A Point-of-Purchase Intervention Using Grocery Store Tour Podcasts About Omega-3s Increases Long-Term Purchases of Omega-3–Rich Food Items

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ABSTRACT

Objective: To assess the impacts associated with a grocery store tour point-of-purchase intervention using podcasts about omega-3 fatty acid (n-3)-rich food items.

Design: A repeated-measures secondary data analysis of food purchase records obtained from a convenience sample of shoppers' loyalty cards.

Participants: Shoppers (n = 251) who had listened to podcasts regarding n-3–rich foods while shopping.

Main Outcome Measure(s): The number of omega-3–rich food purchases made according to food or food category by participants determined via spreadsheets obtained from grocery store chain.

Analysis: Descriptive statistics were performed on demographic characteristics. Wilcoxon signed-rank tests were used to assess whether food purchases increased from 6 months before to 6 months after intervention. Correlations assessed the relationship between intentions to purchase n-3–rich foods expressed on the intervention day with actual long-term n-3–rich food purchases. Nonparametric Kruskal–Wallis ANOVAs and Wilcoxon signed-rank tests were used to analyze differences between changes made and demographic variables (ie, participants' gender, race, and education levels).

Results: Most shoppers (59%) increased n-3–rich food purchases, with significant mean purchase changes ($t[172] = -6.9$; $P < .001$; pre = 0.2 ± 0.7; post = 3.6 ± 5.1).

Conclusions and Implications: Podcasts are promising nutrition education tools. Longer studies could assess whether lasting change results from podcast use.

Key Words: health education, grocery store, omega 3 fatty acids, podcasts, smartphones, Theory of Reasoned Action (*J Nutr Educ Behav*. 2017;■:1-6.)

INTRODUCTION

A recent survey reported that 62% of US smartphone owners use their smartphones to access health information[1] and 29% access grocery store websites or coupon websites while shopping.[2]

Because data suggested that people eat what they buy,[3] grocery stores may be valuable nutrition education sites.[4] On-site nutrition educators, shelf labels, demonstrations, displays, and flyers were used at the point of purchase and produced modest results.[5-11]

The current study was developed based on findings from 2 previous investigations: 1) a pilot study (n = 56) that examined the feasibility of using podcasts as a means of delivering nutrition education regarding omega-3 fatty acids (n-3s) while grocery shopping[12], and 2) an investigation designed to evaluate the effects of the podcasts' use on most constructs of the Theory of Reasoned Action (TRA), ie, shoppers' perceptions of the importance of buying n-3–rich foods; their ability to shop for n-3–rich foods; their beliefs regarding the importance their family, friends, and coworkers associated with n-3 intake; and their purchase of n-3–rich foods on the day of the intervention (unpublished data, 2014).

The pilot study findings suggested that the use of podcasts for this purpose was appreciated by consumers and showed promise as a means of providing nutrition education at the point of purchase. Findings from the second study supported those found in the pilot. Also, it demonstrated a relationship between participants' increased intention to purchase n-3–rich foods and actual purchasing

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behavior; however, although intent to purchase n-3–rich foods in the future was self-reported as high, few such purchases were made on the day of the intervention, so the researchers determined that prospective assessment, the goal of this study, was needed.

This podcast series was developed because n-3s are important to a healthy diet. Information regarding them is often reported on in the news but is confusing to many consumers. Information about n-3s is inherently complicated because (1) there are different types of n-3s but often they are not addressed individually in the media; and (2) n-3s are found in various types of foods, including foods that have been fortified with different types of n-3s depending on the brand (eg, peanut butter). The 3 most researched types of n-3s are α-linolenic acid, docosahexaenoic acid (DHA), and eicosapentaenoic acid (EPA). α-Linolenic acid fats are recommended for the tertiary treatment of heart disease and are found in plant-based foods such as walnuts and flaxseeds and in foods fortified with them.[13,14] Docosahexaenoic acid and EPA are found primarily in seafood (particularly fatty fish), chickens fed with algae, and foods fortified with fish oils[15] and were associated with health benefits when used to treat heart disease,[13] hypertriglyceridemia,[16,17] macular degeneration,[18] depression,[19,20] asthma,[21] and arthritis.[22] Research has showed DHA intake to improve gestational length as well as fetal brain and retinal development.[23,24] Yet Americans consume only approximately 45% of the 250-mg daily recommendation for DHA and EPA[25] and also consume less seafood than recommended.[25]

