Health Risk Communication

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INTRODUCTION

HEALTH RISK COMMUNICATION

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Health risk communication deals with planned or unplanned communication to the public about the nature, impact and management of a wide array of health threats, such as cancer, HIV/AIDS or influenza pandemics.

Traditional health risk communication models used to stress a one-way flow of healh risk messages to the public. The dominant focus was on experts (government, health organizations,…) merely dissiminating risk information and educating a 'lay' and 'ignorant' public about health threats. However, this simplistic top-down model of communication ignored the complex nature of the audience and the public's understanding of risk information. Fortunately, there has been a shift away from top-down communication about health threats. By the late 1990's new models of risk communication have arisen that advocate an approach to risk communication as a two-way process or an interaction between the communicator and the audience. Rather than stressing education of a passive public, such perspective focuses on risk communication as a dialogue or as a dynamic exchange of information.

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Essential to the understanding of risk communication as an interactive process is the view that risk has both objective and subjective qualities. The public's understanding of a health risk is not purely a matter of appraising the objective probability of a health threat or its consequences, but also the result of a more subjective and value-laden evaluation. The public can perceive health risks in complex and multi-faceted ways: different individuals may perceive risks differently because they may appraise the relevance of the risk differently, they may value the consequences of the threat differently or they may rate the threat differently on a set of other attributes or dimensions. This modern formulation of risk as a subjective social construct has triggered a wide range of questions about how public understanding of health risks and health risk messages can be colored by social, cultural and psychological influences. As such it has also opened the door to studying risk communication as an interactive process.

Summarizing, the interactive perspective on health risk communication moves beyond the old view of a passive reciever and instead focuses on how health risk messages can elicit different responses dependent on (a) who communicates them, (b) how they are communicated and (c) how the public actively processes the information. In the last decade there have been several advances in research investigating these three areas of health risk communication.

Concerning the source of the message, it has become evident that mass media play a pivotal role in communicating information about health threats and in shaping perceptions of health risks. For instance, a large scale study on health news and the American public by the Kaiser Family Foundation and the Harvard School of Public Health found that four in ten adults followed health news stories closely (1). A number of studies have looked at how media affect public perceptions and attitudes about health risks and related behaviors (2, 3). Others have examined how the media and the public have responded to recent health crises, such as the H5N1 virus or *Severe Acute Respiratory Syndrome* (SARS) (4). In addition, there is a growing recognition of the role of information source characteristics, such as the extent to which the public trusts the messenger or the perceived credibility of the source. It is likely that, no matter what the risk information is or how the message is presented, health care professionals, scientists, press or government officials will not succeed in communicating health risks effectively if they do not meet up to the public's expectations.

Regarding message presentation, there is growing evidence that the effectiveness of health risk messages is highly dependent on how these messages are constructed or framed. Traditional approaches to health risk communication were based on the assumption that the public rationally evaluates health threat messages. Consequently, health risk communication has usually focused on logical reasoning by providing people with statistical evidence, rational arguments and factual information. However, in the past decade, there has been an increased interest in the role of emotionally appealing narrative forms of communication, such as messages showing emotionally interesting exemplars, personal testimonies or gripping education-entertainment stories for educating the public about a variety of health risks (and especially about cancer) (5). An example of a narrative would be a personal account of an individual's experience with breast cancer and an example of a non-narrative message would be the factual information that "the number of women being diagnosed with breast cancer each year is 5,300". There is evidence which suggest that narrative health risk messages may be as effective or even more effective in influencing the public as non-narrative messages. But research on message evidence formats and framing is still developing

and it will undoubtly remain an important line of study in health risk communication in the future.

Finally, with respect to the public actively processing health risk information, an interesting new direction in risk communication research is the focus on feelings in individuals' reactions to health risks. According to theories such as the affect heurisic (6) or the risk-as-feelings hypothesis (7) people do not only process risks based on rational and argument-based thinking, but also based on affective or emotional reactions. This increased attention to the role of emotions can be linked to the recent interest in emotionally appealing narratives. It is clear that the influence of affect presents a promising new perspective in health risk communication which deserves continued research attention.

This book on health risk communication gathers research findings and theoretical reviews on several of the issues discussed above. A number of contributions focus on the role of mass media as sources of health risk information, several chapters investigate the role of message formats or frames and others pay attention to the role of risk information source characteristics.

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SECTION ONE: HEALTH RISK COMMUNICATION

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Chapter 1

IMPROVING THE EFFECTIVENESS OF MASS-MEDIATED HEALTH CAMPAIGNS: OVERCOMING BARRIERS TO RISK COMMUNICATION

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ABSTRACT

In present times, individuals are affected most often by health conditions resulting from their own behaviors, such as smoking; unhealthy diets; insufficient physical exercise or unprotected sex. Mass-mediated health campaigns aim to change unhealthy habits by increasing perceptions of personal health risk, outcome expectancies regarding the potential success of health behavior change, or perceptions of self-efficacy. However, changing health behavior through mass-mediated campaigns has proven notoriously difficult and health education efforts often fail. Reasons for failure are the lack of insight into affective processes and defensive responses to health messages. Health behavior is not strictly rational in nature, and defensive responses present considerable barriers to health campaign impact by hindering open-minded cognitive processing of health messages. The present chapter discusses communication strategies that circumvent or decrease defensive responses: the use of narratives, positive emotions, and self-affirmation.

INTRODUCTION

Lifestyle diseases such as smoking, unhealthy diets, insufficient physical exercise and unprotected sex cause many deaths. Every year, millions of individuals across the globe die from causes that could have been prevented (1). In such cases, knowledge is not the main

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problem; many individuals are well aware that their behaviors are unhealthy but, for some reason, continue their unhealthy habits anyway. This puzzling fact presents health educators with several important questions: why do people continue unhealthy habits when they know this may increase their risk of severe health problems? Can we locate the real reasons for the continuation of unhealthy habits, whether these reasons are rational or irrational, cognitive or affective, conscious or unconscious? And, most importantly, is it possible to improve communication campaigns in such a way that they result in more effective health behavior change?

The present chapter aims to answer these questions by looking into the socio-cognitive and affective predictors of health behavior change at the conscious and unconscious level. It will be argued that health education campaigns often contain threatening, unpleasant information that triggers less-than-rational, defensive responses in receivers, and that such defensive responses can be circumvented by adding relatively simple persuasive elements that do most of their work at the unconscious level. Several communication strategies that increase the effectiveness of mass-mediated health campaigns are discussed: narrative communication, positive mood, and self-affirmation.

COGNITIVE PREDICTORS OF HEALTH BEHAVIOR CHANGE

In the leading models of health communication, affect plays only a minor role. Most models focus on cognitive predictors of health behavior, proposing that affect may have an indirect effect on behavior, via cognition. This suggests that we do not need to study affect to understand the essence of health behavior. Interestingly, assumptions regarding the role of affect have changed dramatically over the past decades. In initial theorizing on health communication, which emerged in the 1950s, affect played a crucial role. According the Drive reduction model (or Drive model) formulated by Carl Hovland and colleagues, feared has the functional properties of a drive, which motivates individuals to try out various responses until the fear subsides (2). Fear also played an important role in McGuire's reception-yielding model (3), according to which fear exerts opposite effects on the reception of a persuasive message and yielding to message content. Specifically, high levels of fear were assumed to interfere with message reception, but promote yielding to message content.

In later years, the study of the effects of fear diminished, perhaps as a result of conflicting findings. Cognitive accounts of health communication became predominant, proposing that health behaviors result from individual expectancies. The health belief model (4) emerged from this work, and became an important early member of a family of social-cognitive models of health behavior that came and to dominate the field. Socio-cognitive models of health behavior such as the health belief model (4), protection motivation theory (5) or the extended parallel process model (6) distinguish two major types of beliefs that affect the likelihood of individuals' engaging a specific health behavior: the perception of a threat to one's health, and the evaluation of the costs and benefits of any action to avert the danger. Personal health threat reflects a sense of personal risk regarding the condition and an individual's appraisal of its seriousness. The experience of some threat is considered a prerequisite to change. More recent models distinguish multiple stages of change and posit

that deliberative behavior change will only be initiated after individuals become aware of a personal danger (7), providing the motivational impetus for action.

Hence, a key social cognitive predictor of health behavior is risk perception, i.e., the perceived risk of negative health outcomes that may result from a failure to change health risk behavior, or a failure to initiate preventive actions. If, for example, individuals come to understand that they are at risk of developing Hepatitis B, they will become motivated to take action to prevent this risk by engaging in safe sex practices or obtaining vaccination. In mass-mediated health campaigns, risk can be communicated by convincing the audience that 'this can happen to you', for instance by including positive or negative role models, statistical evidence regarding the risk of target groups, or narrative story lines in a persuasive message (8).

In practice, communicating risk is often overlooked, as many health campaigns aim to 'shock people into persuasion' by using vivid imagery of the severity of a health problem, such as the cigarette warning labels of diseased lungs or heart surgery. Although it is sometimes assumed that such campaigns increase perceptions of risk, this assumption is incorrect. Terrible images of fatal injuries or open-heart surgery do not convey risk information; they convey information regarding the seriousness, or severity, of a health problem. Severity is a second component of leading cognitive models of health behavior change, which generally define the perceived threat of a health problem as severity x risk (4-6). These models generally propose that individuals are more likely to undertake action against a health problem to the extent that risk levels and severity levels are higher.

However, in practice, risk and severity do not exert equal effects on persuasion. Several authors have argued that 'severity must reach a certain magnitude to figure in health decisions, but once that magnitude has been reached, decisions are solely a function of perceived susceptibility' (i.e., risk; 9). Individuals will be unlikely to act upon a serious health risk if it does not pertain to them personally, such as an epidemic in a faraway country. Conversely, individuals are likely to do something about a mild health problem if they perceive their personal risk as high, for instance with the yearly flu shot for risk groups. Hence, the key factor in personal health decisions is not rooted in perceptions of severity, but in the question 'does this problem apply to me?'. Health education campaigns that increase perceived risk are more likely to successfully change unhealthy habits.

Perceptions of threat are generally assumed to interact with efficacy beliefs; for instance, higher levels of risk will only increase persuasion to the extent that individuals experience high self-efficacy, i.e., they feel capable of executing the recommended behavior (5, 6). Self-efficacy beliefs are particularly critical for relatively complex health behavior goals, such as consistent condom use, or quitting smoking. In health education practice, this means that information regarding a health threat should best be accompanied by instructions about how to achieve successful health behavior change. For instance, although quitting smoking may appear easy to non-smokers – 'you simply need to not touch a cigarette ever again' – it is a big hurdle to take for addicted smokers, who may need encouragement that they can actually achieve this goal. This claim is supported by research showing that cigarette warning labels do not motive smokers to quit unless they include information that increases efficacy beliefs (10). Likewise, although self-efficacy beliefs regarding consistent condom use may appear as fairly straightforward practical skills to some health education practitioners, the negotiation of condom use may be perceived as a big hurdle for young girls who lack assertiveness and are afraid to speak up to their romantic partner (11).

Apart from self-efficacy beliefs, outcome expectancies, or beliefs regarding the efficacy of a proposed means to alleviate a threat and the potential costs of enacting a recommended behavior, are also assumed to interact with threat perceptions. Hence, increasing perceptions of risk may backfire if no adequate means of reducing the risk is present. Outcome expectancies include perceptions of response efficacy, e.g., 'condom use is an effective way to reduce my risk of getting a sexually transmitted disease (STD)'. Outcome expectancies may also include barriers to perform the recommended behavior such as the lack of money to obtain vaccination or condoms, or fear of vaccination side effects. Recent research acknowledges that some barriers to enacting health behaviors are not so much practical or skill-based in nature, but rather reflect normative social processes (12). For example, fear of possible negative social evaluation by significant others of one's personal lifestyle- e.g., being labeled promiscuous – can hinder the use of condoms and vaccination behavior (13, 14).

BARRIERS TO RISK COMMUNICATION: AFFECTIVE AND DEFENSIVE PROCESSES

Although there is little doubt that cognitive factors determine health decisions, evidence is mounting that affective, non-rational responses also play a pivotal, albeit very different, role in predicting individual responses to risk. Many affective responses can be defined as 'quick and dirty' parts of our biological makeup, working at the unconscious level as a warning sign that 'something is wrong' before cognition picks up on any danger (15). Individuals may thus *feel* risk before cognitively perceiving it. Immediate affective responses make it possible to take rapid action in the case of danger, and interrupt and redirect cognitive processing toward potentially high-priority concerns, such as imminent sources of danger (16).

