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Unintended Effects of Health Communication Campaigns

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Health communication campaigns, as an outcome of and an input into the social process, can create unintended as well as intended effects. The present paper represents an initial conceptual treatment of the unintended effects, the less studied of the two. It suggests that unintended effects can manifest in multiple dimensions, including those of time lapse, levels of analysis, audience types, content specificity, and valence. On these dimensions, a typology organizes available evidence to offer an outlook on 11 types of unintended effects, including obfuscation, dissonance, boomerang, epidemic of apprehension, desensitization, culpability, opportunity cost, social reproduction, social norming, enabling, and system activation. Implications for theory, research, and practice are discussed.

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Health communication campaigns are social actions. They represent an outcome of the social process in which dissimilar values and disproportionate power compete for the attention and action of policymakers and the public (Guttman, 1997; Salmon, 1989). Campaigns also constitute an input for social processes as they are designed to influence a large number of individuals’ beliefs, attitudes, and behaviors (Rogers & Storey, 1987).

Social actions, such as health communication campaigns, entail multiple functions (Merton, 1957). Pointing out that the intentions of social actions are independent of objective outcomes, Merton suggested distinguishing between the manifest and the latent functions of social actions. He describes the former as “those objective consequences for a specified unit (person, subgroup, social or cultural system) which contribute to its adjustment or adaptation and were so intended,” whereas stating that the latter refers to the “unintended and unrecognized consequences of the same order” (p. 63).

The realization that communication is capable of creating unintended outcomes has not gone unnoticed; this was noted even in one of the earliest models of

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communication based on the mechanical perspective. For example, the mathematical model of communication by Shannon and Weaver (1949) includes the variable of “noise” that interferes with the transmission of messages and hence can produce a discrepancy in the meanings of the messages sent and received.

Despite this early recognition and accumulating evidence, unintended effects have remained undertheorized in communication and health communication campaigns research, with only a few exceptions (Guttman & Salmon, 2004; Salmon & Atkin, 2003; Salmon & Murray-Johnson, 2001). The understanding of the consequences of communication will neither be complete nor be objective if it is confined to intended effects. Improving the understanding of unintended effects is of particular import to health communication campaigns, a subdomain of communication research influencing and influenced by public health and public policy.

This paper represents an initial conceptual treatment of the unintended effects of health communication campaigns. It begins with a brief overview of perspectives on unintended effects advanced by scholars in both communication and other sciences. Next, the major dimensions of unintended effects are distinguished. On this basis, a typology organizes available evidence to offer an outlook on 11 types of unintended effects. Finally, this paper concludes with a discussion of the implications on future theory, research, and practice.

**Perspectives on unintended effects**

Starting with the notion of noise (Shannon & Weaver, 1949), communication scholars have been mindful of the potential of the deviation of the outcome from its intention. According to Schramm (1961), “communication effects are resultants of multiple forces, of which the communicator can really control only one, the sender.” Similarly, in formulating the first conceptual model of mass communication, Westley and MacLean (1957) observed that unlike interpersonal settings, in many mass communication contexts, the feedback from the receiver is frequently delayed or not readily feasible, allowing limited opportunities to discern and detect audience reactions. In a related vein, Hovland (1959) argued that the effects of mass media gathered through surveys tend to be weaker than those obtained through experiment because surveys reflect the everyday contexts of the audience, diverting attention and distracting the processing and retention of information.

The concerns of early communication scholars are reflected in the contemporary evaluation research concepts of efficacy and effectiveness. Whereas efficacy represents “the level of desired effect of a program when delivered and received under optimum conditions,” effects describe “the level of good over harm that a program achieves when received under typical real-world conditions of availability and acceptance” (e.g., Flay, 1986, p. 468). The efficacy–effects distinction may run parallel to that of internal and external validity. In his theorizing of health communication campaigns, Salmon (1989) added intentionality to this line of thinking, arguing that effectiveness—those outcomes intended by the planners—should be distinguished
from effects—outcomes including unexpected ones—in the evaluation of health communication campaigns.

Other disciplines have advanced analogous concepts in order to study unintended outcomes. For example, the boomerang effect, a term coined by psychologists Hovland, Janis, and Kelly (1953), refers to the reaction by an audience that is opposite to the intended response of persuasion messages. The term “iatrogenic effect” (Illich, 1976), which has its origins in physician-born illness, has been used by researchers in medicine to describe adverse clinical, social, or cultural outcomes created by treatment and the medical establishment. Economists investigate the social ramifications of negative externalities (Stiglitz, 1988), a detrimental effect that “an individual or a firm causes on another individual or a firm for which the latter does not pay or is not paid” (p. 214), and public policy measures for remedying them (e.g., pollution). The notion of social validity questions whether unpredicted results of social programs occur and if they are acceptable (Stokols, 1996; Wolf, 1978).

