



ORIGINAL ARTICLE

Development of a Food Safety and Nutrition Education Program for Adolescents by Applying Social Cognitive Theory

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Abstract

Objectives: The purpose of this study was to develop an educational model regarding food safety and nutrition. In particular, we aimed to develop educational materials, such as middle- and high-school textbooks, a teacher's guidebook, and school posters, by applying social cognitive theory.

Methods: To develop a food safety and nutrition education program, we took into account diverse factors influencing an individual's behavior, such as personal, behavioral, and environmental factors, based on social cognitive theory. We also conducted a pilot study of the educational materials targeting middle-school students ($n = 26$), high-school students ($n = 24$), and dietitians ($n = 13$) regarding comprehension level, content, design, and quality by employing the 5-point Likert scale in May 2016.

Results: The food safety and nutrition education program covered six themes: (1) caffeine; (2) food additives; (3) foodborne illness; (4) nutrition and meal planning; (5) obesity and eating disorders; and (6) nutrition labeling. Each class activity was created to improve self-efficacy by setting one's own goal and to increase self-control by monitoring one's dietary intake. We also considered environmental factors by creating school posters and leaflets to educate teachers and parents. The overall evaluation score for the textbook was 4.0 points among middle- and high-school students, and 4.5 points among dietitians.

Conclusion: This study provides a useful program model that could serve as a guide to develop educational materials for nutrition-related subjects in the curriculum. This program model was created to increase awareness of nutrition problems and self-efficacy. This program also helped to improve nutrition management skills and to promote a healthy eating environment in middle- and high-school students.

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1. Introduction

South Korea has faced various dietary problems with its adolescents. According to the 2013 Korea National Health and Nutrition Examination Survey, 33% of adolescents, aged 12–18 years, have skipped breakfast, and only approximately one out of four adolescents have used the nutrition facts label to make healthier food choices [1]. The 10th Korea Youth Risk Behavior Web-based Survey revealed that male students have a higher prevalence of obesity than female students (male 14% vs. female 6%) [2]. Conversely, female students have a higher rate of body image distortion than males (female 36% vs. male 22%) [2]. In addition, 45% of female students have attempted to lose weight in the past 30 days, and a portion of them used unhealthy weight control methods, such as fasting, taking laxatives or diuretics, and vomiting [2]. Therefore, we need a nutrition intervention program targeting Korean adolescents to prevent obesity and encourage the promotion of a healthy body image.

There is an urgent need to develop a food safety education program targeting adolescents in South Korea. One study revealed that 6% of high-school students consumed caffeine above the tolerable upper intake level based on one's own weight [3]. A high intake of caffeine could lead to headache, insomnia, palpitations, and tremors [4]. Additionally, more than half the middle-school students (62%) consumed processed food once or more per day. The level of the general food labelling component check was the lowest for food additives compared with all other components (e.g., date of manufacture, sell-by date, net content, place of origin) [5]. Moreover, one third of the patients with food-borne illness were found at schools [6]. Less than half of middle- and high-school students washed their hands before eating at the schools [7]. Due to the harmful effects of a high caffeine intake, a low level of awareness regarding food additives, and a low level of hand hygiene practice, we need to include food safety education classes into the nutrition intervention program for adolescents.

Middle- and high-schools have faced great challenges with regards to nutrition education due to the lack of sufficient nutrition education programs in South Korea. The research revealed that the biggest barrier to nutrition education was a lack of education material and programs among middle- and high-school dietitians [8,9]. In addition, more than half of the teachers obtained nutrition education materials from the Internet [10]. If the dietitians used unverified content from the Internet, the authority of dietitians would be weakened due to the spreading inaccurate information. There is an urgent need to develop food safety and nutrition education programs based on scientific evidence for healthy eating in adolescents.

It is critical to develop a theory-based nutrition education program because theories help us to understand and predict dietary behaviors. Social cognitive theory has been commonly used to explain dietary behaviors in adolescents. Social cognitive theories state that behavior is determined by personal, behavioral, and environmental factors [10]. According to social cognitive theory, the education program should include multiple avenues, such as cognitive change, skill improvement, and environmental change. In addition to the targeted beneficiary, it is important to educate parents, middle- and high-school teachers, and peers to change the social environment. An effective nutrition education program needs school as well as family support. We developed a food safety and nutrition education program for middle- and high-school students by applying social cognitive theory. The study aimed to: (1) develop a textbook, teacher's guidebook, and teaching-learning plan; and (2) develop school posters for supporting a healthy eating environment in middle and high schools.

2. Materials and methods

2.1. Development of a nutrition education model

The program themes and objectives were selected by the research team and nutrition professionals, including a nutrition teacher. We designed the nutrition education model based on social cognitive theory. We took into consideration numerous factors affecting a person's behavior: (1) personal factors (i.e., outcome expectations, outcome expectancies, self-efficacy); (2) behavioral factors (i.e., behavioral capability, self-regulation/self-control); and (3) environmental factors (i.e., observational learning/modelling, social environment). We developed a nutrition textbook for middle- and high-school students, a teacher's guidebook, and posters applying social cognitive theory.

2.2. Evaluation of nutrition education materials

We conducted a survey to evaluate the nutrition textbook for middle- and high-school students ($n = 50$) and dietitians ($n = 13$) during May 2016 in Kyonggido, Korea. Additionally, dietitians evaluated the teacher's guidebook. The survey questionnaire included the level of understanding and concentrated on the contents, the usefulness of the information, and recommendations for these nutrition education materials by measuring with the 5-point Likert scale (from strongly disagree to strongly agree) [11]. We employed descriptive statistics such as number, mean, and standard deviation to describe the basic features of the data.

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