Starting Off on the Best Foot: A Review of Message Framing and Message Tailoring, and Recommendations for the Comprehensive Messaging Strategy for Sustained Behavior Change

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ABSTRACT

Health promotion programs represent a salient means through which physical activity promoters can cultivate positive health behavior change and maintenance. The messages communicated within these programs serve as an essential component as they are often used to convey valuable information, resources, or tools that facilitate health behavior initiation and sustained engagement. Identifying the most effective way to communicate health promotion information is, therefore, of considerable importance to ensuring that people not only attend to these messages, but also connect with and internalize the information conveyed within them. This paper was written to (1) summarize and evaluate the most prominent reviewed research approaches of message framing and tailoring to message design; and (2) offer a comprehensive messaging strategy to promote sustained health behavior change. A review of the literature demonstrated that a messaging strategy that has consistently led to healthy behavior change has yet to be identified. Furthermore, scholars have articulated that a multi-theoretical approach that places emphasis on facilitating motivation and healthy behavior change needs to be employed. Thus, this paper proposes and provides recommendations for employing the Comprehensive Messaging Strategy for Sustained Behavior Change (CMSSBC), which advocates tailoring messages to peoples’ stage of change and framing them to focus on self-determined motives and intrinsic goals.

Health promotion programs are becoming a prominent means through which private and public sectors are trying to foster positive change and sustained engagement in healthy behaviors. A substantial amount of resources (e.g., financial, time, and personnel) is often invested in the design and dissemination of these programs; yet, the messages conveyed within these programs are rarely guided by research evidence and may be detrimental to the population if not communicated properly (Haines, Kuruvilla, & Borchert, 2004). Considering the immense resource expenditure and the ramifications of unhealthy behaviors, isolating the most effective evidence-based messaging strategies is imperative to guide health practitioners and policy-makers in developing and disseminating health promotion messages. Within the messaging literature, message framing and message tailoring continually emerge as two dominant strategies, yet the conceptualization of these terms is inconsistent. To clarify this, for the purpose of this article, message framing represents manipulating how information conveyed in a message is presented (Myers, 2010), whereas message tailoring refers to customizing information to be adapted to one or more psychological, demographic, or behavioral characteristic(s) of the recipient or population to which the message is intended (Latimer, Brawley, & Bassett, 2010).

An examination of the literature indicates that despite considerable empirical attention, researchers have failed to isolate message framing or tailoring strategies that dependably lead to sustained behavioral change. These results raise the questions, “can message framing or tailoring strategies effectively facilitate behavior change?” and “could other message framing and tailoring strategies be utilized to render more fruitful behavioral outcomes?” We argue that the answer to these questions is “yes.” Based on the existing message framing and tailoring reviews and recent advances in motivational psychology, the aim of this paper was to (a) isolate and summarize the effectiveness of the most prominent message framing and tailoring strategies recognized within literature reviews and meta-analyses; and (b) advance an alternative multi-theoretical messaging strategy, namely the Comprehensive Messaging Strategy for Sustained Behavior Change (CMSSBC), to guide future research.

Prominent message framing and tailoring strategies

Message framing

Within the messaging literature, messages have primarily been framed in terms of the gains or losses of a behavior following the Prospect Theory (Tversky & Kahneman, 1981). Gain-framed messages emphasize the benefits a person will experience from either engaging in a good behavior (e.g., improved body composition after eating more fruits and...
vegetables) and/or not engaging in a bad behavior (e.g., improved body composition after not eating fast food; Rothman, Stark, & Salovey, 2006). In contrast, loss-framed messages refer to the losses a person will experience when they engage in a bad behavior (e.g., decreased health from eating fast food) and/or don’t engage in a good behavior (e.g., decreased health from not eating enough fruits and vegetables; Rothman, Bartels, Wlaschin, & Salovey, 2006). Generally, scholars have hypothesized that loss-framed messages are more persuasive than gain-framed messages due to their potency (O’Keefe & Jensen, 2006). The health framing literature, however, has repeatedly demonstrated that there is no significant advantage for gain- or loss-framed messages when a behavior or characteristic of the recipient is not considered (e.g., \( r = .016; p = .11; 95\% \text{ CI} = -.004-.035\); O’Keefe & Jensen, 2006). In order to explain the contradictory results that failed to favor loss-framed appeals and extrapolate an advantage in magnitude or direction for gain- or loss-framed messages, scholars (see Covey, 2014, for a review) have advised that moderators be tested.

**Moderators.** To date, scholars have focused on three potential moderating variables. The predominant moderator is the nature of the intended behavior, which refers to whether the behavior serves a preventative, detective, or treatment purpose. Initially conceptualized for the health domain, Rothman and Salovey (1997) put forth that loss-framed messages should be used for detection behaviors (e.g., cancer screening) which are assumed to be risky behaviors (yielding an unpleasant outcome, such as knowledge of having cancer), whereas gain-framed messages should be used for non-risky behaviors that focus on preventing health problems (e.g., physical activity) or treating/curing a health problem (e.g., medication adherence).