Although the speed of the affective warning system is essential for survival, its crudeness may be regarded as a potential drawback: it opens the door to irrational behavior and errors of generalization in which risk perception levels increase as a function of feelings of risk. Research has shown that feelings of dread, defined by the extent of perceived lack of control and perceived catastrophic potential can dramatically increase risk perceptions, and lead to gross overestimations of risk (17). Dread may be responsible for public overestimations in the risk of airplane disasters, terrorist attacks, and other dramatic risks that are extensively covered by the media. Likewise, unobservable, unknown, or new risks are often overestimated. In the Netherlands, for instance, the introduction of a new vaccine against cervix cancer among teenage girls led to public outrage, in which authorities were accused of being responsible for 'experimenting on young girls' and 'vaccination-related deaths' (18). The origins of these strong public responses may be rooted in the fact that the vaccine was new; disputed among experts; and linked to (false) personalized accounts of vaccination-induced disabilities and death in the media, factors which all increase perceptions of risk among laymen, regardless of the objective facts provided by experts. Signals from the unconscious, affective system that 'something just does not feel right' - once crucial for survival – may thus become a big problem for the effective communication about new diseases, such as the swine flue, or situations with a high dread factor, such as disasters.

Such strong affective reactions are unlikely for well-known lifestyle diseases. The risk of lifestyle diseases is often grossly underestimated because they simply do not *feel* risky.

Seeing a snake or a spider elicits fear; seeing a hamburger or a cigarette does not. From a risk perception point of view, unhealthy habits have several factors that decrease perceptions of risk: they have benefits next to risks, they appear controllable by individual actions, and they are not part of our evolutionary repertoire of danger. The absence of strong negative emotions about lifestyle diseases is an important fact that needs to be acknowledged when designing health campaigns. Health education practitioners often try to persuade the public that they should become afraid of something that they do not really fear by aiming to trigger strong emotions. Such campaigns are often doomed to fail for two reasons: the unconscious affective system can not be forced to register something it is not programmed for, and the cognitive system is highly experienced in warding off unpleasant, threatening health messages with defensive strategies. Research has shown that individuals may avoid or ignore threatening health messages (6), deny the personal relevance of health information, downplay the seriousness of a health risk, criticize the accuracy of a health risk test (19-21) or engage in wishful thinking by accepting dubious solutions to a health risk, such as unproven medical procedures (9).

These findings point to the difficulty in communicating effectively about health, and to the necessity of preventing defensive responses to health messages. Risk perception cannot be viewed as a mathematical calculation in the brain of the receiver; rather, it is inherently subjective and governed by affective principles in the 'animal' part of the brain. As a result, communication strategies that may appear convincing to a health education specialist, such as the use of statistical evidence, or of vivid materials about e.g., diseased lungs, may not be effective in persuading a target audience because they do not affect the 'animal brain' and merely elicit defensive responses.

In the next section, it is argued that effective risk communication can be achieved via two routes: the affective route or the cognitive route. Messages that use the affective route may target heuristics and emotions at the unconscious level, thus circumventing rational thought processes and increase-ing persuasion through experiential processing. One such strategy is the use of narratives. Health messages that use the cognitive route may employ strategies that decrease defensive responses to health messages, and increase persuasion by promoting rational thought. Two such strategies are self-affirmation and positive mood inductions.

IMPROVING RISK COMMUNICATION: THE AFFECTIVE ROUTE

Health messages often report some form of evidence to convince a target audience to adopt healthier lifestyles. Such evidence can be categorized into two general types: statistical, objective evidence versus anecdotal, narrative evidence (8). Statistical evidence refers to the use of factual assertions and abstract data, such as relevant prevalence estimates, to persuade message receivers that they are likely to be affected by a health problem. Narrative evidence uses concrete, emotionally interesting information, such as a first-person account of someone who came to experience a particular condition. Although the use of statistics may increase persuasion under certain conditions, statistics will not be effective, or even backfire, when a message is preference-inconsistent, which is usually the case with threatening health

information (22). Threatening health information is usually met with considerable resistance, and statistical evidence by itself cannot attenuate this defensive tendency.

Narrative evidence is more likely to trigger strong affective reactions, which may influence risk perceptions and health behavior directly, thus circumventing defensive cognitive appraisals (19). According to the availability heuristic (23), information that is readily available from memory has a strong influence on judgment, even if this information is biased. Because a vivid case history of an individual who got infected with a serious disease is more likely to come to mind than more objective yet dull statistical facts, the case history is more likely to increase risk estimates, even though this makes little sense from a logical point of view. Likewise, narratives may increase the ease with which message recipients can imagine an event or construct a scenario, and the simulation heuristic suggests that this ease of imagination may also increase likelihood estimates (8).

Recent findings support the assumption that narratives can be an effective strategy to increase perceived risk and adaptive behavioral responses. For instance, a narrative of a negative role model who explained how he got infected was more effective in increasing perceptions of risk of infection with HBV and intentions to obtain HBV vaccination than statistical information, basic risk information, and no information (8). Statistical evidence decreased perception of risk, compared with the control groups. Another recent study on HBV communication showed that narratives may also be effective in affecting perceived social norms communication, i.e., expectations regarding the opinion of others (14). Information provided by a positive role model that others would approve of them obtaining vaccination against HBV increased intentions to obtain HBV vaccination, in particular among participants who had not received additional risk information. Conversely, information provided by a negative role model who regretted having not obtained vaccination against HBV increased intentions to obtain HBV vaccination, in particular among participants who had not received additional social norms information. Finally, a recent study by Lemal (24) supports the assumption that the effectiveness of narratives is rooted in transportation-induced affect. Participants who were exposed to a narrative about skin cancer were more transported into the story, which, in turn, increased fear. Fear, in turn, increased perceptions of risk and health promoting behavior.

In sum, narratives are effective in increasing perceptions of risk, changing social norms, and promoting adaptive health behaviors by transporting message recipients into the affective route, i.e., 'the feeling of risk'. When individuals feel risk, they may become motivated to undertake action without much deliberation. An advantageous side effect of this route is the circumvention of defensive responses, which often spring from the 'ego', where deliberate thought processes and creative excuses reside. Apparently, a good story obliterates the need to counter-argue by making recipients feel a message objective.

IMPROVING RISK COMMUNICATION: THE COGNITIVE ROUTE

Because it is often seen as desirable that recipients of a health campaign actively consider the content of a health message, recent research efforts have not only focused on improving risk communication through the affective, experiential route, but also focused on strategies that

decrease defensive responses, and make individuals more rational recipients of the content of a health message. One such strategy may be found in self-affirmation (25). Self-relevant threatening health information can pose a serious threat to self-integrity, which can be regarded as a fundamental need of the human self-regulatory system. Because many health education campaigns contain threatening health information, they will generally motivate an individual to restore global self-integrity in some way. For example, reading about the health consequences of smoking may pose a threat to the global self-concept of smokers, who will feel the need to do something to restore the imbalance caused by the health message. Smokers may restore this imbalance directly by defensively processing threatening information, claiming that 'my grandfather has smoked his entire life and he has never been ill'. Alternatively, smokers may draw upon alternative sources of self-integrity that are unrelated to the threat at hand, for example by affirming their intelligence, or sociability. This would lead to a conclusion such as 'I smoke, but I am also a very nice person'.

Several recent studies confirm the relevance of self-affirmation processes in the health domain (26). In these studies, self-affirmation is generally manipulated by asking participants to reflect upon an important individual value, or for instance recollect instances in which they performed acts of kindness. In a mass-mediated health campaign, self-affirmation may simply be manipulated by adding a sentence in which message recipients are asked to self-affirm, for instance by adding a slogan such as 'what is your most important value in life?'. Research has shown that self-affirmation increases attendance to and acceptance of threatening health messages; perceptions of personal risk and intentions to take precautions regarding health risks such as smoking (27), excessive caffeine consumption (28, 29), alcohol consumption (30) and unsafe sex (29). Some of these effects even remained stable over a period of 1 month (30).

With respect to the effects of self-affirmation on different types of health behaviors, most studies examined the impact of self-affirmation on self-report measures of preventive behavior, i.e., behaviors that prevent the occurrence of some health problem in the future. Preventive behaviors involve little or no risk because they encompass little uncertainty (27). For instance, self-affirmation promoted consumption of fruit and vegetables (31) and the purchase of condoms (29). There is also evidence regarding the impact of self-affirmation on detection behaviors, i.e., behaviors that potentially inform individuals of a severe health problem. Detection behaviors and are typically considered high risk as they encompass high uncertainty (41). For instance, doing a breast self-examination or a diabetes risk test involves the risk of learning one is highly vulnerable to have or develop this disease. Ironically, people may be particularly reluctant to undertake such actions, especially when they are at high risk (21). There is some encouraging evidence that suggests the potential of self-affirmation in this context. Particularly, self-affirmation has been shown to make at-risk participants attend more quickly to risk-confirming information relative to risk-neutral or risk-disconfirming information (28). In addition, self-affirmation promoted screening behavior in the context of diabetes (21).

In addition, recent studies suggest that, like self-affirmation, a positive mood may promote open-minded processing of health messages. According to the mood-as-a-resource perspective (32), positive mood can function as a buffer against the negative effects of threatening health information, and thus increases an individual's openness to this information. According to this perspective, self-relevant health information can create a motivational conflict by providing guidance for self-improvement on the one hand, and

uncovering an individual's weaknesses on the other hand. The resolution of this self-control dilemma is thought to depend on individuals' mood. In a negative mood, people will be mainly motivated to improve their mood, and avoid self-threatening information. A positive mood is posited to act as a buffer against the short-term costs of self-threatening information, and increase objective message processing.

Positive mood may decrease defensive responses to negative messages and promote effective self-regulation for risk groups (32-34). For instance, a positive mood increased systematic processing of a threatening health message about repetitive strain injury (RSI) for individuals at high risk (34). Individuals who were told to be at risk for developing RSI differentiated between strong and weak arguments in a health message only under positive mood conditions. Differentiation between strong and weak arguments is an indicator of systematic message processing. Another study found that a positive mood enhanced recall of the negative effects of caffeine intake, induced less favorable attitudes toward caffeine intake and increase intentions to cut down caffeine intake for coffee drinkers (32). In contrast, coffee drinkers in the negative mood condition were less convinced by the health message. Finally, positive mood increase systematic processing of a threatening health message about smoking for individuals at risk, i.e., for smokers (35). In a positive mood, smokers showed more negative evaluations of the health consequences of smoking of smoking, more positive attitudes toward a 'quit smoking' training recommended in the message, and higher intentions to join the recommended training. Thus, like self-affirmation, a positive mood may provide individuals with the resources to deal with the psychological costs of self-threatening information, and put them on the right track toward adaptive action. Adding small mood-gaining elements to a mass-mediated health message may thus be a simple and effective strategy to decrease defensive responses to risk, and promote the adoption of healthy behaviors.

A note of caution regarding the use of self-affirmation and positive mood across different target groups is warranted. Research suggests that such strategies may be only beneficial among individuals at-risk, and can have an adverse effect among those not at-risk (21, 30). For instance, among participants not at-risk, self-affirmation has been found to reduce (non-targeted) risk perceptions (30), reduce information processing and produce more negative attitudes towards the object of evaluation (21). Likewise, although positive mood increased objective message processing among target groups, it decreased message processing among individuals not at risk (34, 35). These effects seem to occur because positive affirmations increase people's confidence in their current views when not particularly threatened, thereby reducing the need to consider information that might lead to change (21).

CONCLUSIONS

Persuading individuals to change undesirable behavior or to adopt healthier habits through health communication is a challenge. As health messages usually contain threatening evidence that unhealthy lifestyles are associated with serious health consequences, they present receivers with a dilemma. On the one hand, this information is important to make better choices, which can lead to benefits in the long run. On the other hand, threatening health messages confront individuals with the harmful consequences of their behavior, and

the unpleasant content of health messages is therefore often met with resistance. It was argued that the effectiveness of health messages may be improved via two distinct routes: the affective route and the cognitive route. Narratives are effective in promoting health behavior through the affective route, by transporting message recipients into 'the feeling of risk', hereby circumventing counter-argumentation. Self-affirmation and a positive mood may promote health behavior through the cognitive route, by decreasing defensive cognitions, and increasing objective message processing. These strategies work by 'easing' message recipients into persuasion. Positive affirmations and narrative storylines may thus help individuals to accept the unpleasant truth about unhealthy lifestyles.

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Chapter 2

INCREASING MEDICATION ADHERENCE IN LEP (LOW-ENGLISH PROFICIENCY) LATINO POPULATIONS: MERGING SPEECH ACT THEORY AND CULTURAL COMPETENCY

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ABSTRACT

Lack of patient medication adherence is a problem with LEP (low-English proficiency) Latinos in the United States. This chapter applies speech act theory framework to demonstrate how the rules of a request (medication prescription) must be met in a physician-patient interaction. Suggestions are made as to how speech act theory can provide a theoretical framework for cultural competency models, specifically Betancourt's model of adherence, and how physicians can best overcome cultural barriers to maximize medication adherence. This chapter provides a theoretically based set of skills that can be examined when attempting to operationally define cultural competency in medical students. The theoretical model presented here may also suggest justification and explanation for medical school cultural competency curriculums and assessments. Speech act theory can provide a basis and direction for future research in both of these areas, and can hopefully provide a stepping stone to eliminating health discrepancies in culturally diverse populations.

