

University Students Intend to Eat Better but Lack Coping Self-Efficacy and Knowledge of Dietary Recommendations

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ABSTRACT

Objective: To assess university students' knowledge, intentions, and coping self-efficacy related to dietary recommendations.

Design: The study used a cross-sectional online survey.

Setting: Large university campus.

Participants: Students (n = 6,638; 22% response).

Variables Measured: Self-efficacy and intentions were measured using 11-point scales. Students' perceived dietary recommendations were evaluated as correct or incorrect.

Analysis: Categorical variables were analyzed using chi-square and continuous variables by *t* tests or ANOVAs. Significance was set at $P \leq .05$ and multiple comparisons at $P \leq .01$.

Results: Respondents believed that they need fewer vegetables and fruit and more milk or alternatives servings/d than recommended; eg, males aged ≥ 19 years perceived milk or alternatives recommendations to be 4.3 ± 2.1 servings/d, significantly more than the 2 servings/d recommended ($P < .001$). Students in health sciences or with a food or nutrition course were significantly more likely to claim that they met recommendations (eg, 56% with vs 47% without a food or nutrition course for vegetables and fruit; $P < .001$); however, they were no more likely to identify them correctly. Males aged < 19 years had higher coping self-efficacy than females aged < 19 years to consume vegetables (68.3 ± 24.2 vs 64.0 ± 24.7 ; $P < .01$) and avoid high-calorie foods and beverages (HCFB) (56.2 ± 27.2 vs 49.0 ± 25.2 ; $P < .01$) when under stress; however, they had significantly lower intentions to consume vegetables (72.1 ± 24.5 vs 80.9 ± 20.3 ; $P < .01$) and avoid HCFB (60.5 ± 30.3 vs 77.7 ± 22.8 ; $P < .01$).

Conclusions and Implications: Students do not have adequate knowledge of age- and sex-specific food guide recommendations. Simpler food guide recommendations or age- and sex-targeted campaigns may enhance knowledge. Students intend to consume more vegetables and less HCFB; however, they have low coping self-efficacy, all of which could be targeted in nutrition interventions.

Key Words: university students, dietary recommendations, knowledge, intentions, self-efficacy (*J Nutr Educ Behav.* 2016;48:12-19.)

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INTRODUCTION

The majority of Canadian university students (86.6%) have reported consuming less than half the recommended

servings of vegetables and fruit (VF) per day for their age.¹ Students also report consuming only 0.5 servings/d of low-fat dairy products.² In contrast, sodium and saturated fat,

nutrients that are abundant in pre-prepared foods and high-calorie foods and beverages (HCFB), are being consumed in excess.³ These dietary behaviors are troubling because over half of youth aged 18–24 years have at least 1 coronary heart disease risk factor and nearly one quarter have advanced atherosclerotic lesions.³

University students have also been found to gain weight at a rate that can be up to 6.7 times that of the general population.⁴ Although the average weight gain is approximately 3.86 lb (1.75 kg),⁵ appropriate weight prevention strategies for this population are still important. One objective of *Healthy People 2020* is to increase the proportion of university students receiving information from their institution on unhealthy dietary

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patterns⁶; however, nutrition knowledge has only moderate effects on students' food attitudes and behaviors.⁷ College-level food and nutrition (FN) courses have been suggested as an effective strategy to prevent weight gain,⁸ decrease fat consumption,⁹ and increase the intake of VF¹⁰; however, there is little evidence to suggest the efficacy of this approach. Part of the problem may be a lack of awareness regarding dietary recommendations, especially when they are age- and sex-specific, as with *Canada's Food Guide* (CFG).¹¹

