Impact of Diet-Related Cancer Prevention Messages Written with Cognitive and Affective Arguments on Message Characteristics, Stage of Change, and Self-Efficacy

LISA M. QUINTILIANI, MS, RD[1]; ELENA T. CARBONE, DRPH, RD, LDN[2]
[1]Department of Nutrition, University of North Carolina at Chapel Hill, Chapel Hill, NC;
[2]Department of Nutrition, University of Massachusetts Amherst, Amherst, MA

ABSTRACT

Objective: To determine if participants reading messages matched to a preferred style of message argument respond more favorably than participants reading unmatched messages.

Design: Randomized trial using telephone and in-person surveys and cognitive response interviews.

Setting: University campus.

Participants: Of 125 initially interested, a convenience sample of 100 university employees completed the study (female: 88%, white: 94%, mean age: 43.7).

Intervention(s): Participants read 2 print messages written with cognitive (COG) (fact based) or affective (AFF) (story based) arguments.

Main Outcome Measure(s): 7-point Likert scale ratings of message appeal, understandability, persuasiveness, and relevance according to classification into 1 of 4 message groups: COG-AFF (mismatched to affective), AFF-COG (mismatched to cognitive), COG-COG (matched cognitive), and AFF-AFF (matched affective).

Analysis: 1-way analysis of variance ($P \leq .05$) and systematic review of qualitative interviews.

Results: The COG-AFF group consistently gave the lowest ratings to the affective messages and the AFF-COG group generally gave high scores compared with other message groups. Participants also expressed a desire for more factual information.

Conclusions and Implications: A combination of cognitive and affective arguments may be appealing to subjects with an affective preference but disliked by individuals who prefer only a fact-based approach. Argument format may be an important message design consideration.

KEY WORDS: persuasive communication, nutrition education, risk reduction behavior, self-efficacy, stage of change

(*J Nutr Educ Behav.* 2005;37:12-19.)

INTRODUCTION

Tailoring education messages to specific individual characteristics, such as age, gender, and stage of change, has been investigated for over 10 years[1] to target outcomes such as physical activity[2] or dietary habits.[3,4] In general, examination of the tailoring literature indicates that the addition of personally relevant information selected by the individual and elimination of extraneous information can contribute to a more thorough reading and recall of tailored messages (via the central processing route versus the peripheral route) compared with nontailored or generic messages.[1,5,6]

Because the mechanisms through which tailoring operates to encourage increased attention and awareness of the message contents are not thoroughly understood, there has been a call for more research on specific tailoring factors, such as message formatting and content.[5,7] Several types of communication factors have been investigated for tailored cancer prevention materials, such as positive and negative message framing,[8] modifying text design characteristics such as repetition of important phrases,[9] and tailoring the message content for those who seek information actively.[10] Message argument type is an additional factor that can be manipulated and personalized to engage the interest of the reader

Financial support for this study was provided by the American Cancer Society (IRG 93-033). Additional support came from the Clinical Nutrition Research Center (DK56350) at the University of North Carolina at Chapel Hill and a Diet and Cancer Training Grant (CA72319) sponsored by the National Cancer Institute.
This study was conducted while the first author was a master's student at the University of Massachusetts Amherst.
Some of the data for this article were taken from a thesis presented in July 2002.
Address for correspondence: Lisa M. Quintiliani, MS, RD, Department of Nutrition, University of North Carolina at Chapel Hill, CB#7461, Chapel Hill, NC, 27599-7461; Tel: (919) 966-5047; Fax: (919) 843-3639; E-mail: quinlisa@email.unc.edu.

and is distinguished as cognitive (COG) (information or fact based), or affective (AFF) (emotion or story based).[7] In a tailored message, behavioral change strategies are then embedded within the message to mirror this information.