INTRODUCTION

Patients' lack of adherence to prescribed medical treatments is a problem that plagues the medical profession. Not only does it decrease the effectiveness of healthcare and potentially

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have a serious effect on the patient's outcome, it costs the United States an estimated $100 billon every year (1). Adherence, defined as the "degree to which a patient follows instructions, proscriptions and prescriptions of his or her physician" (2), can pertain to a range of medical treatments from medication to life style changes such as diet and exercise (1, 3). Patients can lack adherence in a variety of ways. For example, patients can fail to adhere to their medication by (a) not filling the prescription, (b) not taking the medication or stopping the medication before recommended, or (c) not correctly following the instructions for taking the medication, including taking it infrequently or not taking the proper dosage (2). In particular, the outcomes of nonadherence to medication can be very severe. Improper use of medication can lead to the continuation of a disease or illness, worsening of the health condition, hospitalization of the patient, or even death (1-3). All types of nonadherence are costly both economically and health wise, but recommendations for behavior change are most frequently about medication treatment (4).

The Latino population living in the United States has been identified as a high-risk population in accessing and receiving quality health care (5-6) and specifically at risk for nonadherence to medication (6-7). The Latino population is the fastest growing population in the United States, and the Census Bureau speculates that the Latino population will increase to 20% of the population in the United States by 2035 (9). Healthcare providers need to be able to address barriers in quality health care that are unique to this population. One obvious obstacle is the language barrier. Out of the Latinos living in the US, who report speaking Spanish at home, half report having problems communicating in English (10). Low-English proficiency (LEP) Latinos are especially at risk for nonadherence to medication, even when compared to non-LEP Latinos with the same demographics (8).

A plethora of research has studied medical adherence and the different factors that pertain to patient's adherence or lack thereof (1-3), although little research or theory has been conducted from a communication standpoint. A communication focus is especially relevant when looking at medication adherence in cross-cultural interactions, as the physician's attempt to get the patient to adhere to the medication can be classified as an act of compliance gaining. Medical schools have started incorporating communication curriculum into the graduation requirements, and recently have turned attention to medical students' cultural competency, in order to give future physicians the necessary tools to address the needs of the rapidly changing demographics of their future clientele (11). Little research has been done to identify what specific skill set a physician needs to be "culturally competent," although many cultural competency models have been suggested (11).

The focus of this chapter is specifically on Latino populations living within the United States, and how the physician-patient interaction, communication, and requests can affect medical adherence, given the cultural context. However, the framework suggested here could be expanded to address medication adherence in a variety of populations. To avoid generalizing all Latino cultures as having similar beliefs, this paper attempts to identify barriers to medication adherence that may be present in some of the Latino cultures, and attempts to provide physicians with culturally competent means to identify and overcome whichever barrier(s) that a particular Latino individual might face. Mediation adherence in Latino cultures is problematic across disease and illness diagnoses (1, 7, 8, 12). This chapter will apply speech act theory's framework of rules for directives in examining how physicians address Latinos' barriers to adherence and the obstacle hypothesis in examining the language barrier for LEP Latinos. Specifically, this chapter utilizes this framework in the attempt to (a)

introduce a means by which to address medication adherence barriers in Latinos, (b) provide a theoretical framework that can be used to support and supplement current cultural competency models for physicians wanting to increase adherence, and (c) provide a theoretical baseline that can suggest directions for future research on what it operationally means to be a culturally competent physician. Barriers to Latino's medication adherence are first described, followed by current recommendations for increasing medication adherence in Latinos. This chapter then applies speech act theory and the obstacle hypothesis to this subject and demonstrates how current cultural competency theories can be strengthened by this framework.

BARRIERS TO LATINOS' MEDICATION ADHERENCE

Latino populations have been shown to have significantly lower medication adherence than non-Latino populations (7, 8, 12). To address this issue, a literature search was conducted through PubMed and PsychINFO databases. The search terms included communication, adherence, Latino/Hispanic, and medication in PubMed, and the patient compliance, communication barriers, and Hispanic American categories in PsycINFO. Articles listed in the references, "related articles" link, and "cited by" link were also examined to acquire further relevant articles. Articles that were written about Latino populations living in the United States and pertained to the themes of medication adherence, language barriers, or physician-patient communication were used. Specific attention was given to articles that compared English-speaking Latinos to Spanish-only speaking Latinos. The articles' publication date was not limited in the search, although as Latino healthcare is a relatively new topic of interest, no articles that were over twenty years old met the described criteria. Based on this literature search, a number of reasons were identified as barriers or obstacles that are specific to Latino populations for adhering to medicine regimes including financial barriers, cultural differences and beliefs, language difficulties, and physician-patient communication.

Financial barriers

Latinos often fall into the low socioeconomic status (SES) and low education categories (9), and face the same barriers to medication adherence that are challenges to all individuals within these populations. Low education and low literacy levels in the individual's primary language may lead to misinter-pretation of medicine labels or usage instructions even if the instructions are printed in the primary language (13). Lack of health insurance, transportation, and funds to purchase medication are all problems that may prevent low SES individuals from filling or refilling a prescription and taking the medication on schedule (7). In fact, low SES Latinos spent less money on basic necessities such as food or heat in order to afford their prescriptions (7). This is especially problematic for physicians because Latinos report having difficulty expressing financial concerns about medication costs to their physicians, possibly leading to physicians prescribing drugs that the individual cannot afford (14).

Although some articles report that lower adherence in Latinos can be explained by SES alone (4,7), other sources report that even when controlling for SES, Latino populations spend less filling medication and adhere less to their medication regime (12-13). Speculation about reasons for why adherence is a problem above and beyond SES has included cultural beliefs, poor quality physician-patient communication or relationship, physician's prescribing habits, and patient skepticism (12-13).

Cultural beliefs

A number of cultural themes are present in various Latino populations which affect overall health care and may affect how patients understand and respond to medication prescription. Five main themes apply to medication adherence; personalismo, familismo, simpatía, respecto, and fatalism (15-17). In regards to a medical interaction, personalismo refers to the quality connection and trust between the patient and physician (16). Latino patients that value this theme strongly value the level of empathy, informal personal interaction, and sharing of personal stories (18). Familismo refers to the family and the tendency to highly value family members and to include them in health decisions (16, 17). The tendency to agree with the physician through nonverbal messages and passiveness conveys the concept of simpatía (15), which means congeniality, friendliness, or sympathy in English. Respecto ties in with simpatía, as people in positions of authority and elders are treated with great respect (16). Therefore, in a health interaction, the patient would have respecto for the physician because of the physician's authority. Finally, certain Latinos believe that sicknesses or illness are either natural or unnatural, meaning that the sickness is either God's will or due to evil done to the individual (15). This view of fatalismo means that the locus of control is outside of the individual's reach, therefore making the treatment of the sickness also outside of the individual's belief. Clearly this could be problematic with medication adherence because if individuals do not feel that there is anything they personally can do about the sickness, then the medication does not seem to be a solution to the problem.

Apart from cultural themes, cultural stigmas about certain illnesses or diseases can affect a patient's view of their diagnosis and their willingness to take the medication. Depression is one such illness. Through six different Latino focus groups, researchers determined that stigma was the second most common reason for lack of adherence to depression medication (19). The authors note that not only did the participants and participants' social networks consider people who took the medication "crazy people," but that some feared addiction to the medication, which has an extremely negative connotation in Latino cultures.

The medication that accompanies HIV/AIDS was also hard for patients to adhere to because of feared stereotyping when people recognized or asked about the medication according to a focus group of Spanish-speaking HIV carriers in Los Angeles (17). One participant's comments highlighted this fact, "It would be nice if you could take your bottle in front of everyone and that everyone would understood you…But unfortunately there's a lot of misinformation. Many times people watch you taking your small [pill] bottle and they say 'gay', 'AIDS', and all other prejudices" (17, pg 224).

Along with stigmas of certain illnesses, some Latinos have cultural, religious, or superstitious beliefs about certain illnesses and medications (14). Belief in the superstitions of different folk illnesses will lead to specific folk medicine treatment and customs for dealing

with the illness (15, 16). Certain folk medicines are considered to cure certain medically-accepted diseases, which may decrease the willingness of the patient to take physician-prescribed drugs. The affects of folk medicine on adherence rates are unclear however. Some reports claim that Latinos may not dichotomize the use of folk medicine and standard Western health care (16), and that the folk medicine may not affect adherence (15).

Language barriers

A variety of work has been conducted in looking at language barriers in correlation with medication adherence (20). Native Spanish speakers who claim to be proficient in speaking English proficiently have tested as illiterate on health literacy measures (21). In one study, one third of participants scored below a seventh grade reading level on the REALM and over a quarter of participants scored below a seventh grade reading level on the STOFLA (21). A lack of health literacy can lead to poor understanding of the medication, why it needs to be taken, and the instructions for use (17, 22). Not only can these barriers lead to a lack of adherence, but they can be very dangerous for patients. One patient noted, "I was poisoning myself… I thought I had to take a medication three times (a day) and it was only once" (17, pg 226).

This problem is complicated by the fact that often patients cannot get the medication label printed in Spanish, making it even more essential that the physician explain the medication and necessary information to the patient (23, 24).

There are a number of different ways that physicians can overcome language barriers to treat LEP patients (25). The most obvious and best solution in terms of resources, ease, and patient outcome is to have a physician that speaks Spanish fluently. Physicians that share the same cultural background as their patient, and that speak the same language as their patient are shown to provide better health care in terms of eliciting the patient's concerns and problems, answering questions more effectively, and explaining recommendations more clearly (26). However, while the number of minority patients keeps increasing rapidly, the number of minority physicians out of all U.S. physicians remains constant at six percent (27). Therefore, a lack of resources makes this option less than feasible.

Other options for bridging language obstacles include using professional translators, staff member translators at the clinic, family members, telephone translations, written documents, and the patient's limited English or physician's limited Spanish (15, 25, 28-30). Out of these options, professional translators are most desirable because they know the medical terminology in both languages, and are trained to translate the words and to bridge and explain cultural gaps or misunderstanding (31). Many hospitals and clinics either cannot afford this type of expense, physicians do not know about the availability of the option, or physicians do not use professionals but tend to rely on their own (potentially limited) Spanish speaking ability (25,28). Using bilingual family members is another common practice, where patients that do not speak English or that are LEP speakers will bring along a family member or friend to translate for them (25,28). This can be problematic because of a lack of medical vocabulary and because the patient may be more reluctant to disclose personal information, especially if it the translator is a child (28).

In general, the use of a translator may increase satisfaction, but may decrease the patient's understanding or the quality of information that he or she receives (28). Translators

sometimes do not translate everything that is being said (17) or may be inaccurate in their translation (28). Patient-centered communication can also be decreased by the need for a translator, as Spanish-speaking patients make fewer comments to the physician, and the ones that they do make are more likely to be ignored compared to English-speakers (32). Language can be a serious barrier to adequate health communication with LEP Latino patients; however no easy solution to the problem exists.

Physician-Patient communication

Past research has shown the discrepancy between the quality of care given to minority populations when compared with non-minority populations of the same demographics (33). Part of this discrepancy is attributed to communication difficulties and within the past decade the health field has given increasing attention to physicians' cultural competency (11, 34).

Calman (35) assessed the causes of the discrepancies in health care for minorities by gathering data through a coalition of health professionals and other community based organizations. A lack of cultural competency in physicians was found to one of the causes of this gap. Given past communi-cation research which has linked patient satisfaction, adherence and health outcomes to the quality of communication between the physician and patient (36), it is not surprising that miscommunication due to cultural differences can lead to poor health outcomes for the patient. When physicians have lower scores of cultural competence, Latino patients rate them as lower in their "elicitation of and responsiveness to patients' problems and concerns," "explanation of condition and prognosis," and "patient empowerment" (26). This could be especially relevant in medication adherence.

Both the technical and social aspect of the physician-patient communi-cation may affect medication adherence for Latinos. The use of "attentive silence, verbal and nonverbal encouragements, summary of patients' words, open and closed questions, educated guesses, reflections of facts, emotions or process, and respectful statements" was found to increase medication adherence with foreign language patients (34, pg 332). Although this study was not with a Latino population, studies pertaining to Latinos concluded similar results. Latino populations are more likely to receive less information from their physician, be given less time for questions, and give less information to their physicians when compared to non-Latino patients being prescribed antidepressants (37). These same Latinos also had a much lower rate of adherence than the non-Latino sample. In the social aspect, patient-centered communication (e.g., showing empathy and care, asking for patient input in decision making) was related to adherence to a medication schedule for Spanish-speaking patients with HIV. Interestingly, patient-centered communication was not related to the level of dosage adherence.