Although these concepts from multiple disciplines speak for the social significance of unintended effects, they are limited in that they pertain to a particular valence (e.g., iatrogenic effect) or direction (e.g., boomerang effect) or are germane primarily to the originating discipline (e.g., externalities). What becomes apparent is that a more comprehensive perspective on unintended effects is needed. An initial step in this direction may involve the identification of the key aspects of unintended effects. From the vantage point of classical and contemporary theories of communication and other social sciences, variations of unintended effects in time lapse, levels of analysis, audience types, content specificity, and valence are discussed below.

Discerning the major dimensions

Short- and long-term effects

Effects of communication may vary over time. In general, it is assumed that effects attenuate as time lapses. The notion of the sleeper effect, in contrast, suggests that under certain circumstances, effects of persuasion increase over time (Hovland, Lumsdaine, & Sheffield, 1949; Kumkale & Albarracin, 2004).

Short- and long-term effects may differ not only in terms of strength but also in terms of direction. For example, increasing exposure may decrease perceived personal risk and social importance concerning a health issue in members of the public (e.g., Kinnick, Krugman, & Cameron, 1996). The public’s apathy may in turn influence policy priority.

Outcomes not intended or detected in the short term may be discovered over the long term. For example, increasing exposure to health promotion messages, while motivating individuals to adopt the recommended course of action over the short term, may over the long term produce an acute realization of the limits of individuals’ abilities and the lack of environmental support for maintaining the action (e.g., Cancer and Diet Intervention [CANDI] Project, 1990).
Individual- and societal-level effects
Although campaigns are frequently considered to be an effort for social change, the social side of change has remained ill defined. For example, the intended outcomes of health communication campaigns are defined to be changes in attitudes, intentions, and behaviors of individuals (e.g., Rogers & Storey, 1987). As an element in the social process, campaigns may interface and interact with, as well as influence, their divergent audiences and their social environments to create effects that were not intended by the planners, however.

Specifically, individuals may carry the intended meanings to unintended levels and contexts through subsequent communicative actions, and the social environments surrounding them may direct the process and outcomes of a campaign to unintended contexts and levels. Consequently, campaigns intending changes in individuals may unintentionally modify the systems, values, and cultures of the society and its diverse subsectors. Of the 11 types of unintended effects presented later in this paper, about half of them pertain to societal effects.

Ascertaining the unanticipated process of multilevel influences can be advantageous to advancing the theory and practice of health communication campaigns. In particular, unintended communicative actions that ensue from the intended changes could be incorporated in future campaign designs to bridge these two levels.

Effects on intended and unintended audiences
It is typically recommended that evaluators of health communication campaigns assess changes only in intended audiences. Doing so, however, may not provide either a complete or an objective understanding of campaign effects. For example, within the same level of individuals, unintended effects can occur not only in intended audiences but also in unintended audiences, as messages from the media can be delivered to unintended audiences in addition to the intended ones. In fact, the third-person effect hypothesis (Davidson, 1983), one of the most frequently used media effect models, is based on the observation of this very phenomenon. During World War II, a Japanese propaganda leaflet was distributed, stating that the conflict was a White man’s war and African American soldiers need not risk their lives for the White man. Although there is no evidence that the leaflet caused any troops to surrender or desert, it did have an effect on military commanders, who undertook a significant reshuffle of the White officer personnel (Davidson, 1983, p. 1).

More recently, Gunther and Storey (2003) found that a Nepalese radio campaign intended for clinic health workers did not produce any positive effect on the intended audience; however, members of the general population presumed positive changes in the health workers as a result of the campaign. Members of the general population formed a more positive attitude toward the clinic health workers and evidenced increased self-efficacy in dealing with the health workers. On this basis, the authors suggested the presumed influence model, arguing that communication can cause unintended audiences to presume the effects on intended audiences, and the former can act upon the presumption.
A clear implication for the evaluation of health communication campaigns can be drawn from these media effect models: Confining the effect evaluation within the scope of the planner’s intended audience will not provide a proper understanding of the function that health communication campaigns play in society.

Content-specific and content-diffusive effects
Effects of mass communication can be both content specific and content diffusive, according to McLeod and Reeves (1980). For example, the mere act of watching television, regardless of the content, can cause physical and social effects on viewers (McLeod & Reeves, 1980). Support comes from studies that found a reduction in television-viewing time resulted in weight loss among adolescents (Robinson, 1999) and an association of Internet use with increases in depression and loneliness (Kraut et al., 1998).

Likewise, the effects of health communication campaigns can be content diffusive as well as content specific. Regardless of the health issue under consideration, the choice of communication campaigns as a solution to a public health problem may generate latent social consequences. For example, for those who consider social, economic, and political environments as the primary determinants of public health (e.g., Wallack, 1989), the public resources devoted for communication campaigns, which are primarily an individual-focused approach, may incur opportunity costs. By promoting individual responsibility, campaigns obscure the public’s attention to societal responsibility.