Meta-analyses (Gallagher & Updegraff, 2012; O’Keefe & Jensen, 2006, 2007, 2009) have revealed only partial support for the predictions regarding gain- and loss-framed messages in relation to preventative and detection behaviors—with limited to no attention given to treatment-based behaviors. In general, these reviews have reported gain-framed appeals to be more persuasive than loss-framed appeals for disease prevention behaviors \( r_{\text{range}} = .001-.154, 95\% \text{ CI}_{\text{range}} = (-.034-.032)-(-.202-.283) \), with no significant differences between the two strategies for disease detection behaviors \( r_{\text{range}} = .005-.056, 95\% \text{ CI}_{\text{range}} = (-.069-.056)-(-.104-.009) \); (Gallagher & Updegraff, 2012; O’Keefe & Jensen, 2006, 2007, 2009). O’Keefe and Jensen (2009) reported, however, that loss-framed messages were more persuasive for breast screening (detection) behaviors \( r = -.006, 95\% \text{ CI} = -.104-.009 \). Based on these trends, scholars have concluded that gain-framed appeals be used to persuade individuals to engage in disease prevention behaviors and report no enduring advantage for using gain or loss-framed messages for detection behaviors, with the exception of breast cancer screening, in which case, loss-framed appeals are recommended (O’Keefe & Jensen, 2009).

Considering the partial support for the above hypothesis, some scholars (e.g., Rothman, Bartels, et al., 2006) articulated that the original hypothesis—matching gain-framed appeals to prevention behavior and loss-framed appeals to detection behaviors—was based on the belief that peoples’ construals of the perceived riskiness of these behaviors do not vary. Thus, it has been suggested (Gallagher & Updegraff, 2012; Rothman & Salovey, 1997; Rothman, Bartels, et al., 2006) that the function of the behavior is not significant, but rather, it is the subjective meaning the individual assigns to the behavior (risky or not) that is important. More specifically, it has been stated (Gallagher & Updegraff, 2012; Myers, 2010) that most people perceive prevention behaviors as relatively safe, thus gain-framed messages are advised. Yet, for detection behaviors, peoples’ perceptions of the risk of the behavior may vary (Gallagher & Updegraff, 2012; Myers, 2010), and the message should be selected accordingly. For example, having mammography may be perceived as risky because the results may indicate the person has cancer, or it may not be perceived as risky if the person is confident he/she is cancer-free. To maximize persuasiveness, people in the former scenario should receive loss-framed messages, whereas those in the latter scenario should receive gain-framed appeals (e.g., Rothman et al., 2006). Unfortunately, this hypothesis has not received enough empirical attention to either support or refute it.

The third moderator that has been examined in the health literature is the kernel state of the appeal. The kernel state refers to the basic root state of the consequence in the message, and can be presented as a desirable (e.g., smoking cessation) or undesirable (e.g., smoking persistence) consequence of the behavior (O’Keefe & Jensen, 2006). Several meta-analyses have illustrated that there is no advantage to framing persuasive messages in terms of gains or losses contingent on the kernel state emphasized (O’Keefe & Jensen, 2006, 2008, 2009); therefore, there is no rationale for employing this matching strategy to messages. Furthermore, upon reflection of the gain/loss frame messaging literature as a whole, and the insignificant to weak effect sizes documented, we recommend that health promoters consider an alternative, more comprehensive messaging approach. The alternative messaging strategy that we describe later in the paper—the CMSSBC—endorses a more complex approach to messaging, including framing messages in a way that emphasizes self-determined motives and intrinsic goals in order to increase the likelihood that the behavior is internalized and maintained long-term.

**Message tailoring**

In contrast to message framing, message tailoring has been touted as the optimal approach to delivering persuasive messages—when adequate resources are available (e.g., Latimer et al., 2010; Rothman & Salovey, 1997). Message tailoring approaches assume that messages are not equally effective for all individuals, but should be tailored to the message recipients’ pre-existing characteristics (Rothman & Salovey, 1997). Although message tailoring has received less empirical attention compared to message framing, there is some agreement amongst scholars that tailored messages are much more effective than non-tailored or generic messages (e.g., Lustria et al., 2013; Noar, Benac, & Harris, 2007; Sohl & Moyer, 2007).