Although not specifically pertaining to Latinos, Cua and Kripalani (38) state that technical jargon, giving a significant amount of information in a short period of time, a lack of checking for understanding, and a lack of opportunities for the patients to ask questions all lower medication adherence. Basic misunderstanding and lack of explanation may stem from the fact that individuals have the tendency to overestimate their ability to convey a specific message or information (39). This could lend explanation to the fact that the patient-provider communication and the physician prescription of the medication were the cause of higher

nonadherence in Latinos, especially if the participants had lower English proficiency scores (12).

CURRENT RECOMMENDATIONS FOR INCREASING MEDICATION ADHERENCE IN LATINOS

While medical schools are attempting to better educate their students on how to competently treat patients of various ethnic backgrounds, school curricu-lums are not focusing specifically on one culture or another (11). Betancourt (36) notes that it is not probable or feasible to attempt to teach medical students everything there is to know about every culture. In fact, this could actually be counterproductive to students, as learning about health care in regards to a specific culture may promote stereotyping (40). Therefore, the focus of cultural competency within the medical field is not on learning about how to treat specific ethnic or cultural minorities, but rather about learning ways to elicit individual's cultural and health beliefs, and negotiating with the patient to incorporate his or her beliefs into the heath recommendation or treatment (36). Education programs should not attempt to "teach" students cultural competency, but rather attempt to give students a framework by which they can understand how "social and cultural forces give rise to negative images of specific medical conditions and the individuals suffering from them and in which students may sharpen their critical awareness of their own, each other's and society's assumptions and biases" (40, pg 1082).

Although basic communication skills are very important for cultural competency, the skill set extends beyond the basic communication skills needed in a medical interview. Aeder et al (41, pg 6) state that, communication skills function to establish a rapport and to develop a relationship with the patient. Culture-specific skills demonstrate an ability to bridge differences between the physician and the patient - differences in value systems and ways of understanding. The key elements of cultural competency included are: eliciting the patient's cultural perspective, communicating the physician's theory about what is wrong and what should be done, and differentiating that view from that of the patient and negotiating those differences successfully.

A number of models have been created in the attempt to provide this framework to address cultural competency (11). The extensiveness of the models ranges, from a simple list of open-ended questions (42), to highlighting steps for the medical interview (43-45), to providing steps through the entire medical interaction (36,46-49). Other models do not take a sequential order and instead categorize important cultural aspects that physicians should keep in mind (50, 51).

Only one model for cultural competency pertains to medication adherence. Betancourt (36) provides the ESFT model, which includes determining the patient's Explanatory model (the patient's belief about the illness, what caused it, and how it should be treated), the Social/financial risk for nonadherence, any Fears/concerns about the medication and side effects, and the patient understanding about the Treatment regime. This model is intended to help physician's structure a cross-cultural encounter to maximize patient-centeredness, solicit culturally relevant health beliefs, and work with the patient to recommend a treatment that will have the greatest potential for patient adherence.

A limitation to Betancourt's ESFT model and the other referenced cultural competency models is that they are based off literature reviews and have no theoretical framework. While literature reviews are undeniably informative, research conducted without theoretical explanation is merely a hunch about what may be happening in a given circumstance. This research may not be generalizable across situations. Furthermore, previous research may not incorporate all aspects of cultural competency or may not highlight which aspects actually matter in cultural competency. Theoretical basis can provide a general idea of what cultural competence skills need to be present, and can span from Latinos to Orthodox Jews to other cultural groups. A set definition of the skill set needed to be culturally competent has not been defined in the medical field, due to a lack of research and also potentially a lack of a framework to guide the research. By examining the speech act theory and obstacle hypothesis specifically in terms of Latinos' medication adherence, this theoretical framework may provide some of the necessary direction.

SPEECH ACT THEORY AND MEDICATION ADHERENCE

In the literature, the shift in thinking has recently moved away from examining a patient's "compliance" in properly taking their medication to their "adherence." Compliance suggests in a paternalistic manner that the patient should follow whatever the physician advises (1). Adherence refers to the patient following a treatment decided on collectively by the patient and physician, in which the physician acts as a medical expert and the patient's beliefs and feelings are taken into account (1). The latter conceptualization allows the physician-patient interaction to be viewed from an interpersonal influence communication standpoint. Instead of assuming that the patient will do whatever the patient advises, interpersonal influence suggests that the encounter is a type of persuasion, in which the physician attempts to convince the patient to adhere to the medication regime. As with any attempt at interpersonal influence, there are certain things that a physician can say that may be more persuasive than others. Speech act theory provides a framework for examining what aspects need to be present in order for an interaction to be persuasive.

Speech act theory was originally developed by Austin (52) and later expanded by Searle (53). Speech act theorists examine the way in which speakers formulate their conversations in order to make their intentions clear, and the way that the listeners recognize the speaker's intentions. Within the context of medical adherence, the relevant speech act is a "directive," meant to get the listener to do something that he or she would not have done without hearing the speech act (54). Commands, requests, and advice are all considered directives. Searle (53) posits that for a request or recommendation to take place, five rules or conditions must be present. First, there must be a need for the requested action. Within the context of a physician prescribing or requesting that a patient take a certain medication, there must be a need for the patient to take the medication (it will cure or help treat the illness or disease). Second, the requestor must believe that there is a need for the request. The listener must not have been already planning on doing the action; the physician believes that the patient was not already planning on taking the medication or taking it in the way that is requested. Third, the requestor must believe the listener has the ability to perform the request. A physician needs to believe that a patient has the financial resources to acquire the medication and is able to take

the medication in the recommended way. Fourth, the requestor believes that the listener is willing to perform the request. The physician believes that the patient is willing to take the medication, and that there is not some stigma or belief about the condition or the medication that would prevent the patient from taking the medication. Finally, the requestor must have the right to make the request. In a medical setting, it is accepted and expected that physicians will prescribe medication to their patients. Searle notes that these conditions must be present in order for a speaker's words to be interpreted as a request, and that by making the request the speaker implies that he or she believes these conditions are met.

Speech act theory has also been used to explain why listeners refuse requests. As Wilson (54, pg 203) stated, "the rules of directives should offer a comprehensive framework for analyzing obstacles to compliance, because resisting compliance means asserting that the conditions specified in one of these rules is not met in the current situation". If a patient does not feel or understand how all of the rules are met for a certain prescription, he or she will be unlikely to adhere to the medication regime. Therefore, a physician's communication must adequately address all of these issues as part of the prescription of the medication, and must solicit opinions and concerns from the patient concerning the validity of the request.

APPLYING SPEECH ACT THEORY FRAMEWORK TO LATINO MEDICATION ADHERENCE

Speech act theory suggests that both the requester and the target must feel that the request rules for a given request are met in order for a request to have the possibility of succeeding. Within the context of medication adherence for Latino populations, this means that physicians need to specifically address certain issues with their patients to determine potential barriers and therefore obstacles to the request. The speech act request rules provide a framework for looking at what areas need to be examined; need for action, need for request, ability, willingness, and status.

The need for action pertains to why the illness or sickness requires the patient to take the medication and why the patient needs to take the medication as recommended. Various studies looking at same-culture medical interactions have found that a lack of information or knowledge about the illness or diagnosis and about the medicine itself leads to decreased medication adherence (2). Within a Latino population, HIV patients reported that understanding their medications and accepting the need to take them was essential to staying on their medication regime (17). Informational support about the medication was also correlated with medication adherence, although this effect was for social support networks and not for physicians (55).

The need for request addresses why the patient needs to take their medication in the prescribed way, and highlights that the patient was not already planning on taking the medication. This step does not mean that the physician should nag their patient to take their medication, as constant nagging can close down patients' communication willingness (17). The need for request could be particularly salient for Latinos with folk illness and remedy beliefs. For example, a case study revealed a Dominican woman who had hypertension (56). Although she understood the purpose of the medication and the need to take her medicine, she took it inconsistently because she felt that she needed it more some days and that other days

she could substitute an herbal tea. Physicians need to address how the medicine should be taken, and explain the reasons why it needs to be taken according to the prescribed schedule. Folk remedies can be accounted for when setting up a treatment schedule that is conducive to the patient.

Assessing the ability of the patient is especially important with Latino patients. This can pertain to whether the patient has the financial means to purchase and refill the medication, as well as the transportation to get to the pharmacy. Physicians specifically need to ask and assess the answer to these questions as Latino patients report embarrassment over brining this up to the physician (14). Ability can also pertain to the patient's health literacy in either English or Spanish. If the patient is LEP, the physician needs to ensure that the patient can get the label printed in Spanish, or provide Spanish instructions for taking the medication. If the patient cannot read well in English or Spanish, the physician can provide picture instructions. A physician should also check to ensure that any cultural beliefs do not prevent taking the medication. This could include fasting during part of the day and therefore not being able to take the medication on a full stomach or for other folk herbal medicines that the patient uses. For example, a patient was not adhering to her medication because she took a number of vitamins and supplements in the morning, and was too full to eat afterwards so that she could take her medicine (57). Once the physician changed around her medicine schedule, she was able to take her pills on time.

The willingness of the patient to take the medicine also needs to be assessed. Cultural stigmas may come into play for the willingness of the patient, as highlighted previously. Patients may be unwilling to take the medication or may skip the medication dose if they are in a public place, at work, or around friends or family who do not know about the condition (17, 19).

The role of status is not quite as clear cut. Obviously the physician has the status to recommend a medication to the patient, but status may play other roles in various ways. Identity Implications Theory states that in cross-cultural compliance gaining interactions, individuals may be very concerned about maintaining both their face and the advice givers' face (58). This combined with the concept of respecto may make a patient very reluctant to voice any concerns about a medication or medication treatment, even when asked. Cultural competency models can suggest ways to reduce the threat to a patients' face and to address the other request rules.

OBSTACLE HYPOTHESIS AND PATIENT-PHYSICIAN COMMUNICATION

To complicate matters further, physicians often have to deal with LEP patients or non-English speaking patients. The language barrier can present a problem with communicating in general, but can also shift the focus off of obtaining compliance onto obtaining understanding.

The obstacle hypothesis states that requesters will address the greatest potential obstacle that they perceive will hinder the receiver from complying with the request (59). Obstacles can be defined as "cognitive categories shared by members of a language community that reflect reasons requesters perceive for targets' resistance" (60, pg 135). One of the major obstacles for patients' lack of adherence to medication may be a lack of understanding as to

why all of the preconditions exist. If a patient believes that there is no need for the medication, or does not understand how to take it, he or she will probably not be inclined to take the medication. Especially with an LEP population, the lack of understanding may come from basic language issues.

If physicians perceive that a lack of understanding due to language barriers is the greatest obstacle to medical adherence, according to the obstacle hypothesis physicians will attempt to ensure that this obstacle is overcome by asking questions such as, "do you understand me?" or by checking in other ways to make sure that the patient understands the message being conveyed. Just because a patient answers "yes" to this question may not mean that the patient agrees that all four preconditions for the request are met however.

Asking if the patient understands the physician is not a direct request for adherence to the medication, as the physician is not asking the patient if he or she will get the medication and take it as recommended. When an indirect request is made, the requester may assume that if the barrier is removed that the request will be performed (61). To contextualize this, physicians may assume that if patients understand what the physician is saying, then the patients will adhere to the medication prescription. However, patients may understand the physician's words (i.e., the obstacle is overcome) but still not understand why they need to take the medication or may not have the resources to get the medication, etc. (i.e., the preconditions are not met). In a meta-analysis of 41 studies, patients were found to have low levels of adherence when a physician only asked questions to seek information about the patient's condition, but adherence increased when a physician asked questions soliciting the patient's opinion about his or her opinion or expectation of treatment, suggestions, and questions and about their understanding (62). Out of these studies, only one specifically addressed compliance, but it found that asking specifically about the patient's intention to comply significantly increased compliance ($r = .26$, $p<.02$).

Physicians should be aware of both the rules that need to be in place for a patient to be likely to adhere to their medication, as well as the difficulties that communicating across languages can present. With this theoretical framework, cultural competency models can again be examined.

MERGING SPEECH ACT THEORY AND CULTURAL COMPETENCY

Speech act theory and the obstacle hypothesis can be complementary with the models presented by Betancourt and others. While these models suggest communication behavior and steps to obtaining the needed information from a patient in a culturally competent way, speech act theory suggests what specific areas and information needs to be addressed and given by the physician in order to maximize health outcomes.

Specifically, speech act theory can supplement Betancourt's (36) ESFT model for adherence. Table 1 shows which cultural beliefs and barriers can be addressed when the steps for the rules of a request and Betancourt's model are combined. Betancourt states that a physician should first determine a patient's explanatory model and the patient's social/financial risk for nonadherence. Table 1 identifies the different information that should be solicited, in order to make patient-based decisions throughout the encounter. Through this, the physician can identify and address any cultural beliefs about health, illness, or treatments

that may potentially present a barrier to the patient's willingness and ability to adhere to a certain medication. The patient's ability to follow the medication regime should also be discussed.

