

# Message Design Strategies to Raise Public Awareness of Social Determinants of Health and Population Health Disparities

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**Context:** Raising public awareness of the importance of social determinants of health (SDH) and health disparities presents formidable communication challenges.

**Methods:** This article reviews three message strategies that could be used to raise awareness of SDH and health disparities: message framing, narratives, and visual imagery.

**Findings:** Although few studies have directly tested message strategies for raising awareness of SDH and health disparities, the accumulated evidence from other domains suggests that population health advocates should frame messages to acknowledge a role for individual decisions about behavior but emphasize SDH. These messages might use narratives to provide examples of individuals facing structural barriers (unsafe working conditions, neighborhood safety concerns, lack of civic opportunities) in efforts to avoid poverty, unemployment, racial discrimination, and other social determinants. Evocative visual images that invite generalizations, suggest causal interpretations, highlight contrasts, and create analogies could accompany these narratives. These narratives and images should not distract attention from SDH and population health disparities, activate negative stereotypes, or provoke counterproductive emotional responses directed at the source of the message.

**Conclusions:** The field of communication science offers valuable insights into ways that population health advocates and researchers might develop better messages to shape public opinion and debate about the social conditions that

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shape the health and well-being of populations. The time has arrived to begin thinking systematically about issues in communicating about SDH and health disparities. This article offers a broad framework for these efforts and concludes with an agenda for future research to refine message strategies to raise awareness of SDH and health disparities.

**Keywords:** Health disparities, social determinants of health, narratives, framing.

**I**N RECENT YEARS, THE BROAD DETERMINANTS OF population health in the United States and other countries have received renewed attention (Kindig and Stoddart 2003; Kunitz 2007; Wilkinson and Marmot 2003). Two principal ideas characterize this emerging population health research. The first is attention to the nonmedical and behavioral determinants of health, highlighting the importance of not only access to medical care and health behaviors but also economic and social determinants of health (referred to here as SDH) such as poverty, education, working conditions, housing conditions, social support, stress, and neighborhood context (e.g., Berkman and Kawachi 2000; Wilkinson and Marmot 2003). The second idea is a focus on the distribution of health, not just the average level of health, across populations (e.g., Kindig 2007; Mechanic 2007). Consequently, recent research has centered on understanding health disparities, particularly those by race and socioeconomic status (SES), and their complex economic, social, and biological determinants (Adler et al. 2007; Berkman and Kawachi 2000; Williams and Jackson 2005).

Despite the great strides in research evidence of persistent racial and SES disparities in health and of the broad determinants of these disparities, effectively communicating these ideas presents formidable challenges. The general public currently believes that access to health care and personal health behaviors are the strongest determinants of health and see other social and economic determinants as less influential (Robert et al. 2008). Indeed, this view is perpetuated by the dominant message of news reports and scientific journals suggesting that people's health status is largely within their control through their health behavior choices (Barrington 2007). This message, however, overlooks the fact that racial and SES disparities in health are not fully explained by differences in unhealthy behaviors or medical care (Evans and Stoddart 1990; Lantz et al. 1998) and that various other factors contribute to disparities in health.

It also overlooks the fact that race and SES shape people's resources and opportunities to make healthy behavior choices in the first place, thereby putting people at risk of risks (Link and Phelan 1995). Consequently, a short-term goal of population health researchers and advocates should be to convey to both key stakeholders (policymakers, opinion leaders) and the broader public that health is produced by not only access to health care and individual health behaviors but also other social and economic factors such as poverty, education, and racial discrimination.

While public opinion and media practices present uphill battles to communicate these population health messages, health communication science itself has also made it difficult to effectively deliver them. First, most theories and research in health communication science emphasize strategies to promote individual behavior change rather than strategies to change broader social factors (Viswanath and Emmons 2006). Second, the success of health communication campaigns has generally been determined by the degree to which interventions have changed the overall level of a population's health or health behavior, with less emphasis on the interventions' effects on the distribution of health or effects within subpopulations (Hornik 2002; Hornik and Ramirez 2006). Therefore, we know more about which communication strategies improve overall population health than we do about which strategies reduce health disparities. Indeed, the goals of increasing overall population health and reducing health disparities sometimes conflict; that is, improvements in one subgroup's health may improve the general population's overall health while simultaneously increasing health disparities among the population's subgroups (Graham 2004; Keppel, Bilheimer, and Gurley 2007; Kindig 2007). Different communication intervention strategies may be required to reduce disparities in population health among groups, as opposed to improving the mean population health, yet we have little evidence regarding the success of a range of intervention strategies in reducing health disparities.

Research in communication science has examined characteristics of messages that enhance individual risk perceptions, attitudes, and behavior (Dillard and Pfau 2002). It is not clear, however, how strategies designed to change individual behavior can be adapted to persuade policymakers and the public of the importance of SDH and disparities in health among groups. Few studies have directly tested message strategies to raise awareness of SDH and health disparities. Nonetheless, researchers and advocates need to develop effective messages, and we believe that

communication science has valuable lessons to offer. The aim of this article is, therefore, to review various message strategies developed in the communication science literature and to assess their applicability to raising awareness of SDH and population health disparities. Our goals are to give population health scholars and advocates a framework for thinking about and developing effective message strategies and also an agenda for future research in this area.

We begin by outlining a series of challenges for population health messaging. Next, we review theory and research concerning beliefs about who is responsible for causing poor health and health disparities and their importance to determining support for policies to improve SDH. Informed by this perspective, we identify and review three message design strategies that hold promise for raising awareness of SDH and health disparities: (1) message framing, (2) narratives, and (3) visual imagery. We continue with a discussion of potential pitfalls associated with these message strategies. Throughout, we develop an agenda for future research to refine these message strategies and improve public awareness of SDH and population health disparities. We conclude by acknowledging the review's limitations and summarize promising strategies for future message design, implementation, and research.