These assertions, regardless of their valence, illustrate the potentially far-reaching effects of communication on the social process that are beyond the traditional boundary of inquiries on communication effects. To date, however, available explanations for unintended effects of communication are limited to those of fear appeals (e.g., Witte, 1992) and psychological reactance (Brehm, 1966; Dillard & Shen, 2005), which are individual-level, content-specific types.

Desirable and undesirable effects
Communication scholars have paid significant attention to the content and effects of commercial advertising for products considered harmful and entertainment media featuring sex and violence. This is, of course, due to their inauspicious nature and the accompanying implications for public health and policy. Yet, health communication campaigns, perhaps due to their manifest intent to promote social good rather than harm, have been underexamined for their potential for causing undesirable effects, although scholars have been aware that intentions do not inoculate communication from creating unintended effects. Because the intentions of health campaigns are to do social good, their unintended effects may be largely negative. For example, Rogers (1995) argued that the unanticipated effects of innovation tend to be indirect and undesirable.

Unintended effects are not always undesirable, however. For example, in the above-discussed Nepalese campaign, the unintended audience’s exposure to and
attitude change resulting from the radio messages generated favorable outcomes. In another case, although changing community health policy was not among the list of intended outcomes, the Minnesota Heart Health Program unintentionally galvanized the political constituents in the treatment city of Bloomington. These constituents were, in turn, instrumental in passing a city ordinance against cigarette-vending machines (Lando, Bluhm, & Forster, 1991).

As such, campaigns may unintentionally activate surrounding social systems (Hornik, 2002). For example, campaigns may empower members of the intended audience and their social networks to organize support groups and advocacy organizations. Exposure to campaigns may motivate journalists to write stories about the issue, scientists to investigate the issue, politicians to pledge commitments to address the issue, the industry to develop preventative or remedial goods and services, and the general public to consider the issue as a socially important problem worth allocating their sympathy and concern (Viswanath & Finnegan, 2002).

In the next section, on the basis of these dimensions, a typology of unintended effects is offered. Overall, 11 types of unintended effects are discussed, including obfuscation, dissonance, boomerang, epidemic of apprehension, desensitization, culpability, opportunity cost, social reproduction, social norming, enabling, and system activation. Table 1 shows how each of the types can be categorized into dimensions, and Table 2 presents the definitions and lists key examples of each of the types of unintended effects.

Typology of unintended effects

Obfuscation
One of the most common unintended effects of health communication campaigns is the creation of confusion and misunderstanding. Models of persuasive communication (e.g., McGuire, 1989) posit that the comprehension of messages is one of the important initial steps leading to behavior change. The issue of health risks is complex; however, even experts’ risk judgments can be fallible, not to mention that of lay people (Slovic, 1987). This nature of health risks, when combined with limitations in the message design and delivery, renders media-based campaigns vulnerable to unintended effects.

At the same time, the designers frequently have to simplify messages in order to fit the media’s functional requirements and facilitate the attention and retention of their audience.

For example, Cline, Johnson, and Freeman (1992) found that the “talk to your partner” AIDS prevention campaign might have increased the audience’s risk of contracting the disease while having no impact on their condom use. In this case, the message appears to have unintentionally conveyed that talking to partners is an efficacious preventive behavior and that by so doing, individuals fulfill the obligation of practicing safer sex. Therefore, the campaign may have reduced condom use among those who misunderstood the message. Furthermore, the message may have
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(continued)
elevated the risk for women who talked to their male partners because men who were willing to talk tended to have more sexual experiences (Cline et al., 1992).

Messages intended for a subset of the population might have produced misunderstanding among members of unintended populations. For example, breast cancer prevention messages emphasizing the need for women with a family history of breast cancer to have regular mammography created a false sense of security among women who did not have a family history of breast cancer (Lerman, Rimer, Trock, Balshem, & Engstrom, 1990). Messages designed for the general population might unintentionally undermine risk information necessary for those who are at high risk. For example, the American Heart Association’s guideline urging cholesterol checks every 5 years for adults 20 and older has been criticized in that it can undermine the recommendation that people at higher risk of heart disease need to watch their cholesterol level more frequently (Levy, 1996; Winslow, 1996). These cases illustrate the role that a lack of control over the unintended audience’s exposure to media can play in the production of unintended effects.

**Dissonance**

Psychological distress or discomfort occurs when individuals perceive that the desired health state presented in a message and their actual states are incongruent and that they lack the ability or means to reduce that inconsistency (e.g., Festinger, 1957). Models of behavior change postulate that in addition to the motivation to change, individuals must also have the internal resources to carry out the recommended behavior (Ajzen, 1991; Strecher, DeVellis, Becker, & Rosenstock, 1986). Therefore, when individuals desire to change but perceive that they lack the needed abilities or necessary environmental supports, they can be in psychological distress.

It is noteworthy that available evidence suggests that such an experience of dissonance may be most acute among those who are the most motivated to change but lack resources over which they do not have control. For example, in the Minnesota CANDI Project, designed to increase the consumption of fruits and...
vegetables as a way of reducing the diet-related cancer risk, a significant increase in
the perception of barriers to change was detected among the most exposed and
that in the face of health education messages promoting breast-feeding and society’s
disapproval of breast-feeding in public, infant-raising women felt guilty, deprived,
and frustrated.