Within the literature, scholars (Lustria et al., 2013; Noar et al., 2007) have recognized the most prevailing theoretical frameworks that guide message tailoring to be the Transtheoretical Model (TTM; Prochaska & DiClemente, 1982), the Health Belief Model (HBM; Champion & Skinner, 2008), the Theories of
Reasoned Action (TRA; Fishbein & Ajzen, 1975) and Planned Behavior (TPB; Ajzen, 1991), and Social Cognitive Theory (SCT; Bandura, 1986). Although these theories rely on different concepts to explain health behavior change, they all share the idea that personal factors can influence peoples’ decisions to engage in and sustain healthy behavior. Therefore, messages that are tailored according to these theories either de-emphasize or ignore an individuals’ characteristics that do not need to change (e.g., positive attitudes) or emphasize those that could be enhanced (e.g., poor self-efficacy beliefs) to create a match between the message and the recipients’ psychosocial characteristic(s) (Noar, Harrington, & Aldrich, 2009). For example, messages based on the TTM correspond to the different stages of change based on the TTM view that attitudes, strategies, and skills differ between stages. Interventions guided by the HBM tailor messages in terms of the benefits/barriers associated with a behavior, due to the HBM proposition that people are more likely to engage in protective actions if they perceive the benefits of engaging in the behavior to outweigh the costs, and recognize the riskiness and severity of a disease. The TRA posits that positive attitudes and perceived subjective norms strengthen behavioral intentions, which increase the likelihood of people engaging in a behavior. In addition, the TPB proposes perceived behavioral control over an action to be a third factor that influences intentions. Accordingly, interventions guided by these theories promote positive attitudes, perceived subjective norms, and behavioral control in messages to persuade individuals to engage in healthy behaviors. Finally, SCT interventions design messages based on self-efficacy and outcome expectancies, as SCT posits that people are more likely to engage in health behaviors if they feel confident in their abilities and if they believe that the behavior will lead to positive outcomes (for a more comprehensive summary of these theories, see Noar et al., 2007).

Meta-analyses have been conducted to examine the effectiveness of message tailoring on health behavior change. The results generally support the effectiveness of message tailoring; however, most of the effect sizes that are reported are fairly small in magnitude. For instance, across a wide range of health behaviors, Noar et al. (2007) examined the effectiveness of print-based tailoring interventions amongst 57 studies and found that tailored print messages have a less than “small” effect on behavior change ($r = .074$, 95% CI = .066–.082). Krebs, Prochaska, and Rossi (2010) also reported a small overall effect size in their meta-analysis of 88 studies ($Hedges g = .0170$), which examined computer-, print-, or telephone-tailored interventions of four health behaviors (exercise, smoking cessation, diet, and mammography). Longitudinal effect sizes showed that the effects peaked from four to twelve months following baseline ($Hedges g = .20$, 95% CI = 0.16–0.23), but decreased after 12 months ($g = .12$, 95% CI = 0.08–0.16), with the exception of dynamic tailored interventions involving feedback and assessment iteration. In another meta-analysis examining multiple health behaviors, Lustria et al. (2013) found that tailored, web-based interventions had a positive impact on behavior change at post-testing ($Cohen’s d = 0.139$, 95% CI = .111–.166) and at the follow-up ($Cohen’s d = .158$, 95% CI = .124–.192), although the effect sizes remain relatively small. Similar results have been reported in meta-analyses examining single health behaviors, such as mammography screening (Sohl & Moyer, 2007) and cancer communication (Huang & Shen, 2016).

Amongst these meta-analyses, only two examined if theoretical concepts and/or frameworks moderate the effects of message tailoring. Noar et al. (2007) examined the effects of tailoring messages guided by various theories—including the four described above—and demonstrated that studies that tailored messages to four or five theoretical concepts (e.g., attitudes, self-efficacy, stages and processes of change, and social support) were more effective than those that tailored messages to three concepts or less. Sohl and Moyer (2007) examined the moderating effect of interventions tailored according to age, ethnicity, risks and barriers, the HBM, the TTM, and motivational interviewing, and found that only interventions tailored by the HBM were more effective. Unfortunately, similar to message framing, a theory-guided message tailoring approach that has invariably outperformed others and/or led to positive health behavior change has not been established within the messaging literature.

Although these meta-analyses provide some evidence for the effectiveness of message tailoring, the small effect sizes suggest that a more comprehensive approach is needed to better understand how individuals move from the decision to change a health behavior to the actual implementation and the maintenance of the behavior. The models that are most often used in message tailoring all posit that individuals become motivated to change their behavior if they understand the costs associated with unhealthy behaviors, or the benefits associated with healthy behaviors, and that the motivational state that follows should carry over to sustained behavior change (Rothman & Salovey, 2007). This may not be the case as the process of behavior change involves at least two phases: one related to the motivation to change, and the other related to sustaining the behavior change. In other words, messages based on the TTM, the HBM, the TPB, the TRA, and SCT could be useful in helping individuals identify goals and form intentions to reach the goals associated with a decision to change; however, they do not necessarily affect the motivation to develop the necessary skills and resources to do a specific health behavior, and most importantly, to maintain behavior change over time (Pelletier, Guertin, & Rocchi, in press).