## Challenges of Raising Awareness of SDH and Health Disparities

Efforts to raise public awareness of the importance of SDH and health disparities face formidable communication challenges in the United States. These include (1) a mismatch between the target audience for raising awareness about the importance of SDH and health disparities and those disproportionately influenced by SDH and health disparities, (2) human attribution biases, (3) the prominent ideology of individual responsibility, (4) public health research priorities, and (5) journalistic norms and practice.

First, policymakers, opinion leaders, and voters should be the primary target audiences for efforts to raise awareness of SDH and health disparities because their views are most likely to ultimately shape health and social policy (Bartels et al. 2005). However, voters, opinion leaders, and policymakers also tend to come from the upper (and healthier) end

of the distribution of income, education, and employment (Adler et al. 2007), and it can be difficult to mobilize individuals and groups that do not have a personal stake in a policy outcome (Gamson 1992). It is particularly challenging to mobilize individuals and groups to address a social problem if the solution may include redistributing their resources to others. Thus, raising awareness of SDH involves the difficult task of convincing higher SES individuals and groups that the plight of others, rather than their own self-interest, is important to formulating health and social policy.

Second, psychological research suggests that humans tend to overemphasize individual factors and underemphasize contextual factors when attributing responsibility for others' actions or dispositions (Gilbert and Malone 1995; Jones and Harris 1967). This fundamental attribution error suggests that people are more likely to assign blame for others' poor health to individual shortcomings (e.g., failure to engage in healthy behavior) than to social or structural factors (e.g., poverty and little education). This robust finding suggests that population health advocates face inherent human biases when trying to raise awareness of SDH and attribute poor health and population health disparities partly to factors beyond individual choices, particularly when the target audience for these efforts lies at the upper end of the distribution of a population's health.

Third, the prominent ideology of individual responsibility in the United States emphasizes individual causes of health and population health disparities (Leichter 2003; Lukes 1973). An ideological tendency toward individual responsibility shifts attention away from SDH and disparities in population health and toward a focus on individual behaviors and health care decisions as the primary determinants of health.

Fourth, public health research emphasizes individual behaviors and medical care, rather than SDH, as the primary determinants of health. Indeed, in the past few decades, the fields of medicine, public health, and health communication have done more research on the effectiveness of behavior change and health care interventions than on SDH (Lantz, Lichtenstein, and Pollak 2007; Link and Phelan 1995; Rothstein 2003). Consequently, this research has led to programs to increase access to health care and/or to change individual behavior, which in turn has likely influenced how researchers and practitioners in medicine, public health, and communication think about improving health and reducing health disparities.

Fifth, journalistic norms and practice tend to concentrate on individual rather than broader social factors as the source of health and health disparities (Gasher et al. 2007). News stories are far more likely to use episodic frames describing specific events, rather than thematic frames placing events in a broader context (Iyengar 1991). This use of episodic frames tends to simplify complex issues to the level of anecdotal evidence, inviting audiences to infer individual attributions of responsibility. In turn, such attributions reduce perceptions that society and the government are responsible for social problems (Iyengar 1991). This tendency to blame individuals for poor health and health disparities stems from various factors, including perceptions that SDH are not conducive to telling news stories, feelings that SDH are not newsworthy, and a fear of stigmatizing low-SES and racial or ethnic minority populations (Gasher et al. 2007).

News coverage of the obesity epidemic is a good example of this journalistic tendency. Research demonstrates that obesity arises from individual factors (decisions about diet and exercise), social factors (characteristics of one's social network; see Christakis and Fowler 2007), and structural factors (marketing of low-cost unhealthy foods, unavailability of fresh produce, lack of exercise opportunities in the built environment; see Bodor et al. 2008; Sallis et al. 2006). Many individuals do in fact have some control over their decisions about diet and exercise. But their exposure to structural factors like marketing and produce availability is largely beyond their control, suggesting that both individuals and the broader society share responsibility for addressing the problem. Notwithstanding, news coverage of obesity has been framed largely in terms of individual causes and solutions (Kim and Willis 2007). In fact, Saguy and Almeling (2008) found that news stories about obesity were more likely than the original scientific journal articles to blame individuals for obesity.

### Attributing Responsibility for Population Health and Health Disparities

The field of communication science has devoted considerable attention to creating messages to persuade others (Dillard and Pfau 2002). In practice, though, much of this research has been on designing messages to

promote changes in individual behavior (Viswanath and Emmons 2006). At the same time, attribution theory (from the field of social psychology) provides a useful perspective for identifying relevant message strategies to raise the public's and policymakers' awareness of SDH and health disparities.

Attribution theory suggests that people make sense of the world by attributing the causes of events or other people's dispositions as either internal or external (Heider 1958). *Internal attributions* are inferences that a person's disposition is caused by that person's characteristics and so is within that person's control. *External attributions* are inferences that a person's disposition is caused by contextual factors and so is outside that person's control. For instance, some may attribute the origins of poverty to an individual's internal characteristics (e.g., lazy and unmotivated), whereas others may attribute poverty to external, structural conditions (e.g., poor neighborhoods lack opportunities to achieve economic prosperity).

Attributions of responsibility are particularly salient to SDH and health disparities. Some Americans attribute social conditions such as poverty and racial inequality to internal attributions like character flaws and inadequate education, while others attribute these factors to societal factors like economic conditions, institutional barriers, or failed governmental efforts (Iyengar 1989). More important, these attributions of responsibility for the causes of social conditions are strongly associated with support for policies to address these factors (Iyengar 1989). For example, attributions of responsibility affect whether or not voters support societal interventions to improve social conditions (e.g., redistributive policies to aid the poor; see Appelbaum 2001) or to invest personal resources to address these issues (e.g., donations to impoverished countries; see Campbell, Carr, and MacLachlan 2001). Although associations between attributions of responsibility and support for social remedies are partly due to political views, they persist when controlling for partisanship, political ideology, and SES (Iyengar 1989).