Boomerang
Among the message strategies in health communication campaigns, fear appeals
have been the most notorious for their potential for producing boomerang effects.
Janis and Feshbach (1953) found that after exposure to fear appeals, the audience
avoided thinking or communicating about the risk presented in the message. Fur-
thermore, research has reported that exposure to fear appeals resulted in intentions
to increase smoking (Rogers & Mewborn, 1976) and drinking (Kleinot & Rogers,
1982) and a self-reported increase in unsafe sex (Witte, 1992).

Although fear appeals are frequently shunned due to their negative nature, evi-
dence shows that the solution may not reside in the simple espousal of positive
appeals. Cox and Cox (2001) discovered that positive appeals promoting mam-
mography negatively affected women’s attitudes toward it and decreased their
perceived susceptibility to breast cancer. In contrast, these researchers found that
existing communication materials promoting cancer screening predominantly use
positive appeals.

In addition to appeals using personal emotion, the boomerang effect has also
been reported for interventions employing social normative appeals. Based on the
recognition that college students overestimate the incidences and approval of alcohol
consumption among their peers, the social norms approach to college drinking
focuses on correcting the overestimation and providing accurate information on
behavioral and attitudinal norms on campus (Perkins & Berkowitz, 1986).

Although the intuitive appeal of this approach has led to “a veritable explosion of
norm education campaigns across the country” (Borsari & Carey, 2003, p. 332), this
popularity has not been backed by matching evidence of effectiveness. Increases in
measures of monthly alcohol use and total volume consumed were detected at
schools that adopted social norms interventions (Wechsler et al., 2003).

Epidemic of apprehension
In the domain of medicine, researchers have noted the paradoxical effect of the
improvements in the nation’s health status. Advances in mortality rates, life expec-
tancies, treatments, and preventive measures have not always been accompanied by
the enhancement of the public’s perceptions of their own health. This discrepancy,
apty described as “the failure of our success” (Barsky, 1988) and “doing better but
feeling worse” (Wildavsky, 1977), is ascribed to several factors.

Progress in medicine has decreased mortality from acute infectious diseases. This
accomplishment, however, came at the cost of relative increases in chronic diseases.
Concurrently, the promotion of health consciousness has undermined the public’s perceived health status by rendering them overly sensitive to symptoms and feelings of illness (Barsky, 1988; Mechanic, 1983).

Likewise, the many ongoing messages about various types of health risks may result in an unnecessarily high concern on the part of the public over their individual health, eroding their sense of well-being (Becker, 1993; Tenner, 1996). Thomas (1983) termed this phenomenon as an “epidemic of apprehension.” The sense of insecurity produced by such messages may make the public perceive that health risks “lurk in every aspect of daily life: the air we breathe, the water we drink, the food we eat, the homes we live in, the substance we touch, and the work we do” (Feinstein & Esdaile, 1987, p. 113).

**Desensitization**

Repeated exposure to messages about a health risk may over the long term desensitize the public. Lazarsfeld and Merton (1951) were the first to note the “narcotizing dysfunction” of the media, which induces desensitization toward social issues. The inundation of information on the problems of society may render the public apathetic and inert rather than energizing them for action. Downs (1972) argued, “even the most powerful symbols lose their impact if they are constantly repeated,” as “the piteous sight of an oil-soaked seagull or a dead soldier pales after it has been viewed even a dozen times” (p. 47).

More recently, the study of “compassion fatigue” by Kinnick et al. (1996) found that long-term, diffusive media coverage was linked to desensitization and emotional burnout toward issues such as AIDS, homelessness, child abuse, and violent crime. Although compassion fatigue was detected across the issues, the population segment who experienced it most was likely to be White male college graduates and moderate-to-high income individuals who might be in the best position to take action (Kinnick et al., 1996).

**Culpability**

The typical intended audiences of health communication campaign are the individuals who have the potential to engage in and are engaging in the particular behaviors that put them at risk. The manifest effects of such an approach would involve individuals taking action to prevent and manage the risk (e.g., eating five servings of fruits and vegetables per day, doing exercise, and getting regular checkups). The latent functions may include the reinforcement and instillation of the belief in the public’s mind that individuals are responsible for their own health and thus that if and when they get ill they are culpable, as it was because they did not eat healthy, exercise, or undergo recommended screenings (Guttman, 1997; Minkler, 1999; Ryan, 1976).

In contrast, many public health researchers argue that health risks are determined by social and structural factors. For example, in accounting for the limited effects of the Pawtucket Heart Health Program in reducing cardiovascular risk factors, Carleton, Lasater, Assaf, Feldman, and McKinlay (1995) argued, “what we eat is influenced by
what is available and, thus, by the entire agricultural system; by food manufacturing, processing, and marketing; and many other macroeconomic factors” (p. 784).