Summary

Upon reviewing the literature, it has become abundantly clear that strategies that consistently led to improved health decisions or behaviors have yet to be established (Myers, 2010). Scholars have articulated that these are complex behaviors and, therefore, messages need to employ a multi-theoretical approach with special consideration for theories that focus on the decision to change, and on facilitating behavior initiation and maintenance (Gallagher & Updegraff, 2012; Myers, 2010; Rothman, Bartels, et al., 2006). When reviewing the messaging literature, we also noted a persistent emphasis on the need to identify message strategies that motivate behavior change (e.g., Rothman, Bartels, et al., 2006; Pelletier & Sharp, 2008; Schneider, 2006) yet the theoretical frameworks that guide this research often fail to focus on motivation. To address
these shortcomings, researchers (Pelletier et al., 2017) advocate utilizing a complex theory-guided messaging strategy centralized around motivation and behavior change.

**Multi-theoretical approach combining message framing and tailoring**

The CMSSBC is one multi-theoretical approach that has been previously proposed by Pelletier and colleagues (Pelletier et al., *in press*; Pelletier & Sharp, 2008)—albeit without this specific name—entails combining a message tailoring strategy grounded in the TTM with a message framing strategy guided by Self Determination Theory (SDT; Deci & Ryan, 2002). In brief, this persuasive communication strategy outlines the type of information that should be conveyed in a message to maximize the degree to which the person is motivated to attend to and process information, then initiate and sustain the desired behavior.

**Tailoring messages to peoples’ stage of change**

Research has demonstrated that people differentially attend to and process information and form decisions depending on the stage of change they are in (see the following review papers for a summary: Burkholder & Evers, 2002; Prochaska, DiClemente, & Norcross, 1992). Studies have also reported that when information is tailored to the individuals’ stage of change, they are likely to progress toward the health behavior change more rapidly (Velicer, Prochaska, & Redding, 2006). Although models differ in the number of stages of behavior change suggested, the most clearly defined approach that we identified include three stages that were described by Pelletier et al. (*in press*) and Pelletier and Sharp (2008), and similarly conceptualized by Rothman and Salovey (2007). In the first phase, the detection phase, people gather information in order to detect if a health problem exists and determine if it is personally relevant. In the second phase, the decision phase, people who recognize that a problem exists and that it is important, seek out information to decide what actions they should take to alleviate the problem. Lastly, in the implementation phase, a person has decided to act and searches for information on how, when, and where to implement a behavior and/or sustain it. To enhance the likelihood that the information conveyed in a message leads to sustained behavior change, it must be communicated in a way that enriches how a person thinks and feels about the activity when they are in that phase (Petty & Cacioppo, 1986). Pelletier and Sharp (2008) advocate that to foster more in-depth processing and internalization, messages should be framed to facilitate higher quality motives.

**Framing messages to promote self-determined motivation**

Based on empirical evidence guided by SDT, Pelletier et al. (*in press*) support the assertion that people regulate and carry out actions for different reasons or motives (Deci & Ryan, 2002; Ryan, Sheldon, Kasser, & Deci, 1996). Although all forms of motivation may lead a person to initiate their goal-directed behavior, the quality of the individuals’ psychological experience and engagement is dependent on the type of motive that guides the behavior (Deci & Ryan, 2002; Ryan et al., 1996). SDT outlines six behavioural regulations that are broadly categorized as either self-determined (intrinsic motivation and integrated and identified regulations) or non-self-determined (introjected and external regulations and amotivation). People who are regulated by self-determined motives engage in behavior because they experience enjoyment from the activity, identify the meaning of the behavior, self-endorse it, and/or integrate it with their central values (Deci & Ryan, 2002). In contrast, people who are regulated by non-self-determined reasons are directed by feelings of internal pressure, guilt, shame, or ego-enhancement, and/or wish to satisfy external demands and obtain rewards (Deci & Ryan, 2002). Research has consistently demonstrated that when people act out of self-determined reasons, they are more likely to sustain a health behavior (e.g., Guertin, Rocchi, Pelletier, Émond, & Lalande, 2015) and experience physical and psychological health, more effective performance, greater achievement, and deeper information processing (see the following papers for reviews: Deci & Ryan, 2000, 2008; Patrick & Williams, 2012). In contrast, when people act out of non-self-determined reasons, they may initiate the action but are less likely to sustain it and are more likely to experience undesirable psychological outcomes (e.g., Guertin et al., 2015; Ryan et al., 1996).

To extend the application of SDT to the persuasive messaging literature, it has been recommended that message designers be cognizant not only of the motives, but also of the way goals are framed in messages (McLachlan & Hagger, 2011). These suggestions are drawn from study findings demonstrating that peoples’ motives (‘why’ they engage in a behavior) are distinct from their goals (‘what’ behavior a person intends to do; Sheldon, Ryan, Deci, & Kasser, 2004). According to SDT, goals can be dichotomized into two qualitatively distinct categories: intrinsic goals (e.g., health, affiliation), which represent desires that are congruent with actualizing personal growth and satisfying basic psychological needs (the goals equivalent to self-determined motives), and extrinsic goals (e.g., attractiveness, fame), which are contingent on reactions from others and serve as a means to an end (the goals equivalent to non-self-determined motives; Kasser & Ryan, 1996).