People's attributions of responsibility for population health and health disparities are likely to influence public support for policies to improve SDH and reduce health disparities. If a voter or policymaker believes that an individual's personal decisions to smoke, eat poorly, and avoid the doctor are responsible for his or her own poor health, attribution theory

and research indicate that this voter or policymaker will be far less likely to support policies to improve the population's health. Conversely, if a voter or policymaker believes that factors beyond an individual's control are responsible for his or her poor health or relative health disadvantage, theory and research suggest that this voter or policymaker will be more likely to support policies to improve the population's health and reduce disparities. Because population health research emphasizes social and structural factors such as poverty, limited education, and racial discrimination and their effect on health disparities, communication regarding these more structural determinants should theoretically help generate public support for societal interventions to reduce health disparities by addressing SDH.

What characteristics of messages best achieve these goals? The attributions of responsibility literature point to three message design principles that could be used to raise awareness of SDH and health disparities. A sizable literature indicates that the way a message is framed affects attributions of responsibility for social conditions. Logical extensions of message framing research suggest narratives and visual imagery as two other promising strategies. Conveying information through stories and pictures have been fundamental means of acquiring and exchanging information for millennia (see Hinyard and Kreuter 2007). Furthermore, studies linking narratives and message frames have found that these strategies may be combined to influence attributions of responsibility for social problems (Strange and Leung 1999). In addition, visual images (although studied in less detail than narratives or framing) have been found to be very influential in exemplification, a concept distinct from but closely related to narratives. Finally, several researchers have observed that policymakers often place items on their agendas and make decisions using stories and images as primary sources of data (Brownson et al. 2006; Stone 1989). Accordingly, narratives and images raising awareness of SDH and population health issues seem particularly well suited to shaping health and social policy.

Although few studies have directly assessed the effectiveness of these message strategies for raising awareness of SDH and health disparities, we believe the accumulated evidence from other domains is sufficient to inform population health-messaging efforts and provide a framework for future message development, empirical testing, and subsequent refinement.



## Designing Effective Messages: What Can We Learn from Communication Science?

### *Message Framing*

*Message framing* is making some aspects of a social problem more salient by emphasizing them in a message. Message frames define social problems, diagnose causes, make moral judgments, and suggest remedies to solve these problems (Entman 1993). A message can frame a social issue as being caused by internal factors or external factors, which in turn influences how people think about who is responsible for causing a societal problem and who is responsible for addressing it (see table 1).

Is there evidence that message frames influence attributions of responsibility for social problems? The answer is yes, but with major caveats. Iyengar (1991, 1996) conducted a series of laboratory experiments to assess the influence of message frames on attributions of responsibility for terrorism, crime, unemployment, racial discrimination, and poverty. Residents of a suburban neighborhood in a major metropolitan area were randomly assigned to watch news stories that framed a social issue either episodically or thematically. Episodic frames presented a case study of a person or people who suffered from a social condition (e.g., poverty), highlighting individual factors that supposedly produced these dispositions (e.g., drug abuse). Thematic frames provided statistics about the scope of societal problems (e.g., national poverty rate) and linked these problems to other social trends (e.g., declines in social welfare program funding). Viewers exposed to the thematic framing of terrorism and violent crimes were far more likely to attribute these problems to societal causes (Iyengar 1991, 1996).

The results for unemployment, racial discrimination, and poverty—the three issues most directly related to SDH—were less favorable. Framing manipulations had no influence on the attribution of responsibility for unemployment (although it is worth noting that most respondents attributed responsibility for unemployment to society rather than individuals, regardless of the study condition). Thematic framing had no influence on the respondents' attribution of responsibility for causes of racial discrimination, suggesting that many people believed racial discrimination to be isolated to specific individuals rather than a broader pattern of institutional racial discrimination in society (Iyengar 1991). Thematically framed messages did increase societal attributions

TABLE 1  
 A Message Design Strategy Framework for Raising Awareness of Social Determinants of Health (SDH) and Population Health Disparities

Design Strategy	Brief Summary of Conclusions from Existing Research
<i>Message framing</i> (see Iyengar 1991)	<ul style="list-style-type: none"> <li>● A message can frame population health or population health disparities as being caused by internal factors (within control of the individual), external factors (beyond the control of the individual), or some combination of the two.</li> <li>● Message frames influence how people think about who is responsible for causing social problems, who is responsible for addressing these problems, and ultimately what policies (if any) should be implemented.</li> </ul>
<i>Narratives</i> (see Hinyard and Kreuter 2007)	<ul style="list-style-type: none"> <li>● Narratives (stories) are a fundamental way that human beings interact and exchange information.</li> <li>● Narratives can help overcome resistance to persuasion by reducing counterarguments, facilitating message recall and comprehension, and providing opportunities for observational learning through identification with characters.</li> <li>● The evidence base for narrative impact is small, and many studies have relied on student samples.</li> </ul>
<i>Visual images</i> (see Messaris 1997; Zillmann 2006)	<ul style="list-style-type: none"> <li>● Evocative visual images can improve message recall, create emotional responses, and contribute to sustained changes in beliefs about and attitudes toward social issues.</li> <li>● Evocative visual images can also distract attention away from a message's central theme or activate negative stereotypes of populations.</li> <li>● Images can be used to perform at least four persuasive functions: (1) invite generalizations, (2) invite causal interpretations, (3) highlight contrasts, and (4) create analogies.</li> <li>● The evidence base for effective visual persuasion strategies is small.</li> </ul>

for poverty, but these effects were moderated by race. Specifically, when viewers were exposed to stories about poor black people, they were more likely to attribute responsibility for poverty to the individual, regardless of the framing condition (Iyengar 1996). Racial differences were most apparent for single mothers, “where the black mother attracted more than double the volume of individualistic treatment responses of her white counterpart” (Iyengar 1996, 66). These findings were replicated by Hannah and Cafferty (2006), who found no effects of thematic versus episodic framing on attributions of responsibility for poverty but did observe substantial differences based solely on the race of the individual or group in the message. Respondents exposed to messages depicting white poverty were far more likely to support funding for antipoverty programs and services than were respondents exposed to messages depicting black poverty. This pattern of results was found for both white and black study participants (Hannah and Cafferty 2006).