Communication is not antithetical to changes in structural factors influencing public health; it is the directing force in every social action to engineer change. However, the predominant goal of most health communication campaigns is to induce individual-level change, a focus that often neglects important environmental impediments to change.

Opportunity cost
Problems of the society compete with each other in the public arenas (Hilgartner & Bosk, 1988). Competition is inevitable because public arenas, being places of public discourse and action, hold a limited carrying capacity. For example, newspapers have space for only so much printed matter and a certain number of reporters and editors, foundations face ongoing programming commitments, and congressional committees have only so many hours for hearings. Likewise, members of the public are limited in their capacity for attention, compassion, time, and money that they can devote to issues. Consequently, competition results in an uneven distribution of public attention and resources to the universe of social problems, irrespective of their objective condition (Hilgartner & Bosk, 1988).

Issues concerning health are not an exception. They, too, have to compete in order to enter into and stay in the public arena. The finite capacity of the public arena predicates that only a subset of health problems (e.g., drug abuse vs. AIDS or other issues), the definitions of the selected problems (e.g., teen pregnancy as the problem of young mothers’ lost opportunities vs. babies’ health vs. collective social costs), and solutions to the agreed-upon definitions (e.g., sex education vs. morality education as the solution to teen pregnancy) will receive public attention during a given period of time (Best, 1995). At each phase of the selection process, the opportunity cost rises as the probability of improving public health through other choices is lost.

The case analysis by Reinarman and Levine (1995) of the nation’s “war against drugs” waged between 1986 and 1992 illustrates the social process leading to the construction of a campaign and the intangible price that society may have to pay for the outcome of the process, which is the campaign. Whereas the choice drug in the war against drugs was crack, during the same time period the use of alcohol and marijuana was far more prevalent than that of crack. Crack use was limited for the most part to a small portion of those who used heroin or cocaine, and it never became a popular drug in the United States. Moreover, a decline in the use of cocaine had begun even before the launch of the campaign. The rhetoric of politicians and the media vastly deviated from the reality, with the frequent use of the term “plague” to promote crack as the most serious social problem of that time. As a result, the campaign distracted the public’s attention from the more widespread problems of drinking and smoking and forfeited the social opportunity to take measures to address these as well as the other ills of society.
Social reproduction

Social reproduction refers to the phenomenon in which health communication campaigns reinforce existing social distributions of knowledge, attitudes, and behaviors rather than reform. Cincinnati’s campaign to make the city United Nations conscious, a campaign famous for its minimal effects, is thought to have reached and persuaded those who had already been interested in the United Nations. Although the campaign reinforced these individuals’ existing attitude, it failed to influence the attitude of those who had not been interested (Star & Hughes, 1950).

In the domain of health, the redistribution effect of campaigns has been evidenced in a range of types of messages. An evaluation of antismoking public service announcement (PSA) effects found that individuals who felt influenced by the PSAs were those who already had been inclined to stop smoking before the exposure to the PSAs (O’Keefe, 1971). The evaluation of a television entertainment education program, All in the Family, indicated that the program, designed to dispel ethnic biases, reinforced the existing biases among some of the viewers (Vidmar & Rokeach, 1974). These reports are resonant with Klapper’s (1960) argument that in using mass media, creating attitudes is more difficult than reinforcing existing attitudes.

Furthermore, the knowledge gap hypothesis (Tichenor, Donohue, & Olien, 1970) predicts that the campaigns’ distribution of information on risks and their prevention will reflect the social distribution of education and income. A 1995 study on the public’s AIDS knowledge found that a low-education group had lesser knowledge on both true and false transmission of AIDS than the high-education group (Salmon, Wooten, Gentry, Cole, & Kroger, 1996). A 4-year program for bicycle helmet use among elementary school children in a region of Quebec found that the program was one third as effective in poorer municipalities as in average–rich ones (Fairly, Haddad, & Brown, 1996).

Social norming

Although health and well-being are universal human values, the definition of these constructs differs from society to society (Witte, 1994). Health communication campaigns, by purveying the definitions of health and promoting behaviors to attain them, can play a pivotal role in constructing social norms concerning health.

By nature, norms demand that individuals monitor others and present themselves as being compatible with the prevailing behaviors and attitudes of society. Therefore, norms created by campaigns can construct a perceptual environment that is prohibitive of risk behavior or promotive of health behavior. In this manner, campaigns, as mediated by social norms, can facilitate social cohesion, consensus, and control (Ross, 1901/1969).

By the same token campaigns, via social norming, can render individuals vulnerable to shame and isolation. By nature, norms demand compliance and forge conformity. Presenting oneself out of alignment with the implicit and explicit social expectations renders the individual vulnerable to shame and isolation (Piers & Singer, 1953). Examples of such stigmatization abound in the literature; the famous
slogan “Kissing a smoker is like kissing an ashtray” is one example of how campaign planners inadvertently isolate those who fail to conform to a public health ideal.