Ample research has demonstrated the advantageous outcomes associated with intrinsic goals and the deleterious outcomes linked to the extrinsic ones across populations and contexts. In brief, studies have shown that when people pursue intrinsic goals, they experience deeper processing, increased enjoyment, enhanced quality of life, greater psychological need satisfaction, short- and long-term behavior engagement, greater commitment in face of adversity, enhanced learning, and reduced anxiety and distress (e.g., Kasser & Ryan, 1996; Vansteenkiste, Simons, Lens, Sheldon, & Deci, 2004; Vansteenkiste, Simons, Soenens, & Lens, 2004). In contrast, when people pursue extrinsic goals, they tend to experience lower levels of well-being, heightened levels of psychological ill-being, increased likelihood of risky behaviors, and more conflicting relationships (Kasser & Ryan, 1996; for a review see Kasser, 2016). Additionally, it should be noted that...
Although studies have reported that both types of goals may prompt initial health behavior changes, only intrinsic goals facilitate sustained engagement (e.g., Vansteenkiste, Soenens, & Duriez, 2008).

According to SDT, the integration of goals and motives is assumed to be a natural developmental process (Deci & Ryan, 2000). The degree to which people incorporate goals and motivation into the self is largely a function of the extent to which their basic needs of autonomy (e.g., fostering choice over what actions a person can do), competence (e.g., providing a clear explanation and rationale for the promoted behavior and information that may aid in increasing perceived mastery) and relatedness (e.g., making the person feel respected, connected, and cared for) have been supported as they engage in the relevant behaviors. Although this process may occur without the influence of others, the interpersonal behaviors from significant others (e.g., peers, parents, teachers, employers) and social environments (e.g., during leisure time or work/school) people are exposed to, facilitate the fulfillment of peoples basic needs, which may in turn lead to the active transformation of goals and motives into the self. In contrast, interpersonal behaviors and social contexts that thwart those needs lead to the endorsement of extrinsic goals and motives that are not authentically integrated into the self. In other words, when social contexts thwart the needs, individuals develop need substitutes or compensatory goals and motives that lead individuals to adopt extrinsic goals and to become non-self-determined (e.g., Mageau, Bureau, Ranger, Allen, & Soenens, 2016; Ryan et al., 1996).

Although extensive research has examined the processes that lead to the adoption of intrinsic versus extrinsic goals, few have examined the effects of messages geared at promoting these goals. Vansteenkiste and colleagues addressed this pitfall by conducting a series of studies in the context of learning or sport/exercise that compared the implications of providing people with intrinsic, extrinsic, or combined intrinsic and extrinsic framed messages (Vansteenkiste, Matos, & Soenens, 2007; Vansteenkiste et al., 2004; Vansteenkiste, Simons, Lens, Soenens, & Matos, 2005; Vansteenkiste et al., 2004; Vansteenkiste, Timmermans, Lens, Soenens, & Van Den Broeck, 2008). The study results demonstrated the superiority of intrinsic framed messages over extrinsic framed ones or combined messages (for an overview, see Vansteenkiste, Lens, & Deci, 2006). In particular, when people were exposed to intrinsic framed messages, they reported lower stress, higher mastery, enhanced performance, free choice persistence, deeper processing, and/or conceptual learning. Comparatively, when people were exposed to extrinsic framed or combined messages, they reported higher levels of rote learning (memorization), as well as enhanced levels of social comparison and ego-orientation, and lower levels of activity commitment. This line of inquiry is important as these findings suggest that the prominent messaging strategies endorsed by today’s society, which emphasize extrinsic goals (e.g., appearance, materialism, or social comparison) yield far less fruitful outcomes than those that promote intrinsic goals (health, personal development, or enjoyment; Pelletier & Dion, 2007). Furthermore, to maximize the impact of health promotion messages, the basic psychological needs should be considered with the intent of fostering self-determined motives in addition to intrinsic goals, as opposed to non-self-determined motives and extrinsic goals.

Although we commend Pelletier et al. (in press) and Pelletier and Sharp (2008) for providing a multi-theoretical approach to enhance the effectiveness of health communication, we would like to address one shortcoming of their approach. We propose that the implementation phase outlined by Pelletier and colleagues be divided into two phases: one that tailors information to people interested in initiating a behavior (e.g., implementation phase), and one that is tailored to sustaining engagement in the behavior (e.g., maintenance phase). This distinction aligns with several stage of change models, seminal messaging papers (e.g., Rothman & Salovey, 2007), and empirical evidence, which indicates that a large portion of people who initiate a health behavior fail to sustain it (e.g., Marcus et al., 2000). To extend upon this work, a detailed account of what we believe is the best approach to message design for health behaviors is described below.