Table 1. Merging Betancourt's ESFT model and speech act theory's rules for request

	Explanatory model	Social/financial risk	Fears or concerns	Treatment regime
Need for action	Folk remedies Illness beliefs Medication beliefs	Consequences of not taking the medicine	Cultural beliefs or doubts of effectiveness of medication	Assess understanding of need for action
Need for request	Understanding of illness Understanding of medication	Consequences of not taking the medicine as prescribed	Cultural beliefs or doubts of necessity of treatment regime	Assess understanding of need for request
Ability	Health literacy Ability to obtain instructions in primary language Cultural practices	Means to purchase medicine Transportation to get medicine	Financial cost	Integrate treatment regime with patient's schedule and cultural practices
Willingness	Cultural stigmas	Cultural stigmas Spend money on medication	Cultural stigmas	Assess patient willingness while keeping in mind cultural norms
Rights	Cultural themes	Ask questions or disagree with physician	Expressing concerns	Allow time for clarification questions

Throughout the explanatory model and the interaction the physician should be cognizant of cultural themes, such as personalismo and respecto. The physician can use the specific communication behaviors suggested by other cultural competency models in order to maintain the balance of status and respecto and still allow the patient to interact in a non-face-threatening way. These behaviors include empathy, listening, open-ended questions, and acknowledging emotions and feelings (11). The patient's ability and willingness to financially

commit to the treatment, as well as cultural stigmas that might be associated with the medication or diagnosis can also be discussed with the patient. In terms of immediate social concerns, physicians might have to work harder to solicit patient opinions or questions, as patients might not feel that they have the right to question or disagree with a physician.

The patient's fears and concerns can be addressed, specifically if cultural beliefs lead to doubts about the effectiveness or necessity of the medication. Concerns about financial cost and social stigmas should also be discussed. Remembering the cultural themes that the patient holds, patients might not be as open about their fears or concerns with the prescription.

Finally, the physician should assess the patient's understanding for the need for the action and request, and the actual schedule and instructions of the treatment. The patient and physician should work together to create a treatment regime that the patient can understand and has the ability to follow, given his or her schedule and cultural practices. The physician should also reevaluate the patient's willingness to comply, and directly ask the patient if he or she intends to comply with the prescription. Patient responses must be interpreted through the patient's cultural norm however, as nonverbal communication can be interpreted differently between cultures. At the end of the interaction, ample time and opportunities for clarification questions should be allotted.

CONCLUSIONS

The speech act theory framework may be able to strengthen several areas of research and to provide a baseline for future studies. The ability to address a Latino patient's (or a patient of any ethnicity) individual medication adherence barriers without stereotyping the person can be done through the use of the suggested speech act framework. The rules for a directive can also help to provide theoretical base for cultural competency models, as well as supplementing the current models, such as with Betancourt's ESFT model. Although situated here as a guide for specifically addressing Latino populations, these frameworks could also be used as cultural competency guides for a number of populations.

Although research has shown that Latino populations are at higher risk for medication adherence, research gaps have not yet been filled as to why this is the case, and how physicians can adequately address the issue. Research that addresses which cultural beliefs present the greatest barrier to medication adherence when controlling for social economic status needs to be conducted. Future studies should also measure the individual's level of acculturation, to determine whether acculturation plays a role in low Latino adherence or whether the effects are solely due to language barriers. Additionally, with medical schools starting to implement cultural competency into their curriculum, more research needs to be conducted as to what operationally makes one physician culturally competent and another not. This chapter provides a theoretically based set of skills that can be examined when attempting to operationally define cultural competency in medical students. The theoretical model presented here may also suggest justification and explanation for medical school cultural competency curriculums and assessments. Speech act theory can provide a basis and direction for future research in both of these areas, and can hopefully provide a stepping stone to eliminating health discrepancies in culturally diverse populations.

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Chapter 3

EVIDENCE PRESENTATIONS IN RISK COMMUNICATION FROM A SELECTIVE EXPOSURE PERSPECTIVE

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ABSTRACT

Attracting the target group's attention for messages about health threats remains a big challenge for many communication practitioners. The current chapter examined how evidence presentation type (statistical versus exemplar evidence) and recipients' information processing styles (rationality and experientiality) affect selective exposure to health news. Exemplification Theory (Zillmann, 1999) and Cognitive-Experiential Self-Theory of Personality (Epstein, 2003) served as theoretical frameworks. The assumptions derived from these theories were tested in an online experiment. Respondents (n = 298) browsed an online newsmagazine featuring eight articles. Evidence presentation was manipulated as between-group factor in half of them (featuring exemplar or statistical evidence), while additional constant articles served as competing reading material. Selective exposure to health information was logged by software as dependent measure. Individual differences in information processing styles (rationality and experientiality) were ascertained by questionnaire. Findings show that males preferred health news featuring concrete exemplar evidence, while female's information processing style affected how many articles were selected and how much time was spent on them.

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INTRODUCTION

Capturing attention for health risk information in a targeted group is a crucial precondition for health campaigns: "Arguably, message exposure is the most important issue in persuasion because the person must first be exposed to a message before he or she can be influenced by it" [1:235]. Maximizing exposure to messages about health risks presents an enormous challenge, as such messages will often be perceived as unpleasant and thus avoided (2,3). Health risk information can provoke feelings of fear (4), uncertainty (5), cognitive dissonance (6), worry (7) and psychological reactance (8) and individuals can easily escape these negative cognitive and emotional states by turning their attention away.

Evidence like statistics or testimonials can be incorporated in messages about health risks easily for a variety of purposes (9-11) — to attract attention, strengthen certain aspects of the argumentation, signify the severity of the health threat, and illustrate the effectiveness of the recommended health behavior changes. Furthermore, evidence may serve to adapt messages to cultural characteristics of the target group (12). With respect to health behavior recommendations, evidence can help to demonstrate that "many, many people are doing it, thinking it, wanting it" in order to minimize psychological reactance (13:120).

The current chapter examines how evidence presentation as a health message characteristic and media user attributes jointly influence selective exposure to news about health threats. We contrast statistics and exemplars as frequently used evidence types in news (14) with different persuasive effects (14-16). At the front of message recipients, dispositional information processing styles will be taken into consideration.

Exemplar versus statistics as evidence

Exemplars are concrete and vivid case descriptions that exemplify the experiences of a real or fictitious person to illustrate a more general trend or phenomenon (14). In the realm of health communication, exemplars are frequently used to emphasize the seriousness of health threats and to demonstrate the ease and effectiveness of recommended health behavior changes (11). As one or a few exemplars cannot be representative, this evidence type may often produce misleading perceptions of the significance and consequences of health threats (see 14, for an overview). In contrast, statistical evidence is considered more valid, but not very illustrative and appealing. Statistics can also attest to the significance of health threats and the efficacy of behavior recommendations, but do so on a more abstract level. Consequently, statistical evidence is less likely to evoke intense emotional feelings and high levels of empathy with individuals affected by a health threat (9, 17).

Exemplification Theory integrates the two evidence types in a broader theoretical framework that allows predictions about exemplar and statistical base-rate effects on the perception of issues (14, 18). A number of empirical studies appear to support the general assumption that exemplar evidence is typically more powerful in influencing individuals' perceptions about health threats and in changing related attitudes. For example, in experiments (19) with radio and print news stories, respondents perceived the distributions of opinions about the presented issues in the public in proportion to the distribution of exemplars that represented each position. This exemplar effect emerged even if the stories featured

opposing base-rate information and if base-rate information was repeated at the end of the story. Findings from psychological research as well suggest that individuals have a tendency to disregard available base-rate information when making probability judgments, and that such assessment are mainly based on individuating information (20, 21). Some research reviews and meta-analyses, however, raised serious doubts on the existence of strong "exemplar effects" and "base-rate fallacies" (15, 16, 22-24). A meta-analysis of 15 studies by (16) suggests that "the persuader is slightly more effective with a message that uses statistical proof as opposed to examples or narratives" (p. 128). A more recent meta-analysis of 22 studies found narrative evidence slightly more effective than statistics for attitude changes, but no difference emerged between both evidence types for behavioral intentions and reactions towards persuasive messages (15).

Despite these ambiguous and contradictory findings, health practitioners are uniformly advocated to present vivid exemplar evidence rather than statistical proofs. For example, the seven cardinal rules of risk communication, published by the US Environmental Protection Agency (EPA), include the following advice: "People (...) are often more concerned about issues such as trust, credibility, control, benefits (...) than about mortality statistics and the details of quantitative risk assessment. [...] Use vivid, concrete images that communicate on a personal level. Use examples and anecdotes that make technical risk data come alive. Avoid distant abstract unfeeling language about deaths, injuries, and illnesses" (25:1-2). A similar suggestion is included in a more recently published field guide for media communication during public health emergencies of the World Health Organization (WHO): "Personalize risk data by using stories, narratives, examples and anecdotes that make technical data easier to understand. Avoid distant, abstract and unfeeling language about harm, deaths, injuries and illnesses" (26:53). In a similar manner, journalism handbooks strongly recommend the use of quotes, anecdotes and examples to increase the perceived relevance of news stories and to attract attention (27).

So far, however, no investigation explored the extent to which these presumed differences between statistics and exemplars manifest at the level of actual health message exposure. The current study aims to explore this question by combining media effect theories with individual difference assumptions.

Evidence type and selective exposure

A look at the available literature reveals a variety of theoretical models that postulate an attention advantage for exemplar-type message evidence. For example, the vividness hypothesis (28) postulates that information is "likely to attract and hold our attention and to excite the imagination to the extent that it is a) emotionally interesting, b) concrete and imagery-provoking, and c) proximate in a sensory, temporal, or spatial way" (28:45). Despite an intuitive plausibility of this assumption, empirical research found little evidence for it (29). It is still not entirely clear whether the vividness effect is in fact an illusion, or if experimental research designs that placed respondents in a forced-exposure setting were not suitable to detect vividness differences (30). An investigation by (31), in which actual message exposure was unobtrusively measured, indicates that two aspects of vividness – imagery and emotionality – do increase the time spent with online news messages.

Exemplars furthermore offer more possibilities for social comparisons (32), which also have been shown to influence media exposure (33, 34). Personalization as a "reference to persons" in news has been additionally proposed as essential news value (35:71) and is as such included in virtually all news value classifications since then (36). Exemplar evidence seems also somewhat better suited than statistical evidence for a cultural tailoring of health risk messages (12). Finally, the presentation of vivid exemplar evidence is assumed to reduce levels of defensive processing, counter-arguing and reactance (9, 17).

Despite this theoretical evidence in favor of exemplar effectiveness with respect to message attention, the meta-analyses and research reviews cited above do not support the notion of a general exemplar effect and/or a general base-rate fallacy. Research suggests that statistical evidence, which is still the most preferred evidence type in academic publication, is also a quite powerful, although often underestimated evidence type (16, 24, 37, 38). Yet, in view of the impressive amount of theoretical assumptions in favor of episodic information types, and given the possibility that its effectiveness has been overlooked in the dominant forced-exposure research designs, it seems justified to posit an attention advantage for exemplars:

- H1: The presentation of exemplar evidence in news about health threats increases the selective exposure to health information, compared to presenting statistical evidence.

Nonetheless, the inconsistencies pertaining to a superiority of exemplar versus statistical evidence suggest that moderating variables may affect the relationship between evidence type and audience reactions. One important moderator could be individual differences in the preference for concrete and abstract information, which are discussed below.

Information processing styles

Numerous information-processing models postulate that individuals process information in two distinct modes (39-41). Based on Cognitive-Experiential Self-Theory of Personality (CEST, 42), we distinguish between a 1) rational-analytical and an 2) intuitive-experiential information processing system in humans, which are presumed to work in parallel and interactive fashion. According to CEST, the rational system functions mainly at the conscious level and is described as analytic, logical, affect-free and mostly verbal. It encodes information in abstract symbols (e.g., words and numbers) and operates slow and is oriented towards delayed action. The experiential system, in contrast, is described as automatic, holistic, concrete, fast, nonverbal, and strongly associated with affect. This system produces generalizations based on a few cases but does not yield abstract connections (42). Typically, thoughts and behavior are a cooperative function of both systems. In some situations, however, both systems may conflict, what is usually experienced as a discrepancy between thoughts and feelings. As both information processing modes are conceptualized as operating independently, operating in the rational mode does not necessarily mean the absence of experiential processing. Individuals are furthermore presumed to be relatively stable in their preferences for employing each mode. Consequently, it is possible to distinguish dispositional 'rational' (high rational, low experiential), 'experiential' (low rational, high experiential), 'complementary' (both high), and 'poor' (both low) thinking styles (43).

Empirical investigations show that individuals with a preference for intuitive-experiential information processing reply more heuristically in judgmental tasks, while their rational-analytical counterparts respond less heuristically (44, 45). Thinking style combinations also appear related to differences of risk apprehension in response to statistical versus anecdotal information about threatening events (46). We assume that such dispositions should already emerge on the level of attention to messages and therefore posit the following hypotheses:

- H2a. Media users with an intuitive-experiential information processing style prefer health news featuring concrete exemplar evidence, compared to abstract statistical evidence.
- H2b. Media users with a rational-analytical information processing style prefer health news with abstract statistical evidence, compared to concrete exemplar evidence.

