



Comparing tailored and narrative worksite interventions at increasing colonoscopy adherence in adults 50–75: A randomized controlled trial



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ABSTRACT

Research has identified several communication strategies that could increase adherence to colorectal cancer screening recommendations. Two promising strategies are tailoring and narrative-based approaches. Tailoring is the personalization of information based on individual characteristics. Narrative-based approaches use stories about similar others to counter perceived barriers and cultivate self-efficacy. To compare these two approaches, a randomized controlled trial was carried out at 8 worksites in Indiana. Adults 50–75 ($N = 209$) received one of four messages about colorectal cancer screening: stock, narrative, tailored, tailored narrative. The primary outcome was whether participants filed a colonoscopy claim in the 18 months following the intervention. Individuals receiving narrative messages were 4 times more likely to screen than those not receiving narrative messages. Tailoring did not increase screening behavior overall. However, individuals with higher cancer information overload were 8 times more likely to screen if they received tailored messages. The results suggest that narrative-based approaches are more effective than tailoring at increasing colorectal cancer screening in worksite interventions. Tailoring may be valuable as a strategy for reaching individuals with high overload, perhaps as a follow-up effort to a larger communication campaign.

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Introduction

Colorectal cancer (CRC) is the third most common cancer in men and women, and accounts for almost ten percent of cancer deaths in the United States (Siegel, Naishadham, & Jemal, 2013). These rates have been declining for two decades, due in part to increased utilization of CRC screening (Smith, Brookes, Cokkinides, Saslow, & Brawley, 2013). CRC screening has been advocated for adults aged 50–75 since the early 1980s (Vernon et al., 2011), but adherence is under 60% nationally (Smith et al., 2013). Given the health benefits of CRC screening – and its inclusion as a national public health objective – identifying strategies to increase participation in screening is a priority.

One communication strategy that has increased CRC screening adherence is tailoring (e.g., Manne et al., 2009). Tailoring is the personalization of information based on user characteristics

(Kreuter, Farrell, Olevitch, & Brennan, 2000). Instead of crafting a message for everyone (stock messages) or for a particular group or demographic (targeted messages), tailoring involves the creation of unique messages for each individual (Rimer & Kreuter, 2006). For example, a targeted message might be designed for Hispanic men in general whereas a tailored message would address the attitudes, beliefs, and risk factors of a particular Hispanic man. Thus, tailoring provides information relevant to the individual rather than the group. Meta-analyses have revealed that tailored messages are more effective than untailored messages at increasing adherence to cancer screening recommendations, though the typical effect is small ($r = .08$, 95% CI: .06, .09) and most studies have relied on self-report measures of screening (e.g., Krebs, Prochaska, & Rossi, 2010; Noar, Benac, & Harris, 2007).

An alternative strategy is to use narratives to increase CRC screening adherence (Green, 2006). Narratives are also called stories and include characters and a string of connected events (Kreuter et al., 2007). CRC screening narratives often depict individuals grieving lost loved ones, overcoming challenges,

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benefitting from behaviors, or using services (Dillard, Fagerlin, Dal Cin, Zikmund-Fisher, & Ubel, 2010). Narratives may be effective at changing behavior because people enjoy stories, become absorbed in the plot, and may be less likely to reject (or even notice) counter-attitudinal information (Dal Cin, Zanna, & Fong, 2004; Moyer-Gusé & Nabi, 2010; Slater & Rouner, 2002). Narratives are also effective vehicles for conveying information that is culturally aligned or centered (Larkey & Hecht, 2010). Communication researchers have noted that narratives are a promising strategy for increasing cancer screening participation, and these approaches are being used more frequently in promoting health and wellness (Kreuter et al., 2007).

To compare tailoring and narrative communication strategies, a randomized controlled trial (RCT) was developed and carried out at eight worksites. In the RCT, adults were randomly assigned to receive one of four pamphlets about CRC screening: stock, narrative, tailored, or tailored narrative. In the latter, the pamphlet was personalized to participants' characteristics and included a narrative with a protagonist from the same gender and racial/ethnic demographic. The main outcome of interest in this study was CRC screening behavior. To measure this outcome, insurance claims data were collected 18 months after the intervention for each participant to track CRC screening. Thus, the current study examines the effectiveness of two different strategies (alone and in combination) and utilizes a more objective measure of behavior (insurance claims data) than many previous studies.

CRC screening, tailoring, and narratives

Tailoring

Tailored messages were originally crafted by hand and evaluated via tailored letter interventions or tailored counseling (Kreuter, Strecher, & Glassman, 1999). Innovations in communication technology have facilitated tailoring efforts by replacing hand tailoring with computerized algorithms (e.g., Jensen, King, Carcioppolo, & Davis, 2012). Computerized, algorithmic-based tailoring can provide people with personalized information quickly and makes this approach more sustainable for interventions aimed at large populations.