For those who are able to adapt themselves to social norms, the recognition of norms is instrumental to a better social life management. Those who stay outside of the norm or who cannot muster themselves to conform to the majority are marginalized; the attitudes of the nonmarginalized toward the marginalized are essentially negative (Goffman, 1963).

Indirect, partial support for this thesis comes from emerging research on the social effects of the media and social factors influencing health behaviors. The longitudinal study of Yanovitzky and Stryker (2001) indicates that the news media’s negative coverage of youth binge drinking first induced a negative social norm about the behavior, which then reduced the incidences of the behavior among youth. The study of Kim and Shanahan (2003) found lower smoking rates in states where public sentiment about smoking was negative. Smokers who had experienced negative public sentiment expressed more willingness to quit smoking than those who had not.

Enabling

The manifest function of health communication campaigns is always to prevent risk and to promote the health of the public. At the latent level, campaigns may serve to increase and enhance the power of the institutions as well as individuals that support them.

By their appearance in health messages and their support of health campaigns, politicians, First Ladies, entertainment performers, and other public figures—as well as sponsoring organizations including government agencies and nongovernmental organizations—convey to the public, intentionally or unintentionally, that they are socially conscious, concerned, and engaged (Paletz, Pearson, & William, 1977).

Unintentionally, health communication campaigns may also enable industry. The need for knowledge and skills in designing and delivering communication programs for promoting personal health may correlate with the growth of the industry of social marketing (Barsky, 1988). Safer sex campaigns certainly promote condom use and probably benefit the condom industry, which was not allowed to advertise on network television until the early 1990s. By adopting health causes, donating money, conducting social programs, and disseminating communications about causes bearing their brand names and logos, for-profit companies can better manage consumer trust and increase their bottom line, in addition to providing needed resources for campaign-planning organizations and indirectly assisting at-risk populations.

Enabling may take place in a less visible, more implicit manner. Montgomery (1993) asserted that the designated driver campaign was embraced by the alcohol industry as it legitimizes the industry’s presence, their products, and their advertising on television. Similarly, DeJong and Wallack (1992) argued that the designated driver campaign enabled the alcohol industry by encouraging nondrivers’ drinking and by blurring attention on other issues such as underage drinking and injuries and deaths caused by drinking. According to Glantz (1996, p. 156), the campaign to stop
underage smoking enabled the tobacco industry and was associated with increased cigarette sales, as the message “we don’t want kids to smoke” implied that smoking is an “illicit pleasure,” a “declaration of independence,” and a “self-identity.”

System activation

Health communication campaigns are generated and operated in open social systems (Viswanath & Demers, 1999). Systems, according to Bronfenbrenner (1979, p. 22), resemble a “set of nested structures, each inside the next, like a set of Russian dolls.” As such, changes in a subsystem or its elements may trigger changes in other systems and elements. Rogers (1995, p. 419) wrote, “[A] system is like a bowl of marbles. Move any one of its elements and the position of all the others are inevitably changed also.”

Findings in related domains of research offer perspectives on the interrelatedness of social systems and their interface with communication interventions. A change at one system level may activate a change at another, and the direction may not always be the same. One case in point: In a randomized controlled study (Szapocznik et al., 1989), although both family therapy and child therapy showed a positive effect on reducing the symptoms of Hispanic boys with emotional and behavioral problems, the child therapy revealed unintended deterioration in family functioning compared with the improvements in the family therapy condition.

Mass media, which is the central organ of the functioning of health communication campaigns, can engender effects at multiple levels of social systems. For example, the agenda-setting theory (Dearing & Rogers, 1996) states that the media not only determine individual-level beliefs and attitudes but also determine policy-level attention and action. In Japan, newspaper coverage of the effects of smoking on health showed associations with both the debate agenda of the legislative body and the actions of the administrative agencies of the nation (Sato, 2003). Negative news coverage of youth binge drinking decreased its incidences by first changing social norms and motivating policymakers in the United States to take action (Yanovitzky & Stryker, 2001).

The unintended effects of the Minnesota Heart Health Program included more than the treatment city of Bloomington’s ban of cigarette sales through vending machines. The city’s ban provided an impetus for movements to pass similar bans in other cities in the state and for organizing opposition to the efforts of bar, hotel, and restaurant owners to preempt local restrictions at the state level (Lando et al., 1991).

Health communication campaigns, as a dynamic element in the social process, can activate various sectors of society, in addition to influencing the intended audience (Hornik, 2002). These sectors may include, but are not limited to, journalists, pollsters, employers of the at-risk population, health insurance companies, the manufacturing and service industries that have a stake with the health issue, advocacy organizations, and policymakers. The intentions of the actions of these societal groups may or may not correspond with those of the designers of campaigns, but
they are likely to function as mediators or moderators shaping the effect of campaigns and the ensuing changes in society.