*Implications for Communicating about SDH and Health Disparities.* At first glance, these findings appear to show fundamental obstacles in raising public awareness of the SDH and health disparities. Framing manipulations had little effect on attributions of responsibility for three SDH: unemployment, racial discrimination, and poverty among black people. On closer inspection, however, there is reason to be more optimistic.

First, each study framed causes for social problems as either episodic (individual) or thematic (societal). But few people would argue that poverty, unemployment, and racial discrimination are caused entirely by individual actions or societal factors. Although people choose how to act and live, their choices are shaped or constrained by the availability (or lack thereof) of financial and social resources (Link and Phelan 1995). To the extent that most people attribute social problems to some combination of individual and societal responsibility, it may not be surprising that persuasive messages framed as an either/or proposition failed to have stronger effects. People are routinely exposed to a variety of competing message frames in the news media (e.g., individual and societal responsibility; see Chong and Druckman 2007), and they are accustomed to seeing public health issues framed as individual problems (Kim and Willis 2007). Messages that frame the attribution of responsibility for social problems as an either/or proposition can be easily refuted (e.g., “what about choice?”) and may face greater political opposition (Aday 2005). Stories framing poverty, unemployment, and

racial discrimination as exclusively social problems are thus likely to be resisted.

Meta-analytic data clearly show that in nonadvertising contexts, a refutational two-sided message, one that articulates a position and refutes opposing arguments, is considerably more persuasive than a one-sided message or a nonrefutational two-sided message (O'Keefe 1999). Public opinion surveys demonstrate that the general public believes that individuals are primarily responsible for their own health behaviors and also that medical care is a primary determinant of health. But they do recognize social and economic factors as determinants of health and also the government's responsibility for improving access to health care, income, education, and other social and economic conditions (Robert et al. 2008). Population health advocates might thus consider a message strategy that (1) acknowledges a role for individual decisions but (2) refutes the idea that individual behavior and medical care alone cause poor health and (3) emphasizes that unemployment, racial discrimination, and poverty shape individual behaviors and medical care (e.g., constrain choices owing to a lack of resources and poor neighborhood environments) and contribute to disparities in the population's health. Despite the large amount of evidence supporting the assertion that refutational two-sided messages are superior to other approaches, this assertion should be tested to determine its relevance to SDH and health disparities (table 2).

A second reason to be optimistic is that earlier work on message framing did not use personal stories (narratives) to communicate the thematic or systematic causes of social problems. The episodically framed messages tested in the aforementioned studies (Iyengar 1991) featured stories about specific individuals suffering from poverty, unemployment, or racial discrimination and thus emphasized specific instances over enduring problems (Shah et al. 2004). In contrast, the thematically framed messages conveyed information about larger social problems using primarily statistical evidence. Narratives are not inherently episodic. They can be used to convey many different types of information, including the social or structural causes of social problems (Strange and Leung 1999). While some argue that statistical evidence is more persuasive than narrative evidence (Allen and Preiss 1997), people nonetheless often ignore statistical information when confronted with several narrative examples of a particular social condition (Zillmann 1999). A growing body of research has explored the unique power of narratives to shape human opinions and behavior and suggests that previous studies of message

TABLE 2  
An Agenda for Future Research

Design Strategy	Research Question
<i>Message framing</i>	1. Are messages that frame health as a result of both individual and structural factors more effective in generating structural attributions for SDH than messages that frame these issues as primarily influenced by structural factors?
<i>Narratives</i>	2. What characteristics of narratives (e.g., plot, character, structure, realism, production value) are critical to facilitating persuasion? 3. Can messages that use compelling narratives about social conditions offset the finding that many people attribute poverty among African Americans to individual factors? 4. Can population health narratives convey the complexity of economic, structural, behavioral, and social factors that influence health, or are multiple narratives required to emphasize various determinants of health?
<i>Visual images</i>	5. What combinations of visual images (inviting generalizations, suggesting causal interpretations, highlighting contrasts, and/or creating analogies) are most effective in raising awareness of SDH and health disparities?
<i>Narratives and visual images</i>	6. Can message designers develop narratives and images of SDH and health disparities without simultaneously activating negative stereotypes or evoking high guilt, anger, resentment, and persuasive intent?
<i>General</i>	7. Can population health advocates effectively raise awareness of and concern for SDH and population health disparities without strong efficacy information about how to influence SDH and reduce disparities? 8. Are message frames, narratives, or visual images more likely to influence attributions of responsibility for some SDH (e.g., low education, unemployment) than others (e.g., poverty, racial discrimination)? 9. Can messages that raise awareness of the scope and magnitude of population health disparities influence concern for these disparities without explicitly mentioning their social and structural determinants? 10. Can messages that raise awareness of SDH influence concern for health disparities without explicitly mentioning the magnitude or nature of these disparities?

framing and poverty, unemployment, or racial discrimination did not adequately assess the potential impact of messages framed to emphasize SDH and health disparities.