Communicating information through different types of arguments may be particularly applicable to cancer prevention owing to the emotional and informational needs of patients. Individuals in different stages of change may use different learning activities to increase self-efficacy and advance through stages of change.[11,12] For example, cognitive processes may be used more often in preaction stages, whereas both cognitive and affective processes may be used in action stages.[13] Thus, tailored messages matched to a participant's preference for message argument may work better than untailored.

Cognitive and affective arguments may be an important design consideration; however, their applicability to tailoring has not been explored. Because an individual's degree of central versus peripheral processing varies according to the relevance of different health topics,[6] it is important to assess one's preference for cognitive or affective arguments prior to delivering a tailored health promotion message. The objective of this study was to determine if subjects who read cancer prevention messages matched to their preferred style of message argument would respond more favorably to message characteristics (appeal, understandability, persuasiveness, and relevance) than subjects who read messages not matched to their preferred style of message argument. The University of Massachusetts Institutional Review Board approved the study procedures, and written informed consent was obtained from all participants.

METHODS

Study Design and Recruitment

One hundred university-based professional staff employees were recruited through a mailed campus flyer (n = 1677 over 7 weeks) and campus newspaper notices (approximately 8 over 10 weeks) that described the study's benefits: a $20 gift certificate to a local farm store and taking home 2 brochures at the end of the study. Only English-speaking adults over 18 years of age with no personal history of cancer were eligible to participate. Interested subjects contacted the research team primarily by electronic mail or, less commonly, by telephone. The first author screened participants for eligibility using a scripted guide. Participant flow through the remaining study procedures is shown in the Figure.

Intervention

The messages were adapted from similar messages developed using information from focus groups of women in blue-collar worksites in rural North Carolina for use in "Health Works for Women" cancer education programs.[3] The affective messages were tailored to gender and marital status, and the cognitive-based messages were fact based and more generic (not tailored). These tailoring variables were chosen to construct a more appealing story and to be more relevant to the emotional characteristics of the subject. The cognitive messages were designed with bulleted factual information such as "Organizations like the National Cancer Institute and other nutrition experts recommend that people eat at least five servings of fruits and vegetables every day" and "Research has shown that a diet rich in fruits and vegetables can decrease the risk of cancer up to 23%" (a citation was provided). The affective argument messages described a story of an individual deciding to eat better ("I knew these foods were high in fat and it wasn't healthy and I also knew my husband and I were increasing our risk for health problems like cancer. It was a hard habit to break, but here's how we did it…"). Both messages included simple recipes for fruits and vegetables and low-fat cooking tips.

The messages and survey questions were pretested and modified as needed based on 20 pilot study interviews. Changes to the messages were made, including the need to emphasize cancer as the targeted disease, change confusing phrases, specify the types of cancer with risks modifiable by diet, and add preferred wording (eg, *prepare*, *indigestion*, and *disease* were preferred over *fix*, *heartburn*, and *illness*). Eight final messages were developed: 4 focusing on increasing fruit and vegetable intake (2 cognitive and 2 affective) and 4 focusing on decreasing fat intake (2 cognitive and 2 affective). Content and length (an 8½ × 11–inch page) were virtually the same for the final 4 message sets.

Measures

Preferred message argument. All participants were asked to indicate their preference by responding to the following question: "Some nutrition education messages use a lot of facts to communicate information; others use life experiences, stories, or testimonials. Which type of information would you prefer if you were to learn about cancer prevention?" Response options were "messages that use facts to communicate information" (classified as cognitive) or "messages that use life experiences, stories, or testimonials to communicate information" (affective).

Message characteristics. Participants responded to 18 7-point Likert scale questions with responses measured on a scale of 1 (not at all) to 7 (very much) used previously by a member of this research team (E.T.C.) in a multimedia nutrition intervention.[14] Answers to individual questions were averaged within groups corresponding to the outcomes of interest: appeal (n = 5), understandability (n = 4), persuasiveness (n = 4), and relevance (n = 5). Question examples include "How interesting was the cancer message?" (appeal); "How clearly written did you think the cancer message was?" (understandability); "How likely is it that you could