaviors, which is described as 'personal benchmarking' (Broyles et al., 2012). Therefore, health behaviors of nursing students should be improved during their education. Currently, the nursing education system in Turkey is composed of two parts: vocational education (4-year diploma program at a health vocational high school) and higher education (2-year associate degree program by the open and distance education system, 4-year baccalaureate program at a university and postgraduate programs). A university education is a period of great changes in nursing students' lives. This time of transition between adolescence and young-adulthood (ages 18–25) is called 'emerging adulthood' and is characterized by identity exploration, instability, self-focus (ego-centrism), feeling in-between and the age of possibilities (Arnett, 2000). Findings from previous studies suggest that individuals in this age group tend to engage in unhealthy and risky health behaviors such as smoking, drinking alcohol, substance use, unhealthy nutrition and sedentary lifestyles and this may lead to health problems in youth or in later life (Al-Kandari et al., 2008). It is hard to change unhealthy behaviors in adulthood. Thus, it is important to the early acquisition of health behaviors in nursing students (Can et al., 2008).

To date, many studies have been conducted to assess nursing students' health behaviors. Age, relations with family and friends, perceived health status, academic performance (as assessed with the visual analog scale) (Can et al., 2008), marital status, body mass index (BMI), nationality (Kuwaitis, Arabs, non-Arabs vs. Gulf Cooperative Council countries) (Al-Kandari et al., 2008), perceived household income (balance between income and expenses), the presence of health insurance, having a history of cancer in the family (Çoban et al., 2010), school year, employment status (Hui, 2002), spiritual health (as measured with Spiritual Health Scale) (Hsiao et al., 2010) and cultural characteristics (Canadian vs. Jordanian) (Haddad et al., 2004) have been shown to affect health behaviors of nursing students.

In this study, the theoretical framework was provided by the Information–Motivation–Behavioral Skills (IMB) model of health behavior change developed by Fisher and Fisher (1992). The IMB model assumes three components of the initiation and maintenance of positive health behaviors: accurate information, personal and social motivation, and behavioral skills. According to this model, an individual must be well-informed about the health behavior, motivated to perform the health behavior and possess the behavioral skills to increase self-efficacy (Fisher et al., 2009).

A few researchers have examined the effects of educational interventions on health behaviors among nursing students in the pretest–posttest design. The results of previous studies confirmed the efficacy of the intervention in improving health behaviors (Hsiao et al., 2005; Stark et al., 2005, 2012; Yeh et al., 2005). In a study of midwifery, nursing and emergency students, Bektas et al. (2010) reported that a significant increase in the overall health behaviors of the students with poor nutrition following intervention. A qualitative study showed that the 'Introduction to Health' coursework influenced students' health behaviors (Clemmens et al., 2004). In few longitudinal studies, nursing students beginning their first semester of the program were followed up until graduation to assess the effect of nursing curriculum on health behaviors (Alpar et al., 2008; Clément et al., 2002; Riordan and Washburn, 1997). However, a limitation of these studies was small sample size, which limited the power of the statistical analyses. To the best of our knowledge, no study has investigated the long term effect of a special educational intervention on health behaviors in nursing students and predictors of change in these behaviors. The results of this study will therefore contribute to the current literature on the health behaviors and will have implications for improving health behaviors of nursing students.

Aim

The aim of this study was to examine the long term effect of the educational intervention on improving the health behaviors of Turkish female baccalaureate nursing students. Furthermore, this study aimed to determine predictors of the 3-year change in the health behaviors of nursing students.

Methods

Design and Sample

A quasi-experimental study with one-group, pre- and postest, and 3-year follow-up was conducted in a school of nursing in a large metropolitan area of Turkey. Data were collected before and after the implementation of educational intervention to measure its effect on the health behaviors of nursing students (Fig. 1). The school of nursing where the study took place offers baccalaureate program as well as postgraduate programs for students. In the school, an integrated education system has been implemented and courses have been taught using a committee system since 2003–2004 academic years in baccalaureate program. An intern program is also offered to fourth-year students. This study involved a convenience sample of first-year students in baccalaureate program in nursing. The participants who had not taken previous any health promotion course or education were included. Of the 116 eligible students, 108 agreed to participate and completed the study (response rate = 93.1%).

Data Collection

Data were collected by using a self-administered questionnaire with two sections. The first section was developed by literature review (Hui, 2002; Riordan and Washburn, 1997) that included socio-demographic variables such as age, education level of mather and father, the longest place of residence, perceived household income, smoking and alcohol use. Self-reported height and weight were recorded and BMI was calculated as weight (kg) divided by height (m^2). A pilot test was conducted with 10 nursing students in order to establish the suitability and understandability of the questionnaire. The questionnaire was not modified after the pilot study and the data of these students were included in the analyses to increase statistical power.

The second section consisted of data on the participants' health behaviors. The Turkish version of the Health-Promoting Lifestyle Profile-I (HPLP-I) (Esin, 1999) was used to measure health behaviors. The 48-item HPLP-I includes six subscales: self-actualization (13 items), health responsibility (10 items), exercise (five items), nutrition (six items), interpersonal support (seven items), and stress management (seven items). It is a 4-point Likert scale ranging from 1 (never) to 4 (routinely). The possible range of total score is 48 to 192, and higher scores indicate better health behaviors. The authors reported acceptable internal consistency values for the English (Walker et al., 1987) and Turkish versions of the HPLP-I (Esin, 1999) (Cronbach's alpha coefficients: total scale = 0.92 and 0.91; range for subscales = 0.70–0.90 and 0.57–0.77; respectively). The Cronbach's alpha coefficient for the total scale was 0.86 and alpha coefficients for the six subscales ranged from 0.56 to 0.77 in the current study.