These podcasts were created to help consumers shop for n-3–rich foods and combat misinformation regarding the different types and food sources of these fatty acids.[12] They were designed to be used at the point of purchase to: (1) provide clear and current information regarding n-3s, (2) stress the importance of DHA and EPA intake, and (3) teach which foods were good food sources of these n-3s. The work delineated here built on previously described studies by examining the final portion of the TRA, ie, behavior change. The hypothesis of this study was that listening to podcasts about n-3s and n-3–rich foods while grocery shopping would result in the increased purchase of n-3–rich foods in future shopping trips.

METHODS

The intervention from which these data were obtained was conducted between September, 2013 and February, 2014. While they shopped, shoppers (n = 340) from 20 grocery stores, who had arrived planning to shop in at least 4 of the aisles covered by the podcasts, listened to a series of 10 podcasts about n-3–rich foods, their types, health benefits, and food sources. The series included 1 podcast lasting 1 minute 41 seconds (1:41) that introduced n-3s and their health benefits. The remaining podcasts were designed to be used while shopping for pasta (1:33), cereal (1:48), canned fish (1:17), salad dressings and oils (1:07), peanut butter (1:32), nuts (0:38), dairy (2:40), fresh and frozen fish (4:20), and supplements (6:20). Thus consumers could choose to learn about foods in the particular store aisles in which they were shopping, instead of having to listen to the entire podcast. The podcasts' 3 foci were to: purchase and consume more fatty fish; look for and buy foods rich in DHA and EPA n-3s, because they have more health benefits than other n-3s[25]; and avoid incurring additional costs to purchase foods fortified with α-linolenic acid, rather than DHA or EPA.

To determine the effects, the researchers also sought to determine whether purchasing patterns varied among n-3–rich foods. Thus, for this secondary data analysis, n-3–rich food purchase data were obtained for 6 months before and after the date on which individuals had participated in the intervention. These data were received for the 251 shoppers who had provided store loyalty card numbers. Participants were not told that their shopper loyalty cards would be used to track or evaluate their purchases. The intervention was conducted in full-service grocery stores, primarily in middle-class and upper–middle class New Jersey neighborhoods. Based on the size of the county, 1–2 stores were chosen from every county in the state. Each site was visited on 2 weekdays and 1 weekend day, with the exception of 1 site that required 12 visits. This store was located in a high-income area and shoppers used it more as a convenience store than as a primary grocery store.

A semistructured interview was administered on the day of the intervention to collect demographic data. Shopping data were obtained from the consumer analytics department at the Great Atlantic & Pacific Tea Company, which owns A&P and Pathmark grocery stores. A complete data record was defined as information obtained from participants who had shopped at least once each month for the entire period of the investigation. Only these data were included in the analyses. This project protocol was approved by Rutgers University's Institutional Review Board (Protocol No. 10-548).

Data Analysis

Food-purchase records were received as spreadsheets (Microsoft Excel, Microsoft Corporation, Redmond, WA, 2010). The data set was stripped of all purchases except for food items that had been encouraged in the podcast: salmon, tuna, shrimp, sardines, all other seafood, walnuts, and fish-oil supplements as well as n-3–fortified peanut butter, eggs, milk, and mayonnaise. The number of each of these food items purchased was counted for each participant and coded by participant, by month. Purchases made on the day of the intervention were excluded to reduce error that might have been generated from the Hawthorne effect.[26] The coded data were imported into Statistical Analysis Software (version 9.2, SAS Institute, Inc, Cary, NC, 2013) and matched by identification number to the demographic variables collected. Data that had been sorted by participant identification number were resorted for aggregated analyses of foods purchased per month (ie, data were transposed wide to long). Seafood and fortified foods were analyzed by both food type and food category (eg, frozen, canned, or fresh salmon purchases were examined as salmon and as seafood). Pearson's correlation was used to assess the relationship between intentions to purchase n-3–rich foods expressed on the intervention day with actual long-term n-3–rich