The comprehensive messaging strategy for sustained behavior change

After reviewing the literature and identifying some shortcomings, we propose the CMSSBC, a communicating strategy to promote health behavior change and maintenance that is designed to complement the interpersonal behaviors and the social contexts that have been shown to facilitate the internalization of behaviors and the endorsement of intrinsic goals. The following section has been divided into the four stages of change we advocate tailoring health messages to: detection phase, decision phase, implementation phase, and maintenance phase.

Detection phase

In this phase, people are either unaware of a health problem or they [un]intentionally fail to recognize the personal relevance of the issue (Pelletier & Sharp, 2008; Rothman & Salovey, 2007). For instances in which people are unaware of a problem (e.g., new virus or carcinogen concern), concise information that demonstrates why a health issue is important and relevant to the person should be conveyed. If the health concern is well-establish (e.g., smoking, unhealthy diet), information should address why the information is relevant to them, with less emphasis on the general health concern. To encourage healthy eating, for example, recognizing health benefits such as reduced risk of cardiovascular disease, diabetes, or cancer may be relevant to older adults, yet resonate less with younger adults who may be more receptive to short-term benefits such as improved focus, energy, or reduced feelings of stress or digestion issues.

Since this phase revolves around problem-awareness, it is the most logical phase to emphasize the costs of not engaging in a health behavior, as these types of messages may attract greater attention and have a more profound impact, especially for a new health concern (Pelletier & Sharp, 2008). Despite the evidence that fear-arousing communications motivate people to identify solutions to possible threats, these types of messages are only recommended when viable solutions are
presented (Pelletier & Sharp, 2008; see Witte & Allen, 2000; for a meta-analysis on fear-arousing communication and advice for practitioners).

To maximize the degree to which the message is processed, internalized, and likely to lead to sustained engagement, health promoters should emphasize self-determined reasons for engaging in the health behavior. Although non-self-determined motives often predominate in the early stages of change, more self-determined motives are characteristic of people who demonstrate readiness to progress and move toward maintenance of the behavior (Ortis et al., 2007; Pelletier & Sharp, 2008). This highlights why it is imperative to frame messages to emphasize self-determined motives in the early stages, as this will influence the type of information people attend to, the knowledge and thoughts that become more readily accessible, and the consequential actions that they think about (Pelletier & Sharp, 2008; Vansteenkiste, Simons, Lens, Sheldon et al., 2004; Vansteenkiste et al., 2006).

In summary, when creating messages for people in the detection phase, message designers should consider the following suggestions: (a) identify intrinsic risks or negative consequences associated with avoiding the behavior, such as health problems (e.g., increased risk of cancer), implications for significant relationships (e.g., inability to play with children), or inability to do things that you enjoy (e.g., dancing); (b) introduce small feasible options that serve as solutions to the problem (e.g., using a face moisturizer that contains an SPF); (c) provide a self-determined rationale (e.g., personal improvement and health); and finally (d) use images/titles that reflect intrinsic goals, such as fitness and well-being, as opposed to appearance, social comparisons, or appealing to others. Once people are aware of the problem or threat of not engaging in the behavior, they are unlikely to benefit from or be interested in this information and should receive information that will guide them to the behaviors that will help them avoid the ill-effects of the problem (Rothman & Salovey, 2007; Rothman, Stark, & Salovey, 2006).

**Decision phase**

In this phase, people recognize there is a problem and this awareness elicits a sense of uneasiness, making people more receptive to information that conveys what actions they need to take to mitigate their feeling of discomfort (Pelletier et al., in press; Pelletier & Sharp, 2008; Rothman et al., 2006). Information tailored to people in this stage should enable them to formulate intentions or goals and determine the feasibility of these intentions. In particular, messages should be framed to fostering intrinsic (versus extrinsic) goals, as they are more likely to lead to behavioral initiation and maintenance. To facilitate the development of intrinsic goals, we recommend that messages communicate some of the following features—examples provided were designed for exercise: (a) recognized health guidelines for the intended behavior (e.g., the World Health Organization exercise guidelines); (b) a self-determined rationale for how exercising will help address health concerns (e.g., a list of relevant short-term and long-term benefits); (c) tools to help them create more concrete goals that are personally meaningful (e.g., goal setting worksheets); (d) resources that will help them decide which activity to engage in (e.g., a link to the cities’ fitness activities); and (e) feasible tips that will boost peoples sense of competence (e.g., walking lunch breaks and meeting). If these recommendations are employed in the messages, the recipients are more likely to internalize the behavior as they will be personally endorsed and they will likely have greater competence for executing the desired behavior. By the end of the decision phase, the person should have a clear understanding of the health goal or intention they wish to engage in.

