Research Article

Feasibility of Online Nutrition Education in the Workplace: Working Toward Healthy Lifestyles

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ABSTRACT

Objective: Determination of feasibility of online nutrition education in the federal workplace.

Design: Pretest–posttest pilot study with data collection occurring from September to December, 2016.

Setting: Two US Department of Agriculture workplaces.

Participants: Convenience sample of 26 federal government employees. Posttest response rate was 85% (22 of 26 employees).

Intervention: A 12-week online nutrition education program designed and taught by registered dietitian nutritionists.

Variables Measured: Program component satisfaction, use, and understanding ratings and clinical measures including body composition, blood pressure, and skin carotenoid level (biomarker for fruit and vegetable intake).

Analysis: Paired *t* tests to determine whether significant changes occurred after the intervention.

Results: Mean number of class videos viewed and program components used were 7 and 5 (out of 12 for both). Mean program component ratings ranged from 4.0 to 4.7 (n = 12, maximum score of 5) for the survey items *motivated/helped me to eat healthier.* Statistically significant decreases were observed in body mass index, percent body fat, and visceral fat level.

Conclusions and Implications: Online nutrition education in the federal workplace is feasible for some employees as evidenced by the program components' high satisfaction and understanding ratings and high retention rate. Limited evidence was apparent for the intervention's positive impact on health outcomes.

Key Words: body composition, diet, health education, weight loss, workplace (*J Nutr Educ Behav.* 2018; 000:1–8.)

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INTRODUCTION

Annual productive costs of obesity-related absenteeism range between $3.38 billion and $6.38 billion (between $79 and $132 per obese individual) in the US.[1] It has been estimated that 2.93 million quality-adjusted life years (premature mortality) are lost each year in the US owing to obesity and associated conditions.[2] These losses equate to 1 quality-adjusted life-year for every 20 people who live 1 year with obesity.[3] If the rising prevalence of adult obesity remains unchecked, these adverse productivity costs will continue to soar. Clearly, employers have a vested interest in improving and maintaining the health of employees.

Workplace wellness programs have been linked to reduced productivity costs, including those associated with absenteeism ($2.73 for every $1 spent).[4] The use of worksite programs to improve employee health has been recommended by the American Cancer Society, the Centers for Disease Control and Prevention, and multiple state governments.[5] A recent review of lifestyle interventions in the workplace concluded that employees' dietary behavior could be positively influenced by workplace interventions based solely on nutrition education or combined with environmental modifications.[6] Another review of Internet-based interventions found significant effects for those using behavior change theory and techniques, targeting dietary behaviors, and providing access to an advisor to request advice.[7] Lending credence to the efficacy of workplace wellness programs, Goetzel and colleagues[8] concluded that comprehensive workplace programs exert a positive influence on certain health behaviors and biometric measures and produce

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positive financial outcomes important to employers.

Nonetheless, privacy concerns may prevent employees from participating in workplace wellness programs, particularly because the US medical privacy law, the Health Insurance Portability and Accountability Act, does not cover all wellness programs.[9] Although research participants are covered by the Health Insurance Portability and Accountability Act and other protections for human research subjects, similar privacy and confidentiality concerns may exist for workplace interventions, particularly when researchers and study participants are employees of the same organization. Given such privacy and confidentiality issues, the objective of the *Working Toward Healthy Lifestyles* study was to determine the feasibility of an online nutrition education program for weight loss in the workplace. Specifically, the feasibility components addressed in this study included acceptability, demand, implementation, practicality, and limited efficacy testing.[10]

METHODS

Study Design and Recruitment

Working Toward Healthy Lifestyles was a pilot workplace study designed to determine the feasibility of federal government employees' participation in a 12-week online nutrition program for weight loss. The study design was a pretest–posttest intervention. Study recruitment was conducted at 2 federal workplaces via e-mail invitation and word of mouth between August and September, 2016. Inclusion criteria were aged ≥18 years and employment by a US Department of Agriculture agency. Body weight status was not an inclusion or exclusion criterion. Employees were researchers and support staff who worked in a variety of settings (laboratory, field, and office). Of the 31 employees at the 2 workplaces, 26 (84%) agreed to participate and enrolled in the study. This project was approved and classified as exempt by the Institutional Review Board of the Delta State University (Institutional Review Board Protocol No. 16-031). The researchers obtained written informed consent from all study participants.

MEASURES

Feasibility components addressed in this study included acceptability (participants' reaction to the intervention), demand (use of selected intervention activities), implementation (likelihood and extent of implementation as planned), practicality (extent of intervention delivery when time and commitment constrained), and limited efficacy testing (outcomes tested in a convenience sample with limited statistical power).[10] Baseline (preintervention) measures and survey data were collected the week before the intervention in September, 2016. Postintervention measures and survey data were collected 13 weeks later in December, 2016. At baseline, participants provided information regarding sociodemographic characteristics, health history, self-rated weight status and health, and reason(s) for program participation. Participants also completed a satisfaction survey for the online nutrition course at the end of the intervention. The program's acceptability was assessed using the participants' satisfaction ratings, whereas demand was assessed via the reported use of program components. Implementation was assessed using participants' ratings for ease of use and understanding of program components. Practicality was assessed via participants' reported ability to carry out intervention activities and the study's retention rate. Participants completed electronic surveys using computer-assisted personal interviewing via laptop or tablet computers. Confidentiality was maintained by assigning a unique identification number to each participant for data collection (vs personally identifiable information). Trained research staff measured participants and collected their data via electronic forms (version 11, Snap Surveys, Snap Surveys NH, Inc, Portsmouth, NH, 2015). Data were stored on password-protected computers with encrypted hard drives or on an online encrypted Web server. Only the principal investigator had access to the data.

One day before measurement, participants were instructed via e-mail to avoid exercising, smoking, and consuming caffeine at least 1 hour before the scheduled appointment. At baseline, height was measured in duplicate, without shoes or heavy clothing, using a portable stadiometer (Model 217, Seca, Birmingham, UK). Body composition (ie, weight, body mass index, percent body fat, and visceral fat level) was measured at both time points using an InBody body composition analyzer (Model 570, InBody USA, Cerritos, CA). Participants were instructed to empty their bladder and pockets and to remove all jewelry, socks, pantyhose, shoes, and heavy clothing before measurement. After being seated for approximately 5 minutes, blood pressure was measured in triplicate with the averaged reading recorded at both time points using an automatic blood pressure monitor (Model HEM-705CP, Omron, Kyoto, Japan). Skin carotenoid level, a biomarker for fruit and vegetable intake, was measured at both time points using a portable pressure-mediated reflection spectroscopy device termed the Veggie Meter (Longevity Link Corp, Salt Lake City, UT). The participant's middle finger of the nondominant hand was measured after cleaning with an alcohol wipe. Reflection spectroscopy is a portable, affordable method that corrects for the effects of melanin in the skin; it has been validated against blood carotenoids and has been correlated with resonance Raman spectroscopy (an older, more established method).[11] Although the Veggie Meter measures do not reflect the adequacy of intake, they show changes in skin carotenoid levels over time. Hence, the researchers used skin carotenoid levels as an indicator of change in fruit and vegetable intake.

Intervention

The intervention used the *Nutrition 4 Weight Loss Program*, which was designed and taught by registered dietitian nutritionists. The program is based on research recommendations and clinical experience in therapeutic