Meta-analyses have confirmed that tailoring is an effective communication strategy (e.g., Krebs et al., 2010; Noar et al., 2007). Compared to stock messages, tailored messages yield increased behavior change ($r = .07$, 95% CI: .06, .08), including increased cancer screening ($r = .08$, 95% CI: .06, .09). Messages were most effective when they were personalized on four or five factors ($r = .09$, 95% CI: .07, .10) and communicated via a pamphlet or leaflet (as opposed to a letter, manual, or newsletter; $r = .16$, 95% CI: .14, .19).

Previous studies have typically tailored messages to participant demographics (e.g., age, gender, race/ethnicity), stage of change, and constructs from the health belief model, social cognitive theory, extended parallel process model, and the preventive health model (Noar et al., 2007; Tilley et al., 1999). From a mechanism standpoint, experimental research has identified perceived message relevance as a possible mediator of tailoring effects. For example, in a test of ten mediators, Jensen et al. (2012) found that tailored pamphlets were more effective at increasing mammography intentions because they were perceived as more relevant.

Past studies have examined whether tailoring increases CRC screening adherence specifically. Several have found that tailored materials outperform stock materials (e.g., Lairson et al., 2008; Manne et al., 2009; Marcus et al., 2005; Ruffin, Fetters, & Jimbo, 2007; Walsh et al., 2010), whereas others have found no benefit (e.g., Ling et al., 2009; Myers et al., 2007, 2013; Vernon et al., 2011),

or only benefits for particular subgroups (e.g., Rawl et al., 2008). An online intervention assessed the efficacy of a website tailored to match screening type with user preferences with a stock colorectal screening site, finding that participants in the intervention condition were 3.23 times more likely to be screened post-intervention than those in the control condition (Ruffin et al., 2007). Walsh et al. (2010) compared a culturally tailored brochure to increase CRC screening against an individual's usual care, finding that culturally tailored messages resulted in increased adherence. A longitudinal study compared four different message conditions, a single untailored message, a single tailored message, four multiple tailored messages based on a single pretest, and four multiple, retailed messages based on updated information. Results revealed that tailored messages were generally more effective than untailored at increasing CRC screening (Marcus et al., 2005). Most relevant to the present study, Lairson et al. (2008) found that tailored messages performed better than targeted messages, but still viewed targeted postcards as a more cost-effective strategy. The benefit of tailoring CRC screening messages is uncertain and questions have been raised about the value of using other strategies to achieve the same (or greater) effect (e.g., Dillard et al., 2010; Lairson et al., 2008).

Narratives

Humans have been using stories to persuade for thousands of years (Abbott, 2002). Researchers prefer the term narrative, and research on narrative features and effects has become a central component of communication scholarship (Busselle & Bilandzic, 2008; Kreuter et al., 2007). Didactic messages focus on arguments and facts, whereas narratives focus on characters and a string of connected events (Kreuter et al., 2007). In narrative communication situations, receivers may focus on the plot or story rather than the implicit or explicit arguments in the message (Green & Brock, 2000; Slater & Rouner, 2002). As a result, some have argued that narratives "short-circuit" critical message processing and thereby produce persuasive effects equal to or even different from expository messages (Nabi, Moyer-Gusé, & Byrne, 2007, p. 31). If narratives can short-circuit critical message processing, then they may be effective at increasing adherence for individuals or groups that typically avoid or attack CRC screening messages.

Narratives provide communicators with opportunities to depict models engaged in the target behavior or overcoming relevant barriers to action. Modeling can increase self-efficacy and counter perceived barriers to action (Bandura, 2004; Dillard et al., 2010). Narratives can reflect both cultural values and norms (Larkey & Hecht, 2010) as well as provide examples that are more vivid and memorable than real life (Shrum, 2009). For all of these reasons, story-based information may be the underlying framework guiding memory and thus make it easier to recall (Jensen, Bernat, Wilson, & Goonwardene, 2011; Jensen, Carcioppolo, et al., 2011; Schank & Berman, 2002).

Very few studies have examined the impact of narratives on CRC screening adherence. Lipkus, Green, and Marcus (2003) found that narratives increased perceived threat severity and intentions to screen. Likewise, Dillard et al. (2010) observed that narratives reduced perceived barriers and intentions to screen. However, Larkey and Gonzalez (2007) found that culturally-centered narratives and expository messages did not produce statistically different outcomes. Two conclusions can be drawn from the narrative literature. First, narratives seem to impact variables from the health belief model (perceived threat severity, perceived barriers) which suggests those constructs could be mediators. Second, the benefit of using narratives to increase CRC screening is still uncertain.

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