Discussion

Research on unintended—and primarily undesirable—effects of social policies has been done in various domains of science. Unfortunately, however, we know of few conceptual frameworks that assist researchers and policymakers in identifying and investigating unintended effects in a systematic manner. Research has reported the unintended effects of a particular program (e.g., Cho, Hallfors, & Sanchez, 2005; Handwerk, Field, & Friman, 2001), whereas reviews have focused on examining whether unintended effects have taken place and how prevalent they are within each subject area (e.g., Moos, 2005; Werch & Owen, 2002).

Conceptualizing unintended effects and developing a framework for understanding them are necessary for health communication campaigns and other social policies for practical as well as theoretical reasons. In the absence of these, efforts to prevent unfavorable unintended effects and to capitalize on favorable unanticipated effects will remain episodic and fragmented.

Moreover, because problem solving and theory building are integrally related (Lewin, 1946), such endeavors can facilitate the progress of theory of campaigns. The typology and the dimensions presented in the manuscript represent the first attempt to gather and make sense of scattered evidence of unintended effects and to ground them in classical and contemporary communication and social scientific theories in order to build a conceptual structure.

The typology, although with limitations to be discussed later in this paper, may assist advancing the theory of campaigns. As a heuristic expedient, typologies can help reduce “two types of sterility: that of the trial and error of empirically random research, and the scholasticism of system building in the abstract” (McKinney, 1966, p. 41). Specific implications are examined below.

Implications for theory and research

Overall, our typology demonstrates that unintended effects of health communication campaigns are multiple in number and diverse in their dimensions. In terms of number, a total of 11 types of effects are identified. In contrast, previous communication research on unintended effects has tended to focus on one of these types: the boomerang effect. It should also be noted that the 11 types of effects might not be an exhaustive list because unintended undesirable effects tend to be underreported (Werch & Owen, 2002). Desirable unintended effects might have gone unnoticed and underdocumented as well if they have occurred outside of the existing theoretical and evaluative paradigm of campaigns.

In terms of dimensions, the present typology indicates that unintended effects are divergent in time frame, levels of analysis, types of audience, content specificity, valence, and domains of life (e.g., social, political, economic). In comparison,
prior communication research on unintended effects tended to concentrate on short-term, individual-level, undesirable effects (e.g., fear appeals, psychological reactance).

Thus, the multidimensionality and diversity of unintended effects identified in this paper improve the understanding of unintended effects and provide a foundation for systematically enhancing theory of health communication campaigns. In particular, the number and the dimensions of unintended effects identified in this paper stand in contrast to the limits of previous research and theoretical bases of unintended effects in health communication campaigns. Consequently, this gap could be construed as an indication of the inadequacy of the extant theories in accounting for the totality of the phenomena that can be brought to bear upon health communication campaigns.

For example, the typology shows that unintended effects can occur at the societal level as well as the individual level. However, few theories of health communication campaigns are available to account for their effects at the societal level. In his writing on theoretical foundations of campaigns, McGuire (1989) conceptualized 12 outputs of campaign, including attention, memory, and postbehavioral consolidation. Unfortunately, all these are postulated to occur at the individual level. Similarly, critics of health communication campaigns (e.g., Wallack, 1989) argue that campaigns are of limited utility for improving public health because their intentions and effects involve only individual-level changes. In contrast, the typology indicates that campaigns create unintended effects at the societal level, both desirable (enabling, system activation) and undesirable ones (opportunity cost, social reproduction).

The typology also suggests that long-term cumulative effects of a campaign may deviate from short-term intentions of the designers (e.g., desensitization). The notions of attenuated effect fallacy (McGuire, 1989) and sleeper effect (Hovland et al., 1949) illustrate changes in the strength of intended effect over time. Desensitization, on the other hand, could be considered as an indication of changes in the direction of communication effects because increasing exposure is associated with decreasing sympathy and compassion. Still, much more research is needed to ascertain the amount of exposure or the duration of the campaign that triggers this type of unintended effects. Such investigations will enable communication researchers to generate more new knowledge on the nature of campaign effects, in addition to information on the magnitude of intended effects.

It is observed that collective effects of campaigns (epidemic of apprehension) may differ from the intentions of individual campaigns. Campaigns are not isolated independent variables operating in a social vacuum. Although the intentions of each campaign designer may be discrete, this distinction may not be so salient among members of the public. Although each individual campaign should make the maximum possible use of intended effects, the collective effects of campaigns should also be a positive sum for society and its health. By expanding the prevailing evaluation paradigm into this direction from its current boundary involving the magnitude of intended effects of a particular campaign, inquiries into collective effects would allow
campaigns to be better assessed for their roles in the social change process, be it modification or maintenance.

Moreover, it is noticeable that unintended effects of health communication campaigns are content diffusive as well as content specific. Overall, five out of 11 unintended effects are content specific: obfuscation, dissonance, boomerang, desensitization, and opportunity cost. Other unintended consequences appear to emanate from the general nature of campaigns rather than from specific features of messages. In contrast, communication theories that have been used for public health campaigns are primarily content specific. Although messages constitute a crucial component of campaigns, they are not the entirety. Campaigns are not equal to persuasion. In order to account for and address content-diffusive unintended effects, future theorizing would need to focus on the defining characteristics of health communication campaigns as a means of social change. Doing so would also involve comparing communication campaigns with other social change means, such as policy initiatives.