### *Narrative Impact*

From *Aesop's Fables* to Super Bowl commercials, human beings have used stories to interact and exchange information, pass on knowledge, convey ideas, and influence behaviors for thousands of years (Hinyard and Kreuter 2007). Researchers studying the impact of narratives generally agree that stories enhance readers' message recall and comprehension and facilitate attitude and behavior changes in the real world by transporting readers into the narrative (Green, Strange, and Brock 2002; Kreuter et al. 2007). Narratives also provide opportunities for individual readers to connect with broader social groups and populations represented by story characters. These connections in turn influence the attribution of responsibility for the causes of and the solutions for social issues affecting these populations (Strange 2002; Strange and Leung 1999).

Narratives work largely by transporting readers into the story world, "an integrative melding of attention, imagery, and feelings," when their mental capacities are focused on the events in the story (Green and Brock 2000) and their existing real-world beliefs are temporarily suspended (Wheeler, Green, and Brock 1999). While lost in a story, readers are less likely to generate counterarguments and resist the persuasive message (Deighton, Romer, and McQueen 1989; Kreuter et al. 2007, Slater 2002) and are more likely to be open to new ideas (Green, Brock, and Kaufman 2004). Compared with other types of evidence, stories are easier to understand (Graesser, Olde, and Klettke 2002; Green 2006) and recall (Schank and Berman 2002) because they more closely resemble real-life experience. Stories also are easier to remember because affective (emotional) information is more readily available than neutral information (Petty and Krosnick 1995; Polichak and Gerrig 2002).

Narratives are more persuasive when they feature characters and situations that are believable and easy for readers to identify with (Slater 2002). Indeed, readers who see themselves as being similar or sympathetic to a character are more likely to identify with that person (Slater and Rouner 2002). Persuasive effects appear to hold for both fictional and nonfictional narratives (Strange and Leung 1999) and persist over time (Appel and Richter 2007).

*Implications for Communicating about SDH and Health Disparities.* The accumulated evidence suggests that efforts to raise awareness of SDH and health disparities could benefit from capitalizing on the unique power of narrative persuasion. In summary, narratives can help overcome resistance to persuasion by reducing counterarguments, facilitate message recall and comprehension, and provide opportunities for observational learning through identification with characters (Hinyard and Kreuter 2007; Kreuter et al. 2007). At the same time, the evidence base for narrative impact is small, and many studies have relied on student samples (Hinyard and Kreuter 2007). Furthermore, it is not obvious how effective narratives should be constructed or which story characteristics (e.g., plot, character, structure, realism) are most important to a narrative's effectiveness (Kreuter et al. 2007; also see table 2).

Some authors even argue that narratives intrinsically frame social problems in terms of individual causes (Gamson 1992; Iyengar 1991). In response to this position, Strange (2002, 276) pointed out that

novelists, from Dickens to Zola to Dreiser, have sought to illuminate the societal roots of social problems by drawing readers into the experience of story-world individuals and viewing out, as it were, at the problems they face. These examples suggest that in following the vicissitudes of individual actors, stories may be particularly well equipped to channel attention toward the situational determinants of individual action.

There also is empirical support for this contention. Strange and Leung (1999) randomly assigned college students to read one of two versions (situational and dispositional) of a short story about a student who decided to drop out of high school. The situational version attributed his decision to the lack of resources provided by his urban school. The dispositional version attributed his decision to his own indecision and anger. Students who read the situational version were twice as likely as those who read the dispositional version to attribute school and community factors as both the cause of (e.g., poor teacher training, inadequate funding) and the solution for (reducing class size, increasing funding) high school dropout rates. This example indicates that population health advocates could develop narratives that highlight and frame SDH and health disparities.

At the same time, the use of narratives to communicate population health messages has some potential limitations. First, individual stories are unlikely to be able to convey the complexity of economic, structural, behavioral, and social factors that influence health. To use narratives to raise awareness of SDH effectively, researchers and advocates will likely have to tell a variety of stories emphasizing different determinants and their influence on disparities in population health. A relatively simple story found on the Public Health Agency of Canada's website (originally published by Federal, Provincial and Territorial Advisory Committee on Population Health 1999) is a good example of how this complexity might be described in narrative form (<http://www.phac-aspc.gc.ca/ph-sp/phdd/determinants/index.html>). The story begins by asking, "Why is Jason in the hospital?" and then illustrates a variety of causes for his visit, moving from downstream causes (infection from a cut) to upstream determinants (including unsafe environmental conditions that led to the cut, poverty, unemployment, and limited education). This example suggests that at least some SDH can be conveyed in a relatively short narrative.

Second, narrative effectiveness in persuasion partly depends on the context in which narratives are viewed and interpreted. For instance, perceived persuasive intent in a message interferes with readers' transportation into the narrative world and thus reduces the message's effectiveness. Therefore, the more controversial the topic is, the less obvious the message's intention should be (Slater 2002). The extent to which SDH and health disparities are a controversial public issue is not yet known, but several proposed solutions for poverty, limited education, and racial discrimination involve large-scale government intervention (e.g., redistributive tax policies; see Aday 2005). Such ideas tend to originate from the political left, and some political actors are likely to see them as controversial. In addition, a narrative often has multiple messages to offer. Individuals also can be distracted by peripheral elements of the narrative itself and draw conclusions that may not have been intended by the message's source (Hinyard and Kreuter 2007). Consequently, it is important to make sure that readers take away the intended message. In the case of TV or radio dramas, using an epilogue to reiterate the narrative's main message has been successful (Slater 2002). However, this strategy is also likely to convey persuasive intent, which may have unintended consequences.



Third, the literature on narratives has focused largely on the effects of the written word. But the most common source of narratives in the United States is the visual medium of television (Gerbner et al. 1980), and few would question the unique persuasive influence of visual images (Messaris 1997). How, then, might population health advocates use images, in conjunction with narratives, to raise awareness of SDH and disparities?

