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Self-reported food skills of university students

Courtney K. Wilson [a], June I. Matthews [a], Jamie A. Seabrook [a, b, c, d, e], Paula D.N. Dworatzek [a, f, *]

[a] School of Food & Nutritional Sciences, Brescia University College, Western University, London, Ontario, Canada
[b] Department of Paediatrics, Schulich School of Medicine and Dentistry, Western University, London, Ontario, Canada
[c] Children's Health Research Institute, London, Ontario, Canada
[d] Lawson Health Research Institute, London, Ontario, Canada
[e] Human Environments Analysis Laboratory, Western University, London, Ontario, Canada
[f] Schulich Interfaculty Program in Public Health, Schulich School of Medicine and Dentistry, Western University, London, Ontario, Canada

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ABSTRACT

University students experience a life transition that often results in poor dietary behaviors and weight gain. Adequate food skills may improve diet quality and prevent chronic disease. Research is limited, however, on students' food skills and food-related behaviors. The objective of this study was to assess whether self-perceived food skills and related behaviors of students at a large, Canadian university differed based on sex, having taken a Food and Nutrition (FN) course, and living conditions, using a cross-sectional online survey. The response rate was 21.9% (n = 6638). Students (age, M ± SD 19.9 ± 2.1 years) self-reported their abilities for seven distinct food skills. Students rated (out of 100) their ability for some skills significantly higher than others (79.7 ± 20.9 for peeling, chopping, and slicing vs. 56.1 ± 29.1 for weekly meal planning; $p < 0.001$). Females reported higher total food skill scores than males (487.0 ± 141.1 out of a possible 700 vs. 441.9 ± 151.8, respectively; $p < 0.001$). Respondents who had taken a FN course reported higher total food skill scores than those who had not (494.9 ± 137.0 vs. 461.9 ± 149.2; $p < 0.001$). Students who resided away from their parental home for longer than one year reported significantly higher total food skill scores than those living away for one year or less (488.9 ± 134.6 vs. 443.3 ± 153.0, respectively; $p < 0.001$). Results indicate that students' self-perceived food skills vary by sex, FN education, and living condition. Higher abilities were reported for mechanical food skills; conceptual skills were significantly lower. These results may assist in effectively targeting this population with nutrition education interventions.

1. Background

Many university students experience rapid weight gain, which is often related to poor dietary behaviors (Vella-Zarb & Elgar, 2009). Although students may intend to make healthy food choices, many lack the knowledge and self-efficacy to do so (Matthews, Doerr, & Dworatzek, 2016). Commonly-cited barriers to healthy eating in the student population include personal preferences (e.g., taste), self-discipline, finances, time, and convenience; however, academic demands and social and physical environments may create additional obstacles (Chenhall, 2010; Deliens, Clarys, De Bourdeaudhuij, & Deforche, 2014). Low self-efficacy and the perception of having inadequate food skills also pose barriers to meal preparation (Health Canada, 2015; Larson, Perry, Story, & Neumark-Sztainer, 2006) and healthy food choices, resulting in an increased tendency to choose convenience foods (Chenhall, 2010). Regular consumption of ready-made convenience foods contributes to weight gain (Nelson, Story, Larson, Neumark-Sztainer, & Lytle, 2008; Vella-Zarb & Elgar, 2009), putting students at an increased risk of overweight and obesity in adulthood (Guo, Wu, Chumlea, & Roche, 2002). Since 1985, the prevalence of obesity in Canadian adults increased from 6.1% to 18.3% and is predicted to rise to 21% by 2019 (Twells, Gregory, Reddigan, & Midodzi, 2014). Food and nutrition (FN) education, ranging from practical cooking skills to critical assessment of nutrition information, could enable young adults to develop and sustain healthy eating behaviors, potentially addressing both the obesity epidemic and the 'culinary deskilling' that is purported to have occurred over the same timeline (Chenhall, 2010; Nelson, Corbin, & Nickols-Richardson, 2013; Slater, 2013).

* Corresponding author. Brescia University College, 1285 Western Road, London, ON N6G1H2, Canada.
E-mail address: pdworatz@uwo.ca (P.D.N. Dworatzek).

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Almost 2 million Canadians are enrolled in postsecondary education (Statistics Canada, 2013), representing a significant population for health promotion interventions, particularly since food preparation in this age group is associated with better diet quality (Larson et al., 2006).

There is a paucity of data on food skills among youth (Desjardins & Azevedo, 2013; Larson et al., 2006; Waterloo Region, 2010), in part due to a lack of standardized definitions and measurement tools (Chenhall, 2010; Desjardins & Azevedo, 2013; SafeFood, 2014). Food skills typically include planning, preparation, and storage, and each of these categories may include technical, mechanical, conceptual, and/or perceptual aspects (Chenhall, 2010; Waterloo Region, 2010). For example, doubling a recipe (preparation) would require technical skills to calculate ingredient amounts, mechanical skills to combine ingredients, conceptual skills to decide required yield, and perceptual skills to choose appropriately-sized mixing bowls. Self-assessment of personal food skills likely reflects a combination of a person's skills and self-efficacy towards meal planning, preparation, and storage (Waterloo Region, 2010). Understanding students' food skills abilities may help in developing effective nutrition education interventions.