The empirical tests of these hypotheses are based on non-reactive observation of selective exposure to health information, because self-report measures of exposure can be mitigated by recall errors, social desirability, and the drive to indicate behavior that is seen as consistent with one's attitudes (e.g., 47; 48).

OUR STUDY

Respondents browsed through an experimental online magazine featuring articles about various health topics. Four articles were manipulated and presented either statistical or exemplar evidence. When exemplar evidence was presented, gender and age of the depicted personae was controlled with gender being rotated and age held constant between 18 and 24 years. Selective exposure to the overview and article pages was unobtrusively recorded via software. Participants later completed an online questionnaire that included the Rational-experiential Inventory (REI) (49).

Sample

Respondents were 303 undergraduate students recruited on a large university campus in Germany. They were randomly assigned to the different experimental conditions and received a small financial compensation for participation. Analyses of the click stream data led to the exclusion of four participants who apparently opened articles simultaneously in new browser windows, thus preventing a valid measurement of reading times. One respondent was excluded because of missing questionnaire responses. The final sample consisted of 298 students, 157 males and 141 females; the average age was 21.7 years (SD = 2.1).

Pretest of stimulus material

To ensure that our articles manipulation was perceived as intended, a pretest with 32 German students as respondents (50% females; age: M = 20.4, SD = 1.7) was conducted. In the paper-and-pencil questionnaire, respondents were presented news leads of the four manipulated articles. Similar to the online magazine's overview page, these leads contained the headline and the first article sentence with the latter including the exemplification manipulation (either statistical or exemplar evidence; see appendix 1 for an overview). If exemplar information was presented, the exemplar's gender was rotated. Respondents were asked to indicate to which extent each article featured "personal accounts" and "statistical information" on a 7-point-scale (1 = "not at all", 7 = "definitely").

Procedure

All sessions of the main study were conducted in a computer lab with 32 identical computers. Up to 16 students participated simultaneously, seated with ample space between them. After the greeting and some general instructions, respondents were informed that they would see a test version of a new online health magazine. They were asked to read whatever they might find interesting, just as they normally would. It was explicitly mentioned that the available time would not allow reading everything and that there was no specific number of articles that should be read. Respondents were then asked to start the procedure by clicking on an icon on the computer desktop, which opened an Internet browser program and loaded an instruction page that repeated the verbal instructions. After clicking the 'Continue'-button, the experimental health magazine was loaded and respondents could explore it at their will. After four minutes of browsing time, an online questionnaire was automatically uploaded and collected demographic data, information about health news consumption, and online magazine evaluations. Respondents also completed the short form of the rational-experiential inventory (REI-S24; 49) in a German version, for which we had translated the REI-S24 and established satisfactory psychometric properties (50). After completing the questionnaire, respondents were debriefed and received a small financial compensation for participation.

Independent measures

Stimulus material. Respondents browsed an online health magazine titled "Health News" (with the sub-title "Test Version") that was automatically generated according to the randomly assigned experimental condition (exemplar vs. statistics). In the upper part, the current date was presented as well as "about us," "contact us," and "site map" hyperlinks. On the left column, content categories like "news," "health topics," "drug information" etc. were displayed. Only the main news section was accessible, however, and automatically displayed when the website was loaded. This section contained the news leads of eight articles dealing with various health topics. All eight articles were available simultaneously and thus competed for reading time. The position sequence of the news leads was systematically rotated across participants.

While four of these articles were identical for all magazine versions and merely served as competing reading material, the remaining four news items were experimentally manipulated and presented either exemplar or statistical evidence in their news lead and their first paragraph (between-design). Articles originated from real health news sources on the Internet and were edited for equal length and experimental manipulation. The four manipulated articles described the following health threats: polluted air on airplanes, food poisoning, stress as a health risk, and glaucoma. The four buffer articles featured 302 words on average (SD = 0.5), the manipulated articles were longer with 402 words on average (SD = 1.4).

In the version with exemplar information, the article text started with a short description of a personal experience with the particular health threat in the first paragraph, introduced with a quote. In the base-rate version, articles began with a description of how many people were affected by a particular health threat. Appendix 1 lists the manipulated first paragraphs of the four experimentally varied articles, which were also displayed under the related article headline on the overview page. Only the first paragraph, which was equivalent to the news lead on the overview page, was manipulated regarding exemplification (M = 50 words; SD = 0.6), thus accounting to about one eighth of the full article text. No additional pictures were presented. The general look 'n feel in terms of layout and navigation of this news outlet was similar to many news websites on the Internet. From an overview page that presented news leads with headline, sub-headline, and the first sentence (featuring the exemplification manipulation), all articles were accessible via hyperlinks. Each article page contained a hyperlink labeled "back to start page" on the top and the bottom of the article text. Respondents could also use the browsers-specific navigation buttons to access overview and article pages.

Rational-analytical and intuitive-experiential thinking style. The two independent modes of information processing that are proposed by CEST were measured using a translated short form of the rational-experiential inventory (original REI-S24 by 49; translated version by 50). This scale consisted of 24 items with twelve for rational-analytical and intuitive-experiential thinking style each. In addition to these main dimensions, two subscales with six items for each main scale allow the measurement of the perceived ability to use each mode and the favorability regarding its use. Assuming that ability has more weight in actual information selection and processing, we employed only the ability subscales in our further analyses. However, in order to leave the inventory measurement situation intact, all items were presented to participants.

Control variables

Age has emerged as important demographic variable for health news consumption (51), as older individuals appear to be more affected by health problems—and thus presumably more interested in such information. Independent of age, current health satisfaction might impact exposure to health news, e.g., lower satisfaction could be associated with greater interest and thus longer exposure. Similarly, it can be assumed that people who generally do not trust online health information might tend to read less health news than people who do. We therefore controlled the impact of these three variables on the observed health news exposure.

In the online questionnaire, respondents indicated their satisfaction with their "health in general" on a seven-point scale (1 = "not at all satisfied", 7 = "absolutely satisfied"). Health

satisfaction was furthermore assessed for four health-specific domains (physical condition, ability to relax/inner peace, energy level/enjoyment of life, absence of health-related discomfort and pain) using the same scale format. Respondents were furthermore asked to indicate how much they personally agreed with two statements regarding the general trustworthiness of online health information ("I think the internet is a good source for health information", "I think that health information on the internet is generally trustworthy.") on a seven-point scale (1 = "do not agree at all", 7 = "absolutely agree").

Dependent measures

Number of selected manipulated health articles. Our first measure of selective exposure is the number of manipulated health news items that were selected for reading within the given time span of four minutes, derived from software-based logs.

Accumulated reading times for the manipulated health articles. The accumulated percentage of browsing time spent with the four manipulated health articles served as second indicator of selective exposure behavior to health news.

RESULTS

Preliminary analyses

Pretest of stimulus materials. For each manipulated article, statistical evidence versions were perceived to contain more "statistical information" (overall: $M = 5.8$) and less "personal account information" (overall: $M = 3.0$; all paired t tests with $p < .01$), while the opposite pattern emerged for the exemplar versions of all manipulated articles ('statistical information': overall $M = 2.8$; 'personal account information': overall $M = 5.6$; all paired t tests with $p < .01$). These findings thus corroborate that the employed stimulus material were manipulated effectively.

Rational-Experiential Inventory (REI). The rationality and experientiality main scales of the translated REI-S24 showed sufficient internal consistency (Cronbach's alpha = .84 and .85, respectively). As suggested by CEST, no significant correlation emerged for both thinking styles ($r = -.01$; $p = .87$). Internal consistency was also sufficient for the ability subscales (Cronbach's alpha = .83 for both) which were also independent of each other ($r = -.02$; $p = .80$). Median splits were employed to distinguish between respondents high and low in both information processing styles.

Health satisfaction. The participants provided consistent responses with regard to the health satisfaction items (Cronbach's alpha = .71). A health satisfaction index was computed that contained the average health satisfaction for each respondent.

Trust in online health information. Based on a high correlation between the two items measuring general trust in online health information ($r = .58$, $p < .001$), these were collapsed into a combined measure for each respondent.

Impact of evidence type on health message exposure

The first hypothesis suggests that the presentation of exemplar evidence increases selective exposure to health news, compared to base-rate information. Independent-samples t tests were computed with evidence type (exemplar vs. statistics) as grouping variable. The two dependent variables were a) the number of manipulated articles selected for reading during browsing time ("article selection") and b) the percentage of browsing time spent with manipulated articles ("reading time"). Although the presentation of exemplar evidence increased both dependent measures, only the reading time difference became significant (article selection: M = 1.1 (SD = 0.7) vs. 1.2 (SD = 0.7), p = n.s.; reading time: M = 43.1 (SD = 28.6) vs. 49.5 (SD = 28.9), p = .053). Gender-split t tests revealed that the exemplar effect only applies to male respondents: Males selected more articles featuring exemplar evidence than statistical evidence (M = 1.1 (SD = 0.7) vs. 1.3 (SD = 0.7), p = .038) and also spent more time with exemplar news (M = 41.7 (SD = 29.6) vs. 53.2 (SD = 28.1), p = .013; see figure 1), while virtually no differences in exposure to base-rate versus exemplar information emerged for females (p = n.s.).

Impact of evidence type and thinking styles on health message exposure

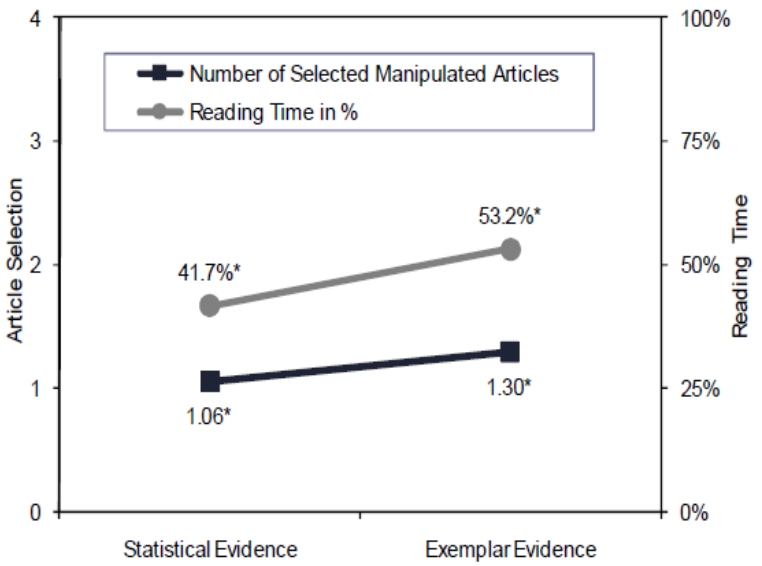
To address hypotheses H2a/H2b, two analyses of covariance—one for each dependent variable—were conducted, with evidence type manipulation (exemplar versus statistics), respondent gender, and the rational-analytical and intuitive-experiential ability median splits as independent factors. Respon-dents' age, current health satisfaction, and general trust of online health information were incorporated as covariates to control their impact on our health news exposure measures. Both ANCOVAs yielded a four-way interaction between exemplification manipulation, gender, and the two thinking styles (article selection: F(1,279) = 4.3, p = .038, Eta-square = .015; reading time: F(1,279) = 5.3, p = .022, Eta-square = .019). No other main effect or interaction approached or reached significance. Neither respondents' age nor their current health satisfaction appeared to influence health news exposure. Only general trust in online health information sources emerged as significant covariate for both dependent variables, indicating that an increased trust in online sources generally fosters health news exposure to manipulated articles.

In order to clarify the complex four-way interaction pertaining to hypothesized influences, separate ANCOVAs were conducted for male and female respondents with the same factors and covariates as described above (without gender, of course). The gender-split analyses reveal a clear exposure pattern: For males, the evidence type manipulation emerged as the only significant—or nearly significant—factor (article selection: F(1,146) = 3.4, p = .067, Eta-square = .023; reading time: F(1,146) = 5.7, p = .018, Eta-square = .038). For females, the analyses yielded a three-way interaction between the exemplification manipulation and both thinking styles (article selection: F(1,130) = 5.6, p = .020, Eta-square = .041; reading time: F(1,130) = 5.9, p = .016, Eta-square = .044). No other covariate, main effect, or interaction reached significance in these analyses.

