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RESEARCH

Original Research

Location, Location, Location: Eye-Tracking Evidence that Consumers Preferentially View Prominently Positioned Nutrition Information

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ABSTRACT

Background Nutrition Facts labels can keep consumers better informed about their diets' nutritional composition, however, consumers currently do not understand these labels well or use them often. Thus, modifying existing labels may benefit public health.

Objective The present study tracked the visual attention of individuals making simulated food-purchasing decisions to assess Nutrition Facts label viewing. Primary research questions were how self-reported viewing of Nutrition Facts labels and their components relates to measured viewing and whether locations of labels and specific label components relate to viewing.

Design The study involved a simulated grocery shopping exercise conducted on a computer equipped with an eye-tracking camera. A post-task survey assessed self-reported nutrition information viewing, health behaviors, and demographics.

Subjects/setting Individuals 18 years old and older and capable of reading English words on a computer (n=203) completed the 1-hour protocol at the University of Minnesota during Spring 2010.

Statistical analyses Primary analyses included χ^2, analysis of variance, and *t* tests comparing self-reported and measured viewing of label components in different presentation configurations.

Results Self-reported viewing of Nutrition Facts label components was higher than objectively measured viewing. Label components at the top of the label were viewed more than those at the bottom, and labels positioned in the center of the screen were viewed more than those located on the sides.

Conclusions Nutrition Facts label position within a viewing area and position of specific components on a label relate to viewing. Eye tracking is a valuable technology for evaluating consumers' attention to nutrition information, informing nutrition labeling policy (eg, front-of-pack labels), and designing labels that best support healthy dietary decisions.

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Obesity is a substantial and growing public health threat; it has been estimated that by 2030, >85% of all Americans will be overweight and >50% of US adults will be obese (1). Energy imbalance (greater caloric intake than expenditure) is the primary contributor to obesity (2). Although most individuals report that it is important to them to eat nutritious meals and snacks (3), Americans continue to consume more calories, saturated fat, sodium, and other nutrients than is healthy (4). A primary policy measure aimed at helping individuals make healthy eating choices is nutrition labeling. Individuals make more than 225 diet-related decisions daily (5); Nutrition Facts labels can help individuals make more of these decisions in an informed manner. Indeed, Nutrition Facts label use has been found to decrease daily intake of calories, total fat, saturated fat, cholesterol, and sodium, and to increase intake of fiber (6). Recent research suggests, however, that consumers often do not read Nutrition Facts labels when grocery shopping and that even when they do, labels are frequently misunderstood (7). Research findings such as these beg the question: Are current Nutrition Facts labels optimally designed to help consumers make healthier food choices?

The present study investigated how the locations of components on Nutrition Facts labels and of labels themselves on a computer screen designed for a simulated grocery shopping experience relate to individuals' viewing of Nutrition Facts labels and individual components by utilizing eye-tracking technology to precisely and objectively measure viewing. Previous research suggests that simply asking consumers whether they read Nutrition Facts labels may not produce accurate information (7). Eye tracking provides a way to directly measure visual attention; its use with adults scanning Nutrition Facts labels could inform design of labels that are more readily viewed and understood. Use of eye tracking in labeling research is in its early stages; existing research