The existing evaluation paradigm does not account for the potential of campaign effects on unintended groups of individuals, sectors of society, and other units and levels of analyses. Also, extant communication theory offers only limited explanations for the causes of such occurrences. On one hand, some unintended effects identified in this typology (e.g., obfuscation, boomerang) can occur in unintended audiences, as well as in intended audiences, due to error in message delivery or inadequate process evaluation.

The typology indicates, however, that these are only part of the reason; nor can these be explained away by the third-person effect (Davidson, 1983) or presumed influence models (Gunther & Storey, 2003). For example, the effect of culpability can affect unintended audiences because the emphasis of individual responsibility for risk prevention in intended audiences will influence their subsequent interaction with the unintended audiences of those who are already at risk (e.g., those who are overweight or addicted to substances).

The unintended effect of enabling occurs because campaign effects are not limited to the recipients of messages but also involve those who hold a stake in the public health problem and the ways in which the problem and its solution are defined, as well as those who support the campaigns or appear in the messages. System activation occurs not only due to exposure by unintended audience but also due to the capacity of the intended audience to bring to unintended levels and contexts the intended meanings and actions, be it desirable or undesirable. Explicating the social processes leading to effects on unintended audiences would be related to examining the content-diffusive nature and functions of health communication campaigns.

Another important line of inquiry for building theory of campaigns would be investigating the mechanisms through which health communication campaigns create unintended positive effects. Unlike previous assumptions about the unintended effects of health communication campaigns, the typology shows that not all unintended effects are negative. Of particular import could be the examination of the
processes with which campaigns galvanize diverse sectors of society in addition to the intended group of individuals and motivate them to initiate policy-level changes for public health; this holds the potential to improve both campaign theory and practice.

It should be pointed out that the unintended effects of social norming, enabling, and system activation can be categorized as both desirable and undesirable. This duality is a reflection of the nature of social validity, which differs from experimental validity in that it fluctuates with time, space, and values characterizing the two (Schwartz & Baer, 1991). For example, social norming would be desirable for those who believe in the value of health and the way it is defined by the majority. Those left in the margins may not feel the same way, however. Similarly, the manner in which campaigns assist in expanding the bottom line of some industries would be considered as positive by some sectors of the society but not by others.

Implications for practice
Finally, the typology’s primary implications for practice concern the fact that the majority of unintended effects are undesirable. Considering this apparent pattern, the design, implementation, and evaluation of health communication campaigns may need to consider the potential of unintended and undesirable effects, as do other domains of research that seek to improve health (e.g., medicine, pharmaceutics). For example, a recent Institute of Medicine report (Kohn, Corrigan, & Donaldson, 2000) documented the seriousness of the iatrogenic effect, indicating that at least 44,000 deaths occur in the United States each year due to medical errors. According to the same report, the mortality rate caused by medical errors exceeds that caused by motor vehicle accidents, breast cancer, or AIDS.

Health communication campaigns may not differ from the surgeon’s scalpel or prescription drugs; the intention to improve health is behind all three of these, but none of them are invulnerable to producing iatrogenic effects. Certainly, the iatrogenic effects of communication can be less severe than those of medicine, due to their nontangible and noninvasive nature. But intricately woven into the fabric of the everyday environment, the effects of communication may be more permeable in society than those of medicine. For example, even a single PSA or campaign can reach a multitude of individuals (Werch & Owen, 2002).

At minimum, communication scholars are left with the following questions: Where is the balance between intended desirable effects and unintended undesirable effects? How much undesirable effect is tolerable? Are some undesirable effects more tolerable than others? Can an intended behavior change justify undesirable psychological states? Can the desirable effects on some groups justify the undesirable effects on other groups? What criteria should be applied to answer these questions? It is apparent that science alone may not be able to satisfactorily address these issues.

Concluding remarks
Observational and conceptual recognition of anomaly is instrumental to the advancement of science (Kuhn, 1970). Although the typology and framework present
opportunities to advance the existing theoretical and evaluation paradigm of health communication campaigns, much more research is needed to identify the causes, correlates, and contexts of the various types of unintended effects. Investigations to this end will help refine the conceptualization of some of the effects and identify potential relationships among the types and dimensions. According to Kuhn, awareness of anomaly commences paradigm shift, but the establishment of new theory-predicting anomaly is preceded by periods of extended explorations. It is hoped that the conceptual dimensions and types presented in this paper will serve as an evolving framework for endeavors to this end and for enhancing the theory and practice of health communication campaigns.

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References


In D. Demers & K. Viswanath (Eds.), *Mass media, social control, and social change: A macro-social perspective* (pp. 3–28). Ames, IA: Iowa State University Press.