### *Visual Imagery*

Critical scholars suggest that television's mode of visual storytelling has fundamentally transformed the way human beings live, work, and interact with one another (e.g., Gerbner et al. 1980; Meyrowitz 1985; Putnam 2000). Even though the importance of visual images has long been recognized, surprisingly few empirical studies have examined the influence of images as adjuncts to written or spoken messages intended to persuade or inform. The available literature indicates, however, that evocative visual images can improve message recall, create emotional responses, and contribute to sustained changes in beliefs about and attitudes toward social issues.

Several researchers have explored the use of evocative visual imagery to promote individual behavior change. For example, visual images that graphically depict death and disease caused by smoking increase emotional responses to messages (fear, anger, and sadness; see Biener et al. 2005). In turn, these emotional responses enhance memory for ad content and influence subsequent thoughts about tobacco use (Terry-McElrath et al. 2005). While these studies do not tell us whether images that catalyze behavior change would also influence thoughts about SDH or health disparities, Zillmann (2006) suggests these lessons could also apply to these issues.

A growing body of research has explored the influence of image exemplars on perceptions of social issues (Zillmann and Brosius 2000). An *exemplar* is essentially a personified example (e.g., "John is a young, married, unemployed construction worker with two children") that is used to illustrate a particular threatening condition (e.g., "He is about to be evicted from his home because he can't make his mortgage payments"). Overall, this research finds that people's beliefs about the relative prevalence of a social condition (e.g., poverty) or health condition

(e.g., cancer) are often based on the frequency of their exposure to exemplars, whether experienced directly (personal experience) or indirectly (media portrayals; see Zillmann and Brosius 2000). Although people may ignore statistical information about the frequency of a particular health or social condition when presented with multiple exemplars of them, a single exemplar by itself may not outweigh the influence of statistical base-rate information (Baesler and Burgoon 1994). Exemplification can also influence assessments beyond the perceived prevalence of a social condition, including the perceived risk of disease, but this concept has not yet been applied to assessments of SDH and their impact on health disparities (Zillmann 2006).

Exemplars can be particularly convincing when combined with evocative images. Several studies have found that vivid images depicting an exemplified individual led to sustained changes in the perceived prevalence of social risks of driving, roller-coaster rides, and farming (Zillmann 2006). Images also influence estimates of rates of disease for particular ethnic groups. For instance, one study found that the inclusion of a photograph of a person from a particular ethnic group led to higher estimates of disease risk for that ethnic group, even though the text provided no information about the relative risk of disease by ethnicity (Gibson and Zillmann 2000). While this study did not examine the effects of exemplification through images, broader theoretical perspectives on visual persuasion suggest that these effects are likely to apply to SDH and health disparities (Messaris 1997; Tufte 1997).

At the same time, there is evidence that evocative visual images can distract attention from a message's central theme. Evocative visual images attract attention and require considerable cognitive resources to process (Lang 2000). Processing visual images thus can steal mental resources away from processing other elements of a persuasive message. For instance, Newhagen and Reeves (1992) found that viewers of a televised news story with strong negative images were less likely to remember the information that preceded the image as well as the information that was spoken while the visual image was being shown. This and other studies (see Lang 2000) indicate that even though evocative visual images may increase memory and recall of the overall message, specific details about that message may be lost.

*Implications for Communicating about SDH and Health Disparities.* Messaris's theory of visual persuasion argues that images can be used to perform at least four persuasive functions: (1) inviting generalizations,

(2) inviting causal interpretations, (3) highlighting contrasts, and (4) creating analogies (1997). Zillmann's (2006) studies focus largely on the first category, inviting generalizations based on images presented as exemplars. An example is racial disparities in cancer mortality. Exemplification theory suggests that a message containing visual images of two African American men and one Caucasian man dying from prostate cancer would be a vivid, memorable way to show that African American men have more than twice the relative risk of dying from prostate cancer than Caucasian men do.<sup>1</sup>

Visual images can also invite causal interpretations relevant to SDH and health disparities. Tufte (1997) uses the example of John Snow's description of stopping the spread of cholera in 1854 England to illustrate the effective use of images to describe causal relationships. Snow used maps to place cholera incidence data in a geographic context, which helped illustrate the relationship between cause (contaminated water pumps) and effect (cholera). Population health advocates might use this case study to take greater advantage of geographic information systems (GIS) technology to demonstrate the effects of racial segregation and neighborhood poverty as SDH influencing health disparities.

In addition, the juxtaposition of visual images can underscore contrasts between populations and/or create analogies identifying SDH and their impact on health disparities. For example, photographs might show differences in neighborhoods' exposure to environmental pollution by contrasting a low-income neighborhood located next to a coal refinery with a high-income neighborhood surrounded by parks and greenery. Likewise, population health advocates might juxtapose photographs of people living in poverty with photographs from the Great Depression to emphasize the similar challenges faced by the impoverished then and now. These two strategies are by no means the only applications for visual imagery in raising awareness about SDH and health disparities, and none has been tested empirically. Rather, these ideas are intended to show the potential for visual imagery to evoke emotional responses and enhance the persuasive impact of messages devoted to raising public awareness of SDH and health disparities.

An unresolved question lies in the ability of visual imagery to evoke emotions other than fear or sadness. In some circumstances, fear can motivate individuals to take protective action in the face of health risks (Witte 1992). Fear is not, however, likely to play a major role in raising awareness of SDH and health disparities among key stakeholders because

they are less likely than the general population to suffer from poverty, limited education, and other major determinants of poor health. The evocation of guilt and anger appear more closely tied to awareness of SDH and health disparities among policymakers, opinion leaders, and the larger voting public. However, as we will describe, eliciting guilt and anger may not be productive steps toward the goals of increasing awareness and concern for SDH and health disparities.

### Potential Pitfalls Associated with Frames, Narratives, and Visual Images

Three potential pitfalls—distraction from the message, elicitation of counterproductive emotional reactions, and the lack of efficacy information—warrant further discussion.