Our prediction in H1 that health messages with concrete exemplar evidence foster more selective exposure than messages with abstract evidence was thus only supported for males

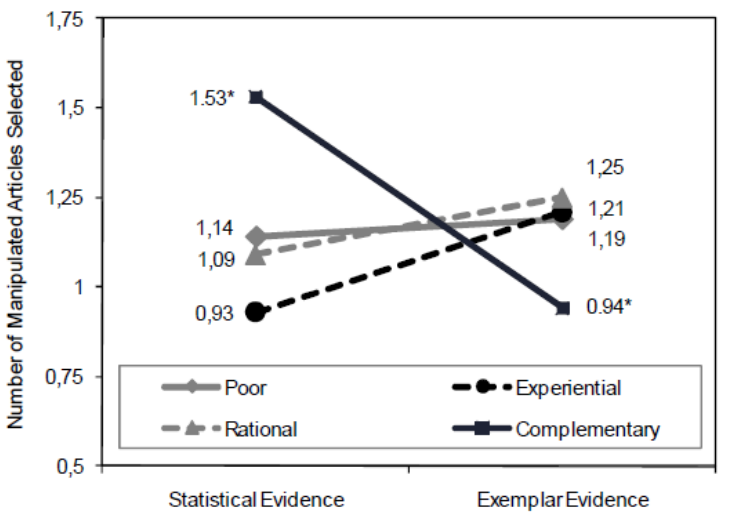
(see figure 1): When health messages featured exemplar evidence, these messages were more frequently selected and received considerably more reading time.

A more complex exposure pattern emerged for females (see figures 2 and 3), which will be described based on the typology of thinking styles by (43) mentioned above. Regarding article selection (see figure 2), the only significant difference between both information types (base-rate vs. exemplar) emerged for females with a complementary thinking style, opposite to our prediction in H1. Females with a complementary thinking style selected more manipulated base-rate articles than exemplar articles (M = 1.5 to .94; p = .012).



Note: Series marked with asterisk have significantly different means, t tests, with p < .05.

Figure 1. Impact of evidence type on males' health news selection and exposure time.



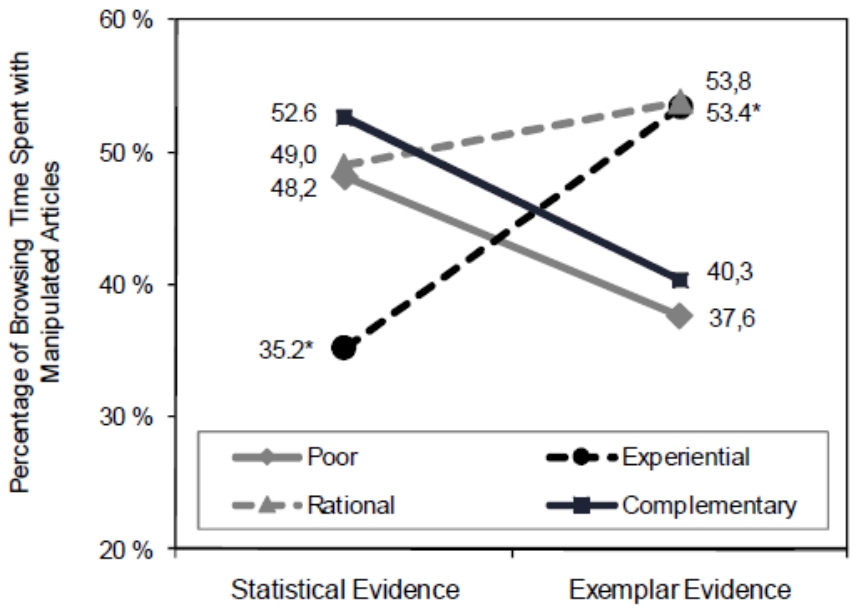
Note: Series marked with asterisk have significantly different means, t tests, with p < .05.

Figure 2. Impact of evidence type and thinking styles on females' health news selection.

Within the base-rate information condition, females with a complementary thinking style (high in both) selected more manipulated articles than respondents with any other thinking style. Subsequent multiple t tests reveal that exposure differences between the female complementary group and the other three groups either reach statistical significance (complementary with experiential: M = 1.53 to 0.93, p = .002) or at least approach it (complementary with rational: M = 1.53 to 1.09, p = .076; complementary with poor: M = 1.53 to 1.14, p = .092). Within the exemplar condition, the analysis yielded no significant difference among females with different thinking styles.

Our second measure of selective exposure behavior was the percentage of browsing time spent with the manipulated articles (see Figure 3). Although the reported preference of females with a complementary thinking style for statistical over exemplar evidence emerged again (M = 52.6 to 40.3), it fell short of significance (p = .160).

Instead, the only significant difference between both information types emerged for females with an experiential thinking style who clearly favored exemplar information (M = 53.4 to 35.2, p = .027), thus supporting prediction H2a.



Note: Series marked with asterisk have significantly different means, t tests, with p < .05.

Figure 3. Impact of evidence type and thinking styles on females' health news exposure time.

Within the base-rate condition, females with an experiential thinking style spent the least time with articles featuring statistical evidence, significantly less than the complementary group (M = 35.2 to 52.6, p = .035). Within the exemplar condition, none of the group differences yielded significance. These effects were not affected by the respondents' age, health satisfaction, or general trust in online sources for health information.

DISCUSSION

This study explored how evidence presentation type and thinking style affect selective exposure to information about health risks. The findings offer partial support for our first hypothesis, according to which concrete exemplar evidence increases attention to health messages: For males, selective exposure for this presentation format was 11.5% higher compared to the statistical evidence. Our findings therefore indicate that this low-interest group is more likely to be reached by health reports that feature exemplar evidence.

Appendix 1. Evidence type manipulation in the articles' first paragraph (translated from German)

Article topic	Statistical evidence	Exemplar evidence
Polluted air in airplanes	Over the years, thousands have reported headaches, nausea, fatigue, dizziness, and other indispositions, according to a report of the German Association of Flight Attendants. In 2004, only 8 percent of Germans had not flown in an airplane, 10 years earlier this percentage was twice as high.	"Soon after takeoff, I started to feel sick", Michael (21) remembers. "I had difficulties breathing, with my vision, and some pain in my ears." He informed the flight attendant and received a portable oxygen bottle, which made him feel better. His symptoms were mainly caused by polluted air in the airplane.
Glaucoma	Nearly 800.000 Germans have glaucoma, a leading cause of vision problems in our country. About 3 million Germans have increased eye pressure, which can be seen as a preliminary stage to Glaucoma. The number of Germans with eye diseases is expected to double within the next three decades.	"I won't forget how glaucoma was detected during a routine checkup on my 18th birthday", remembers Lisa (20). This diagnosis was followed by laser treatment. "It doesn't matter how old you are, I feel that it's important and necessary to look at your eyes a little more carefully," she cautions.
Daily stress	Numerous surveys confirm that Germans perceive that they are under much more stress compared to a decade or two ago. Almost every other German (45 percent) feels frequently stressed. It has been estimated that 75 to 90 percent of all visits to primary care physicians are related to stress.	"I had a hard time dealing with home and work pressures," Martin (18) said. "I couldn't get enough sleep. It didn't matter how hard I tried during the day, the time didn't suffice to solve all problems." Eventually, his body gave up, and he experienced pounding headaches and heart complications.
Food poisoning	Every year, millions of people suffer from vomiting and diarrhea that is often blamed on common foods. It is estimated that there are 2 to 11 million cases of food poisoning in Germany annually. Worldwide, one in every three people suffers from food poisoning once a year.	„Like every Friday, my boyfriend and I ate lunch at our favorite restaurant", says Diana (24), a student from Berlin. "We had salmon in cream sauce, one of the restaurants specialties." After they came home, she experienced diarrhea, sweating, headache, abdominal cramps and vomiting. "Serious food poisoning" was the diagnosis.

In contrast, female readers' exposure patterns were demonstrated to depend on evidence type while being moderated by thinking styles. Females with an experiential thinking style allotted comparatively little exposure to articles featuring statistical evidence while showing a

clear preference for exemplar evidence. This renders partial support to H2a, as this hypothesis was supported for females. Female respondents with a complementary thinking style, on the other hand, showed a preference for statistical evidence, but this pattern was not found for the rational groups, as suggested in H2b. Apparently, the flexibility in thinking styles represented by the 'complementary' group results in greater exposure to the more abstract information type instead of a simple rational thinking orientation. Male recipients' selective exposure to health news, on the other hand, was not affected by thinking styles. We also found that gender influenced health news exposure patterns and that woman showed a weaker preference for health news items featuring exemplars than men. Future research should examine these complex relationships more in detail.

Informing individuals about serious health threats will likely remain a major challenge for most health communication practitioner. Hopefully, the findings presented here will help to improve our understanding of the complex mechanisms underlying recipients' health message exposure and avoidance, and will thus help to reach target audiences more effectively.

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Chapter 4

EXAMINING THE ROLE OF MEDIA COVERAGE AND TRUST IN PUBLIC HEALTH AGENCIES IN H1N1 INFLUENZA PREVENTION

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ABSTRACT

Using data from a national probability sample of 518 American adults, this study investigates if media coverage of H1N1 influenza, sociodemographic characteristics, health status and certain psychological variables predict compliance with behavioral recommendations from the US Centers for Disease Control and Prevention (CDC) to prevent the H1N1 flu. Individuals were surveyed in October and November, 2009, about their intention to be vaccinated against H1N1 influenza and their adoption of other preventive behaviors recommended by CDC. Logistic regression and multiple regression analyses were used to assess if vaccination intention and behavioral adoption were associated with exposure to media coverage of H1N1 influenza and other predictors of preventive behaviors identified in previous research. Statistical analyses showed that different variables were associated with different preventive behaviors. Exposure to media coverage predicted the adoption of everyday precautions (washing hands more frequently and avoiding close contact with people showing flu-like symptoms) and with discussing one's H1N1-related concerns with a doctor. Intention of receiving the newly-developed H1N1 vaccine was not predicted by media exposure but by confidence in CDC's ability to manage the pandemic. Associations were also found between certain sociodemographic variables and the adoption of various preventive behaviors. Findings from this study suggest that exposure to media coverage of public health emergencies may enhance adherence to simple precautions recommended by health agencies, whereas

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confidence in health authorities may be necessary to motivate compliance with a more effortful or somewhat controversial recommendation, such as receiving a newly-developed flu vaccine.

INTRODUCTION

The global outbreaks of H1N1 influenza in 2009 exemplified several trends in the spread and control of emerging infectious diseases (EIDs) in the 21st century. Technological and societal changes allowed both the H1N1 flu and information about this flu to spread swiftly. Individuals were able to follow this disease's rapid development into a pandemic through round-the-clock media coverage. This paper investigates whether or not media coverage of the H1N1 flu played a role in managing the spread of H1N1 influenza in the United States. More specifically, survey data were collected and analyzed to determine if American adults' adherence to behavioral advice from the Centers for Disease Control and Prevention (CDC) during the H1N1 flu pandemic was influenced by their exposure to media coverage of this novel flu over and above key sociodemographic variables previously found to predict preventive behaviors.

Public health practitioners and researchers are paying increased attention to the potential role that the mass media could play in facilitating public understanding of EIDs and in motivating public compliance with precautionary measures recommended by public health agencies. As a consequence, the World Health Organization (WHO) and other leading health agencies have issued guidelines in recent years to help health officials work effectively with the media during public health emergencies (1,2). Researchers have also started devoting attention to the different approaches taken by public health officials and journalists in communicating the same public health emergency to the public (3,4) and the conventions employed by news organizations in covering EIDs (5,6).

However, there has been little effort to systematically examine the consequences of media coverage of EID outbreaks. Based on anecdotal evidence, some scholars have suggested that media coverage of public health emergencies tends to be detrimental to the goal of disease control because journalists have their own conventions for repackaging and reporting information from health experts, such as focusing on a single extreme case or on the number of fatalities. Consequently, media coverage of an EID may influence public perceptions and behaviors in ways unintended by public health officials (6,7). Nevertheless, public health agencies seem optimistic that appropriate strategies and guidelines can be developed to guide productive collaboration between health officials and news organizations during a health emergency. In order to empirically investigate the role of the news media during a public health emergency, this paper uses the H1N1 flu pandemic as a case study and seeks to determine whether exposure to H1N1-related media reports is associated with adherence to behavioral recommendations from public health authorities.

As the public health agency overseeing the national response to the H1N1 flu outbreaks in the US, CDC recommended a number of preventive behaviors to the general public at the start of the 2009-2010 flu season to reduce individuals' chances of becoming infected with H1N1 influenza. Besides practicing everyday precautions, including washing one's hands with soap or using hand sanitizer more frequently and avoiding close contact with people showing flu-like symptoms, CDC also encouraged individuals to talk to their doctor if they

had any H1N1-related concerns (8). Furthermore, members of the public were asked to be vaccinated against H1N1 – a process that began in October 2009 when the vaccine became available.

Compared to the other H1N1 prevention measures recommendations by CDC, H1N1 influenza vaccination was the most controversial due to concerns over the safety of the relatively new and untested H1N1 flu shot as well as problems associated with delayed and unequal vaccine distribution (9-12). It is therefore of interest to investigate if the pattern of association between exposure to media reports about the pandemic flu and the intention to receive the newly-developed H1N1 vaccine differs from the pattern of association between media exposure and the adoption of more traditional preventive measures, such as more frequent hand-washing and avoiding close contact with sick individuals.