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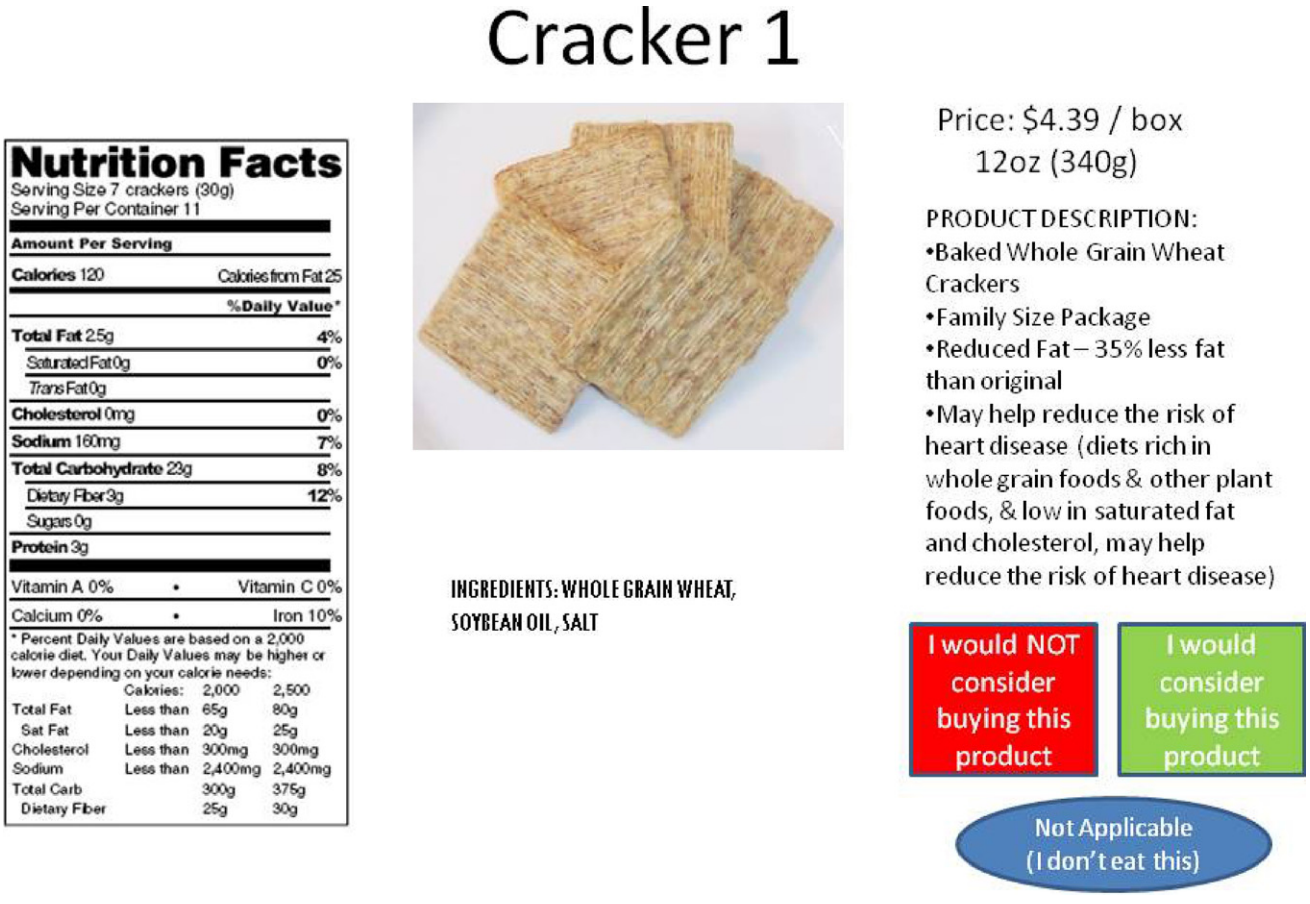

Figure. Sample screen (1 of 64) seen by American adult participants (n=203, mean age=42.3 years) during simulated shopping task.

has been limited to investigating technical aspects of label structure and the effects of consumer motivation and experience in label reading on comprehension (8-10).

The present study builds on existing research by investigating unique questions related to label use among individuals making purchasing decisions for multiple food items in the context of a simulated shopping exercise using a computer screen display as depicted in the Figure. The present study utilizes a very rapid and precise eye tracker, representing technological advancement over previous eye trackers used in labeling research. The goal of this study was to determine whether and how Nutrition Facts labels and their constituent parts are viewed by consumers making simulated purchasing decisions. The two primary research questions in this study were: how does self-reported Nutrition Facts label viewing compare with viewing precisely measured via eye tracker? And how is location related to viewing of nutrition information?

METHODS

Setting

This study was conducted at the University of Minnesota's Epidemiology Clinical Research Center between February and May 2010. This study was deemed exempt from full committee review by the University of Minnesota Institutional Review Board due to the low risk to participants.

Participants

Participants (n=208) were recruited through a local magazine. Participants were screened by phone and excluded if under 18 years of age or unable to read English words on a computer 30 inches away. Five participants were unable to complete the eye-tracking portion of the visit because they were wearing hard contact lenses, which are incompatible with the EyeLink 1000 (SR Research, Mississauga, Ontario, Canada). Final sample size was 203 participants.

During the telephone screening, potential participants were informed that their eye movements would be monitored while they engaged in simulated grocery shopping; for those willing and able to participate, a laboratory visit was scheduled. Participants came to the laboratory once, for approximately 1 hour, and provided verbal consent to participate before beginning the simulated shopping.

Procedures

The simulated grocery shopping program was created using SR Research's Experiment Builder software (ver-