#### *Distraction from the Message*

Reviews of the available literature on narratives and visual imagery point out the potential for these message strategies to distract audiences from a persuasive communication's central message. Although compelling narratives may contain much information peripheral to the central message, they nonetheless may be remembered as the main message (Hinyard and Kreuter 2007). For instance, message-framing studies demonstrate that narratives about an African American single mother's poverty may inadvertently activate negative stereotypes of people of color (e.g., Iyengar 1996). Likewise, a single visual image of a member of a particular ethnic group can produce negative and inaccurate stereotypes of the risk of disease for that group (Gibson and Zillmann 2000). These examples emphasize the need to use caution when choosing visual images and narratives to illustrate SDH and population health disparities. Gibson (2006) offers a very useful set of issues to think about when using narratives or vivid imagery for a persuasive message. They include whether the story or image is connected to global stereotypes of an issue and whether the story or image may distract attention from the broader policy objective. Population health advocates should consider these issues before choosing messages with narratives and images for a broader audience, and they should test the messages on

members of the target audience to ensure that the intended message is received.

### *Counterproductive Emotional Responses*

Narratives and images can also inadvertently provoke counterproductive emotional responses, including anger and guilt. *The Theory of Psychological Reactance* by J.W. Brehm (1966) states that persuasive messages can arouse negative thoughts and angry emotions that lead recipients to reject the sender's intended message. Indeed, the sizable literature indicates that awareness of a message's persuasive intention results in less likelihood of accepting it (see Burgoon et al. 2002), in part because audiences form negative thoughts of and angry emotions toward the message's source (Dillard and Shen 2005). On the one hand, one benefit of narratives is that stories can mask persuasive intent (Hinyard and Kreuter 2007). But on the other hand, it is unclear exactly how population health advocates could create and disseminate narratives without conveying their intention to influence. An angry response to the message's source thus remains a potential, unintended, and counterproductive consequence of narratives about SDH and health disparities.

An emerging literature on guilt appeals also suggests caution in using narratives and images to evoke strong emotional responses. Guilt is a negative emotion aroused, in part, when one feels more fortunate than others and is empathetic to the others' situation (Huhmann and Brotherton 1997). In contrast to many other negative emotions such as sadness or shame, guilt has a unique, action-motivating characteristic (O'Keefe 2002; Tangney, Stuewig, and Mashek 2007). That is, feeling guilty or the anticipation of feeling guilty seems likely to compel people to make amends or to avoid guilt-inducing situations. Nevertheless, the available evidence advises caution in evoking guilt in response to a persuasive message. Meta-analytic data suggest that messages arousing a high level of guilt appear to inhibit persuasion, largely because they also appear to arouse other negative emotions, such as anger, resentment or annoyance (O'Keefe 2000), which seem to offset any intrinsically action-motivating effects of guilt appeals.

One approach that appears almost certain to produce guilt and anger is using the word *you* in the message. For example, the statement "last night, *you* let a child go to bed hungry again" produces far more guilt and

anger than the statement “last night, a child went to bed hungry again.” The explicit use of the second-person tense in a persuasive message therefore conveys persuasive intent, is likely to be counterproductive, and should not be used (Coulter, Cotte, and Moore 1999; Coulter and Pinto 1995). Ethical questions also are associated with the purposeful evocation of negative emotions like guilt. At the same time, some evidence shows that messages leading to the anticipation of guilt, without actually evoking the emotion itself, may help communicate about SDH and population health disparities (Lindsey 2005). Successful anticipated guilt appeals appear to require strong efficacy information, however, so that a person can act to prevent the onset of actual guilt in the future (Lindsey 2005). For reasons described later, such messages about SDH and population health disparities may not influence audiences. It nevertheless remains an open question whether using images and narratives to raise awareness of the negative effects of poverty, limited education, and racial discrimination on health and well-being will produce some degree of guilt or anticipated guilt in those who empathize with the poor and stigmatized (see table 2). These factors further iterate the importance of testing messages that use narratives and images on members of the target audience to assess the unintended evocation of counterproductive emotions.

### *Lack of Efficacy Information*

Questions also remain about how population health advocates can create messages that convey a high level of response efficacy and self-efficacy to improve SDH and reduce health disparities. Such messages are particularly difficult because there is relatively little evidence regarding effective strategies to address broad SDH and reduce health disparities (e.g., Baker, Metzler, and Galea 2005). The first step may be simply to raise awareness of SDH and health disparities to create significant public support for *any* subsequent effort to address them, however applied. An analogy might be made to the case of secondhand smoke and smoke-free workplace policies. Widespread public awareness of the harmful effects of secondhand smoke was likely a necessary, but not sufficient, condition for the subsequent successes of the smoke-free air movement in advocating for smoke-free workplace laws. Population health advocates thus might raise awareness of SDH and health disparities before getting to

the details about how to address them. Nonetheless, it is not yet clear whether population health advocates can effectively raise awareness of and concern for SDH and population health disparities without strong efficacy information (see table 2).

## Acknowledgment of Limitations in Scope

We must acknowledge the limitations in the scope of this review. First, we chose to focus on the results of laboratory experiments in the communication science literature. Accordingly, we have omitted reviews of works on other social movements (such as environmental justice, civic participation, civil rights, women's suffrage, or the smoke-free air movement) which may have valuable lessons for researchers and advocates working to raise awareness of SDH and population health disparities. Each of these social movements was successful in mobilizing advocates, reframing social issues, developing collective identities through the construction of narratives, and generating policy support for large-scale changes. A thorough review of the strategies that these movements used for message framing, narrative development, use of imagery, and guilt evocation would be very valuable for population health messaging but is well beyond the scope of this article. Benford and Snow (2000) have summarized the existing literature on framing strategies used by social movements, and Jacobs (2002) has written about the value of narratives for developing collective identities within social movements. These articles provide a useful background for future research on the development and use of various message strategies in other social movements.