**Implementation phase**

People who enter the implementation phase have identified what it is they want to do (or their intentions), but have yet to transform their intentions into action. Studies have shown that even when people hold strong intention to engage in a behavior, many fail to initiate the action (Orbell & Sheeran, 2000). People in this stage have the drive/intention to engage in the behavior, but often lack the confidence required to take on the new challenge. Therefore, the information tailored to people in this phase should bolster their beliefs that they can effectively carry out their intentions (Rothman & Salovey, 2007). Within the literature, self-regulatory processes—specifically action planning—have served as a promising solution to bridge the intention-behavior gap (Sniehotta, Schwarzer, Scholz, & Schüz, 2005). Self-regulatory strategies refer to the efforts people put forth to act in line with their intentions and avert innate, learned, or habitual responses to situational cues (Sniehotta, Schwarzer, et al., 2005). Action planning is a self-regulatory strategy that entails identifying good opportunities to initiate intentions by specifying when, where, and how to act (Sniehotta, Schwarzer, et al., 2005). This strategy operates by linking a mental representation (in memory) of a future intentional behavior to an upcoming situational opportunity (Sniehotta, Schwarzer, et al., 2005), which enhances the probability that the person will recognize environmental cues and more readily access and activate their plan (e.g., Sniehotta, Scholz, & Schwarzer, 2005; Webb & Sheeran, 2007). Vivid representations that are well-thought out are more likely to lead to intentional actions because they reduce the demand on self-regulatory processes in-situ (Gollwitzer, 1999). Existing research has demonstrated that when people create action plans, they are more likely to carry out their intended behavior (e.g., Carraro & Gaudreau, 2013; Sniehotta, Scholz, & Schwarzer, 2005), transfer goals into behavior (e.g., Sniehotta, Schwarzer, et al., 2005) and initiate the action faster (e.g., Orbell & Sheeran, 2000) than people who don’t.

Studies have indicated that intrinsic goals (potentially drawn from the decision phase) combined with implementation intentions, which closely resemble action plans, mutually reinforce each other to assist people in effectively progressing toward behavior change (e.g., Koestner, 2008). From a SDT perspective, action plans are effective as they boost perceptions of competence by providing a plan, while enhancing autonomy due to the self-directed nature of the task, which will bolster self-determined motives for the behavior. Researchers that are interested in endorsing action plans in their messages should consider explaining what they are, provide a rationale detailing
how and why they are advantageous, and use examples to indicate how a person may formulate their own.

When constructing messages for the implementation phase, the goal should be to facilitate people in taking the leap to bridge the gap between intentions and action. At this stage, people’s self-efficacy and perceived control should be fostered by focusing on self-regulatory strategies like action planning that will assist in the behavioral change process (Sniehotta, Scholz, & Schwarzer, 2005; Sniehotta, Schwarzer, et al., 2005). It may thus be helpful to provide (a) information and tips explaining how to create action plans; (b) a template to record goal(s) and corresponding plans to encourage the recipients to connect the two; and (c) highlight resources that inform when, where, and with whom people can engage in the behavior (e.g., a calendar of free community exercise programs or a list of clinic locations/hours for cancer screening with registration instructions).

**Maintenance phase**

Once a person has initiated a behavior that requires continual engagement, the individual needs to learn how to sustain it over time. It has become apparent that many people relapse within a certain period of time (e.g., 6 months; Marcus et al., 2000). Scholars have articulated that such failures occur when certain social temptations arise (e.g., vacation, community BBQ) or when the person holds strong habitual routines for the unhealthy behavior (Sniehotta, Schwarzer, et al., 2005). To mitigate these deleterious effects, self-regulation strategies (e.g., coping planning) that help people pinpoint personal barriers and reinforce their confidence that they can overcome obstacles have been offered as a viable solution. Coping planning operates by replacing spontaneous reactions to risky situations with predetermined coping mechanisms with the obstacle (Sniehotta, Scholz, & Schwarzer, 2005). Coping planning is a multiphase process, whereby using personal experience, the individual identifies anticipated distractions, temptations, and barriers that lead to undesired behavior, then select an appropriate response to overcome the perceived risk (Sniehotta, Scholz, & Schwarzer, 2005). Although the literature is inconsistent, there is evidence that when people utilize coping plans, they are more successful in sustaining the health behavior (see Carraro & Gaudreau, 2013 for a meta-analysis on action and coping planning).

At this phase of the behavior change process, it appears as though it is critical to frame messages to emphasize intrinsic goals and self-determined motives because in this phase the advantageous nature of them becomes more distinct from extrinsic goals and non-self-determined motives. Stated more clearly, studies have indicated that although people may initiate intentional behavior regardless of the nature of the driving force behind their action, people that sustain their intended behavior are more likely to be guided by intrinsic goals and self-determined motives (e.g., Fortier et al., 2011) and they are more likely to automatize the regulation of behavior and to develop habits for a wide variety of behaviors (Radel, Pelletier, Pjevac, & Cheval, in press).