Young people aged 18–24 years also exhibit an “optimistic bias”¹² in which they recognize deficits in their peers but fail to recognize the same deficits in themselves.¹³ Students in this age group fail to see the effect of their current actions on their long-term health status and exhibit an invulnerable attitude with regard to risk factors.¹⁴ Thus, interventions that focus on long-term risks and benefits are unlikely to be effective,¹³ whereas short-term outcome expectations may be more likely to influence student decision making. Students are also more likely to integrate new knowledge that concurs with existing knowledge, because transformative learning theory suggests that “we have a strong tendency to reject ideas that fail to fit our preconceptions, labeling those ideas as unworthy of consideration.”¹⁵ Thus, it is important to discover students' perceptions about healthy eating to design interventions that are likely to resonate with them. *Social Cognitive Theory* is an ideal theoretical model upon which to design interventions because it includes several constructs (eg, outcome expectations, self-efficacy, and intentions) that have an impact on dietary behaviors.¹⁶

The purpose of this cross-sectional study at a large Canadian university was to determine whether students could correctly identify the appropriate number of servings of VF and milk and alternatives (MA) recommended in CFG for their age and sex, declare whether their own eating behaviors meet recommendations, judge their coping self-efficacy to eat well under stress, and identify their intentions for healthy eating. The results may be used to inform the design

of nutrition education interventions for postsecondary students and other young adults.

METHODS

Participants and Recruitment

All 30,310 full- and part-time undergraduate students at Western University, Canada, were invited to complete an original online survey. Agreeing to complete the survey was taken as consent to participate, and respondents who answered at least 1 question were included. The Non-Medical Research Ethics Board at Western University approved the study.

Study Design

Created using FluidSurveys (Fluidware, Inc, Ottawa, Ontario, Canada, 2012), this survey included 37 questions (67 items). Response categories were nominal or 5-point (*strongly agree* to *strongly disagree*) and 11-point (0–100) scales, because they have been used to measure attitudes and intentions in behavioral research.¹⁷ To decrease cognitive burden and minimize measurement error, the researchers used basic syntax, minimized vague relative terms, repeated syntactic structure in sentences with similar meanings, and limited implicit information.¹⁸ Questions were based primarily on *Social Cognitive Theory*,¹⁶ addressing the constructs of self-efficacy, outcome expectations, and intentions, because these have been shown to affect health behaviors in a student population.¹⁹ A specific focus was placed on consumption of VF and MA as well as HCFB. Although content validity was not established by way of a separate investigation, survey items were informed by evidence- and practice-based indicators, expert opinion, and a review of the related literature. The survey was pilot-tested with a small group of undergraduate students ($n = 10$) who were not part of the final sample, after which small changes were made to question wording. After an initial invitation e-mail (with the survey link), reminders were sent 1 and 2 weeks later.²⁰ The survey was closed to participation 1 week after the final e-mail.

Data Analysis

Frequencies were calculated for categorical variables, with means and SDs for continuous variables. Chi-square analyses were performed to determine significance in categorical data. A 1-sample *t* test was used to compare respondents' perceived CFG recommendations (VF and MA) with the actual recommendations. Independent samples *t* tests or ANOVAs determined differences by sex, age, discipline, and having taken a secondary or postsecondary FN course. The authors performed multiple comparisons for CFG age and sex categories as *a priori* objectives to compare males and females within age groups, and different age groups within each sex. Significance was set at $P < .05$; however, when conducting multiple comparisons or *post hoc* analyses with Bonferroni corrections, significance was set at $P < .01$ (SPSS, 21.0, IBM Corp., Armonk, NY, 2012).

RESULTS

A total of 4,096 responses were received after the first e-mail, with subsequent e-mails increasing responses to 7,132. The final sample included 6,638 respondents, for a final response rate of 22%. Final sample sizes varied by question because not all respondents answered all questions. Table 1 displays respondent demographics. Although sample distribution by discipline was representative of the university population, respondents included a higher percentage of females.²¹

Respondents believed they need significantly fewer VF and more MA servings per day than are recommended by CFG¹¹ (Table 2). The only exception was females aged < 19 years, who were able to identify the recommendations accurately for MA. Students rated (on a scale of 0–100) the nutritional quality of their diets higher than their perceived nutrition knowledge (70.2 ± 17.6 and 62.1 ± 20.6 , respectively; $P < .001$, paired *t* test; data not displayed). Younger students had significantly lower ratings for their perceived nutrition knowledge and dietary quality compared with older students

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