Second, we chose to concentrate on message framing and two logical extensions of framing (narratives and visual images) rather than other potentially useful message features (such as normative appeals). This decision was based on several factors. First, the most direct application of message design issues regarding SDH and population health disparities has been published in the message-framing literature. These studies provide a starting point for discussing narratives and images, which have been explored in some studies of framing effects (narratives) or have been studied in conjunction with exemplars (visual images), a literature closely related to narratives. In addition, as discussed earlier, narratives and images appear to be particularly influential sources of data in placing items on the policy agenda and the actual policymaking

process (Brownson et al. 2006; Stone 1989). Finally, the use of other message strategies like normative appeals (e.g., “most people think that poor health is caused by poverty, racial discrimination, and unemployment”) are typically driven by public opinion data on public perceptions of these issues. However, although public opinion polls pay considerable attention to health *care* disparities, there is virtually no national public opinion information specific to SDH or broader health disparities from which to develop normative messages (Robert et al. 2008). Normative appeals may become useful strategies for raising awareness of SDH and health disparities once these types of data are gathered.

Third, we concentrated exclusively on message strategies to raise awareness of SDH and population health disparities and consequently did not pay attention to effective strategies to ensure large-scale dissemination of these messages. The field of public health communication has spent much time on this question, and the answers are complex. An adequate treatment of this question also is well beyond the scope of this article. Readers interested in these issues are invited to consider perspectives on social marketing (Grier and Bryant 2005), media advocacy (Wallack 1993), entertainment education (Singhal and Rogers 1999), and health communication campaigns (Hornik 2002).

Fourth, we commented on message strategies for raising awareness of both population health disparities and SDH. Although these concepts are related, they are not equivalent and may require different communication strategies. For instance, poverty, limited education, and unemployment help determine health status, but these variables are also often used to define population health disparities by SES (e.g., disparities by income and education). It is unclear whether a message aimed at raising awareness of poverty and unemployment as SDH will have the parallel consequence of helping raise awareness of health disparities by SES. It also is unclear whether messages that center exclusively on raising awareness of the scope and magnitude of population health disparities can be successful in promoting concern for these disparities without explicitly mentioning their social and structural determinants, beyond behavior and health care. Conversely, it is an open question whether messages that focus on SDH without explicitly mentioning the scope of population disparities can raise concern for these disparities. These questions remain important objectives for future research (see table 2).

Fifth, although we touched on the influence of perceived persuasive intention on the interpretation of narratives and guilt-inducing



messages, we said little else about the impact of source characteristics on persuasion. Much of the research in communication science has explored source characteristics that (all other things equal) increase the message's effectiveness. These include source credibility (composed of expertise and trustworthiness), likeability, similarity to the target audience, and physical attractiveness (O'Keefe 2002). But the specific characteristics of a source perceived to be expert, trustworthy, likeable, and similar depend on the message context and target audience. Thus, prescriptive suggestions about source characteristics that are likely to increase the effectiveness of efforts to raise awareness of SDH and population health disparities could be misleading. Nonetheless, policymakers may perceive researchers as more objective, credible sources than advocates, who may be perceived as having clear political ideologies. Conversely, advocates might be regarded as a better source when speaking with voters or voting interest groups, if they are seen as being similar to and having similar priorities as members of those groups.

### Summary of Message Strategies to Raise Awareness of SDH and Health Disparities

We wrote this article with two goals: (1) to give population health scholars and advocates a framework for thinking about and creating more effective messages and (2) to develop an agenda for future research in this area. A review of the available literature on message framing, narrative impact, and visual imagery suggests a variety of promising message strategies to raise awareness of SDH and health disparities. In sum, population health advocates should consider messages that acknowledge a role for the individual decisions about behavior but refute the idea that individual behavior or medical care are the sole causes of poor health and instead emphasize the influence of SDH. These messages might use narratives to provide examples of individuals or families that face structural barriers (unsafe working conditions, neighborhood safety concerns, lack of civic opportunities) in their efforts to avoid poverty, unemployment, racial discrimination, and other SDH. Evocative visual images that invite generalizations, suggest causal interpretations, highlight contrasts, and create analogies could accompany these narratives. Population health advocates should make sure that narratives and visual images do not activate negative stereotypes or arouse anger at the source

of the message. Messages should be tested to ensure that targeted audiences draw the intended conclusions about SDH and population health disparities from the messages.

These preliminary strategy recommendations are based on a small number of studies specifically of SDH and population health disparities. Many questions remain unanswered and would benefit from empirical validation or replication, as summarized in table 2. These questions are by no means exhaustive but do illustrate the vast potential for research to illuminate many of the challenges faced by those raising awareness of SDH and health disparities. At the same time, while there is much yet to learn, the application of knowledge from communication science could go a long way to shape public opinion and debate about the social conditions that determine the health and well-being of populations. We believe that it is time to begin thinking systematically about communicating about SDH and health disparities, and we hope that this framework stimulates thought, debate, research, and refinement of these and other message strategies.

## Endnote

1. The absolute risk of prostate cancer death would not be accurately conveyed by using a two-to-one ratio of African American to Caucasian American exemplars. Even though age-adjusted rates of prostate cancer deaths are more than two times higher among African Americans (48.7 per 100,000) than among Caucasian Americans (19.6 per 100,000), the absolute number of prostate cancer deaths is much higher for Caucasians (26,416 in 1998) than for African Americans (5,436), because the U.S. population is about 70 percent Caucasian and 13 percent African American (Gargiullo et al. 2002). However, because scientists and news outlets generally convey risk information to the public in relative rather than absolute risk terms (Russell 1999), a visual portrayal of a one-to-five ratio of exemplars of African American to Caucasian would almost certainly produce inaccurate estimates of both the relative and the absolute risk of prostate cancer in the United States.

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