Individuals in the maintenance phase may benefit from messages that (a) illustrate how to set a coping plan for a behavior; (b) articulate the importance of recording obstacles including the situation or people that tempt or distract them, or their environmental, resource, or emotional barriers such as weather, time, money, or anxiety; (c) provide examples and templates to assist people in identifying the format that works best for them (e.g., log book, calendar, or tables); (d) encourage people to identify detailed solutions for each barrier, then match it to the obstacle; and finally (e) offer a variety of self-regulatory strategies that have been reported to be effective for that behavior (e.g., positive self-talk, visualization, or arousal management techniques).

**Conclusion**

Almost two decades ago, Petty and Wegener (1998) stated that in order for a message to be effective, it must be communicated in a way to not only get people to attend to the message, but also to process it in a way that it optimizes the impact on how people think about the issue. It has become abundantly clear that the strategies used to promote healthy behaviors insufficiently address Petty and Wegener (1998) suggestions and that simply providing people with basic information will not lead to sustained health behavior change (Rothman & Salovey, 2007; Schneider, 2006). Upon closer inspection of the literature, it became readily apparent that a more comprehensive approach was required in order to facilitate more in-depth processing of information, which is essential for someone to change and sustain healthy behaviors.

To enhance the effectiveness of persuasive messaging in the health field, we propose that researchers consider using the CMSSBC to communicate health messages and help people move through health behavior stages of change. Extending upon conceptualizations put forth by scholars (Pelletier et al., in press; Pelletier & Sharp, 2008; Rothman & Salovey, 2007), this messaging approach specifies tailoring information to four phases of behavioral change (detection, decision, implementation, and maintenance). In the detection phase, messages should convey why it is important for a person to engage in the behavior and why it is relevant to them, with a particular emphasis on self-determined reasons. In the decision phase, messages should provide people with realistic options that help them determine what behavior they want to engage in and guide them toward developing intrinsic goals. In the implementation phase, people should be exposed to messages that communicate self-regulatory strategies on how they can initiate the health behavior by helping them determine where, when, and/or with whom they can activate the behavior. Finally, for behaviors that require continued effort, messages for the maintenance phase should yield strategies that inform the recipient of how to persist in the face of adversity. Once a person has fully integrated the behavior into their lifestyle, they no longer need to alter their behavior, thus the development of messages beyond this stage is unnecessary.

So what’s next? Despite the fact that the CMSSBC was developed based on sound theory, and when possible, empirical evidence, the approach must be tested in order to inform practical health promotion messages. Studies must investigate whether people in the four stages of change differentially attend to, process,
and benefit from messages that provide them with information tailored to their stage of change. In doing so, researchers should pay attention to not only the ways their messages are designed, but also the population that is intended to be reached. For instance, although the stages of change were discussed in regards to how one individual progresses from one stage to the next, one challenge that researchers may face when designing messages is the difficulty of identifying a populations’ current stage of change. Unless researchers can identify individuals as being at a specific stage (e.g., people taking on a new year’s resolution or signing up to a specific program designed to change a behavior), messages may not be optimally effective. Furthermore, considering that groups of individuals may be in various states of behavior change at once, future research should investigate whether creating multiple messages corresponding to the four stages of change and presenting them in the sequence proposed by the TTM is more effective than creating one message that emphasizes information for all four stages at once. Longitudinal designs should also be employed to test how these messages impact initiation and prolonged engagement in more complex behaviors such as physical activity or nutrition.

In addition to testing the aforementioned message tailoring strategy, we strongly advocate that researchers replicate or extend upon a study conducted by Vansteenkiste, Timmermans, et al. (2008), which empirically examined whether individuals pursuing different types of goals (intrinsic or extrinsic) were more likely to attend to messages that “matched” their goal orientations and whether they would benefit equally from different types of goals or from messages that refer to both types of goals. Although we strongly support the beneficial effects of fostering self-determined motives and intrinsic goals for internalizing and sustaining health behaviors over the long term, we also acknowledge that capturing peoples’ attention is a critical first step to behavior change. For people who are driven to engage in health behaviors for reasons such as appearance, to please others, or to reduce feelings of shame or guilt, it is plausible that in order to get their attention, the message should emphasize extrinsic goals and non-self-determined motives that appeal to their orientation. Although an initial study conducted by Vansteenkiste, Timmermans, and colleagues (2008) examined this proposition in message framing and demonstrated that intrinsic goals were more beneficial than extrinsic goals regardless of individuals’ goal orientations, further research must be conducted to strengthen our understanding of the best approach. As we move forward in this line of inquiry, we encourage scholars to test the strategies we have put forth and contrast them with other viable approaches, and—when supported by empirical evidence—refute these with the vision of advancing our understanding of optimal persuasive messaging approaches.

**References**


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