The purpose of this study was to assess self-perceived food skills of undergraduate students at a large, urban, Canadian university. Differences in self-reported food skills were compared by sex, having taken a secondary or postsecondary school FN course, living conditions, and years living away from their parental home.

2. Methods

2.1. Study design

In 2012, using FluidSurveys Online Survey Software (Fluidware, Inc., Ottawa, ON, 2012), an original survey assessed the self-perceived food skills and weekly meal preparation patterns of students attending Western University in London, Ontario, Canada. Students reported their abilities for seven individual food skills (peeling, chopping, slicing; cooking dishes at same time; making meals with available ingredients; cooking in batches for future use; making a recipe healthier; choosing a spice/herb; and planning weekly meals) on an 11-point scale from 0 (no skill) to 100 (very good). Additionally, students' food skill scores were summed for a Total Food Skill Score (TFSS) out of 700. The survey contained 67 items, predominantly closed-ended, with categorical and scaled response categories. Questions related to students' knowledge of dietary recommendations, intentions, and coping self-efficacy have been reported elsewhere (Matthews et al., 2016). Survey questions were rooted in Social Cognitive Theory, as it aims to address the relationship between environmental, personal, and behavioral factors (including skills and self-efficacy) and how these may influence human behavior (Bandura, 2004). Survey items were informed by a review of the related literature, expert opinion, and evidence- and practice-based indicators. The survey was pilot tested with a group of undergraduate students who were not included in the final sample (Matthews et al., 2016). All 30,310 undergraduate students were invited to complete the survey. Recruitment involved an initial email invitation, followed by weekly reminder emails over the next two weeks (Dillman, 1978). The Non-Medical Research Ethics Board at Western University approved the study. Completion of the survey implied consent.

2.2. Statistical analyses

Data were analyzed using SPSS Version 22.0 (IBM Corp., Armonk, NY). Means and standard deviations (M ± SD) were calculated for continuous variables; percentages for categorical outcomes. An independent samples *t*-test was used to compare mean differences between two groups, and a chi-square test assessed differences in proportions between categorical variables. Spearman's rank correlation coefficient assessed the strength of the relationship between students' current meal preparation and parental meal preparation habits. Correlation values were categorized as follows: 0.75 or greater was very good to excellent; 0.50–0.75 was moderate to good; 0.25–0.49 was fair; and 0.25 or less was indicative of little to no correlation (Colton, 1974). Students living in campus residences or with family were collapsed into one group because students in residence must purchase a meal plan and typically do not prepare their own meals and, similarly, students living with family may have most meals prepared for them. Repeated measures analysis of variance (RMANOVA) were conducted for food skills, as each subject reported seven food skills that would be related to each other. Additionally, RMANOVA with post-hoc analyses, were also computed for sex, FN course, living condition, and years away from parental home. Given the large sample size, $p \leq 0.01$ was considered statistically significant.

3. Results

The first email invitation garnered 4096 responses, with subsequent emails increasing responses to 7132. After removing respondents who followed the survey link but did not complete any questions, the final sample included 6638 respondents for a response rate of 21.9%. Final sample sizes vary by question as not all respondents answered all questions. Demographic characteristics of the sample are included in Table 1. The sample distribution by faculty/program of study/major (data not displayed) was representative of the Western University population; however, a higher percentage of female students completed the survey than was representative of the overall student population at the time of the survey (i.e., 56% female and 44% male students) (Western Office of Institutional Planning & Budgeting, 2014). The majority (65.2%) of respondents were 19–24 years of age, while 27.4% were 18 years of age or younger. The mean respondent age was 19.9 ± 2.1 years. This is representative of the typical Canadian postsecondary population (Statistics Canada, 2010).

3.1. Overall cooking ability

Given three categories of overall cooking ability, 62.5% of respondents reported they were comfortable preparing meals from basic ingredients, utilizing a recipe if required. Fewer (31.5%) reported only being able to put together ready-made ingredients to prepare a complete meal. Six percent reported having limited-to-no cooking ability. When analyzed by sex, 4.7% of female respondents claimed to have limited-to-no cooking ability compared to 8.0% of males (Chi-square (2, 5794) = 30.35, $p < 0.001$). Females also rated themselves as being able to prepare meals from basic ingredients more often than males (64.8% and 58.9%; Chi-square (2, 5794) = 30.35, respectively; $p < 0.001$).

First-year students made up 53.5% of all students who indicated having limited-to-no cooking ability. Similarly, those living in residence/with family accounted for the majority (74.1%) with limited-to-no cooking abilities. Only 55.5% of students living in residence and 59.7% living with family reported being able to cook and prepare meals from basic ingredients, compared to 67.6% of those living independently (Chi-square (6, 5801) = 218.42, $p < 0.001$; Fig. 1).

3.2. Food skills

Technical or mechanical skills that may be considered less