The influence of the media is typically implied rather than explicitly stated in existing models of health behaviors and behavioral change. For example, the Health Belief Model (13,14), one of the most widely utilized behavioral change theories, hypothesizes that the likelihood of adopting a preventive health behavior is enhanced to the extent that an individual perceives that the condition – here contracting the H1N1 flu – is serious (perceived severity), feels himself or herself to be at risk (perceived susceptibility), believes that the prevention behavior being recommended is effective and beneficial (perceived benefits), that the physical and psychological costs of the advised behavior are reasonable (perceived barriers), and that he or she is capable of overcoming obstacles and performing this preventive behavior (self-efficacy). The model further states that the probability of an individual adopting a new behavior is elevated by the presence of cues to action.

Traditionally, cues to action are operationalized in public health research as advice or reminders from a health care provider to a patient (15,16). However, cues to action can also be mass mediated. In fact, it is plausible to expect the contemporary mass media to be a primary provider of cues to action to the general public during a public health emergency, given the media's ability for almost instant and population-wide dissemination of information. Thus far, however, there is little empirical research on the potential impact of media cues during a public health crisis, a gap that this paper seeks to address.

In addition to the psychological predictors identified by the Health Belief Model, there is also evidence that an individual's current health condition and sociodemographic characteristics – including age, gender, income, race and education level – may also influence compliance with preventive behaviors recommended by health officials (17,18). Furthermore, studies conducted during recent EID outbreaks have demonstrated that trust in public health agencies tend to affect adherence to official advice (19,20). Whether these psychological, sociodemographic and physiological variables known to have influenced the adoption of preventive behaviors in previous epidemics also predict adherence to behavioral recommendations aimed at preventing the H1N1 flu is also examined in the present study. Finally, given the diverse nature of the H1N1-preventive behaviors recommended by CDC – ranging from everyday precautions to talking with a doctor about H1N1-related concerns to receiving the somewhat controversial H1N1 flu shot – it is of particular interest to investigate if different variables are predictive of different preventive behaviors.

OUR STUDY

Data were analyzed from the Annenberg National Health Communication Survey (ANHCS), an ongoing cross-sectional survey of a national probability sample of US adults aged 18 years or older. Since April 2005, between 250 and 300 individuals recruited through list-assisted random-digit dialing have responded to ANHCS each month. In the core section of ANHCS, respondents are asked about their sociodemographic attributes and their health status, including whether they have suffered from diabetes, HIV/AIDS, heart disease, stroke, cancer, kidney disease and lung or breathing problems. These health conditions have been identified by CDC as risk factors for severe complications from H1N1 influenza.

In October and November, 2009, items were added to assess the respondents' perceived susceptibility to and perceived severity of H1N1 influenza, their beliefs about the benefits and costs of vaccination in general, their confidence in CDC's ability to effectively respond to the H1N1 flu and their exposure to news media coverage of H1N1 influenza. Respondents were also asked if they had washed their hands with soap or used hand sanitizer more frequently, avoided close contact with sick individuals, or talked to a doctor about their H1N1-related concerns in response to the influenza pandemic. Furthermore, respondents were asked to indicate on a 10-point scale how likely they were to get a free H1N1 shot when it became available. Finally, respondents were asked if they were currently pregnant because pregnancy constituted a known risk factor for H1N1-influenza complications. Multiple regression analyses were used to identify variables associated with respondents' intention of getting the H1N1 vaccine, and logistic regression analyses were used to identify predictors of the other preventive behaviors. All analyses were performed with SPSS software, version 18 (SPSS Inc., Chicago, Illinois).

FINDINGS

A total of 626 respondents were surveyed in October and November of 2009. At that time, only 16 (2.6%) had been vaccinated against H1N1 influenza. These individuals were removed from the sample in subsequent statistical analyses because vaccine shortages and unequal vaccine distribution across geographic locations during the study period caused problems for meaningful interpretation of their results. When screening for missing values, the question with the largest number of missing values pertained to respondents' confidence level in CDC's ability to deal with H1N1 influenza. Thirty-nine respondents (6.2%) selected the "Don't Know" option for this question, and they were removed from subsequent analyses after logistic regression results indicated that they did not differ in sociodemographic attributes or underlying health conditions from those who did report their confidence level. Respondents with missing values on any of the other variables of interest were also eliminated from subsequent analyses, resulting in a final sample size of 518 adults over the age of 18 years.

After applying sample weights to account for known deviations due to non-coverage and non-response error and to make the sample demographically similar to the US adult population based on census data (21), logistic regression analyses were computed to identify variables associated with the adoption of H1N1-preventive behaviors. All independent variables were entered into each logistic regression model simultaneously, and an odds ratio

(OR) was calculated for each independent variable. Results from the regression analyses are presented in Table 1.

Compared to Whites, Latinos were found to be almost five times more likely to adhere to the official advice of more frequent hand-washing with soap or hand sanitizer, controlling for the other variables (OR = 4.84; 95% CI = 1.49, 15.69). The only other independent predictor of more frequent hand-washing was exposure to media coverage of H1N1 influenza (OR = 1.48; 95% CI = 1.23, 1.78).

Compared to Whites, both Latinos (OR = 3.32; 95% CI = 1.58, 6.98) and African-Americans (OR = 2.46; 95% CI = 1.14, 5.29) were more likely to take steps to avoid being near someone with flu-like symptoms. Other factors associated with this avoidance behavior included perceived susceptibility to H1N1 influenza (OR = 1.13; 95% CI = 1.03, 1.25), perceived severity of the disease (OR = 1.19; 95% CI = 1.07, 1.33), and exposure to H1N1-related media coverage (OR = 1.25; 95% CI = 1.01, 1.46).

Twenty-three individuals in the sample reported being simultaneously of two or more races, and they were found to have greater odds of discussing H1N1-related concerns with a doctor compared to Whites (OR = 2.88; 95% CI = 1.09, 7.61). Having a lower income per household member was associated with higher chances of discussing H1N1-related concerns with a physician (2% decrease for each additional $1,000 in annual income, 95% CI = 0.97, 0.99), so was having one or more underlying health conditions that increased one's risk for H1N1-flu complications (OR = 1.96; 95% CI = 1.20, 3.20).

Table 1. Logistic regression and multiple regression results (n = 518)

	More Frequent Hand-washing, OR (95% CI)	Avoiding Close Contact With Sick People, OR (95% CI)	Discussing H1N1 Concerns With a Doctor, OR (95% CI)	Intention to Get H1N1 Flu Vaccination, b
Male	0.65 (0.39, 1.08)	1.03 (0.70, 1.52)	1.30 (0.85, 1.99)	-0.03
Black	1.80 (0.68, 4.76)	2.46* (1.14, 5.29)	1.79 (0.85, 3.77)	-0.99*
Latino	4.84* (1.49, 15.69)	3.32** (1.58, 6.98)	1.88 (0.98, 3.62)	0.50
2+ races	0.51 (0.19, 1.38)	0.58 (0.24, 1.43)	2.88* (1.09, 7.61)	0.38
Other race	4.57 (0.37, 56.46)	0.61 (0.15, 2.41)	0.57 (0.09, 3.46)	-0.02
Age	1.01 (0.99, 1.03)	1.01 (0.99, 1.02)	1.01 (1.00, 1.03)	-0.02*
Income	1.00 (0.98, 1.01)	1.00 (0.99, 1.01)	0.98** (0.97, 0.99)	-0.01
High School Graduate	0.67 (0.31, 1.48)	0.57 (0.30, 1.07)	1.93 (0.96, 3.90)	-0.54
Some College or More	1.14 (0.64, 2.04)	1.40 (0.90, 2.17)	1.24 (0.76, 2.03)	-0.71*
Risk Factors	0.92 (0.48, 1.73)	0.97 (0.61, 1.55)	1.96* (1.20, 3.20)	0.37
Perceived Susceptibility	1.07 (0.94, 1.22)	1.13* (1.03, 1.25)	1.05 (0.95, 1.17)	0.31***
Perceived Severity	1.11 (0.96, 1.29)	1.19** (1.07, 1.33)	1.02 (0.92, 1.13)	0.32***
Perceived Benefits of Vaccination	___	___	___	0.50***
Perceived Barriers to Vaccination	___	___	___	-0.59***
Confidence in CDC	1.26 (0.90, 1.78)	0.92 (0.71, 1.20)	0.75* (0.57, 0.99)	0.82***
Exposure to Media Coverage of H1N1	1.48*** (1.23, 1.78)	1.25* (1.01, 1.46)	1.46*** (1.21, 1.76)	-0.06

* $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$.

Note: OR = odds ratio; CI = confidence interval; b = unstandardized regression parameter estimates.

Furthermore, an individual's level of exposure to media coverage of H1N1 influenza was found to be positively associated with having H1N1-related conversations with a doctor (OR = 1.46; 95% CI = 1.21, 1.76), whereas one's level of confidence in CDC's ability to effectively respond to the disease was found to be negatively related to physician conversations (OR = 0.75; 95% CI = 0.57, 0.99).

Being African-American was negatively associated with the intention of receiving H1N1 influenza vaccination ($b = -0.99$, $p < 0.05$), as was age ($b = -0.02$, $p < 0.05$). Compared to those without a high school diploma, individuals with at least some college education on average had a lower intention of getting the H1N1 flu shot ($b = -0.71$, $p < 0.05$). Feeling susceptible to H1N1 influenza ($b = 0.31$, $p < 0.001$), perceiving H1N1 influenza to be severe ($b = 0.32$, $p < 0.001$), perceiving vaccination in general to be beneficial ($b = 0.50$, $p < 0.001$), associating lower psychological and physical costs with vaccination in general ($b = -0.59$, $p < 0.001$), and having more confidence in CDC's ability to manage the H1N1 flu ($b = 0.82$, $p < 0.001$) were all positively related to vaccination intention.

DISCUSSION

Statistical analyses demonstrated that different sets of variables were associated with the adoption of various preventive behaviors and vaccination intention during the 2009 H1N1 influenza pandemic. Cues to action in the form of exposure to media coverage of H1N1 influenza was found to play an pivotal role in motivating US adults to wash their hands more frequently with soap or hand sanitizer, to avoid being near individuals showing flu-like symptoms, and to discuss their concerns regarding H1N1 influenza with a doctor. These findings challenge some scholars' contention that the mass media tend to play a counter-productive role during a public health emergency by constantly emphasizing extreme cases over the average and opinions over data (6). Given new and traditional media's position as a source of information and social influence in today's society, more empirical effort is needed to identify the factors leading to constructive media effects during a pandemic or other public health emergency. Once identified, these factors can then be incorporated into public health agencies' guidelines on working effectively with the media during an emergency.

In line with previous research (17, 18), individuals' compliance with behavioral advice from CDC also depends upon a number of sociodemographic variables, such as age, race, education and income. However, the present study demonstrates that the influence of these sociodemographic variables is by no means constant and can vary across preventive behaviors. For instance, compared to Whites, Latinos and African-Americans in our sample were more likely to avoid close contact with someone showing flu-like symptoms in response to H1N1 influenza. This discrepancy might be due, in part, to the disparities in health insurance coverage among ethnic groups. Data indicated that in 2008, 31% of the Latino population and 19% of the African-American population did not have health insurance, whereas only 11% of the White population was uninsured (22). Consequently, Latinos and African-Americans might be more motivated to avoid getting H1N1 influenza because they could not afford the costs associated with treating the disease and its complications.

Compared to Whites, Latinos also reported washing their hands with soap or hand sanitizer more frequently. Given that H1N1 influenza is believed to have originated in

Mexico and caused substantial socioeconomic disruptions in that country, it was not unexpected that Latino residents in the US would be more sensitized to the disease. Factors such as more frequent travel to Mexico or communication with family or friends affected by the outbreaks in Mexico might have provided additional incentives for the Latinos in our sample to adopt simple precautionary measures, such as hand-washing and avoiding sick individuals.

Interestingly, the likelihood of having a H1N1-related discussion with a doctor decreased with income. This finding appears to contradict previous research showing that individuals with higher social economic status (SES), measured in terms of income and education, are more likely to adopt preventive health behaviors (17). However, it is plausible that individuals with higher SES have more and better resources to help them make sense of the evolving information on H1N1 influenza and therefore have a lower need to seek clarification or reassurance from a doctor. Moreover, research has demonstrated that individuals with higher incomes or education are more likely to search for health information online (23), and therefore they may not need to turn to their own doctor when they have questions or want additional health-related information. In other words, the negative relation between income and talking to a doctor about H1N1-related concerns cannot simply be interpreted as noncompliance with official recommendations. Rather, it needs to be understood within the context that higher SES is typically associated with greater resources and capabilities in information-seeking and information-processing.

Another variable associated with individuals' likelihood of talking to a doctor about their H1N1-related concerns is confidence in CDC's ability to deal with the pandemic flu. It is plausible that those with more confidence in CDC are less doubtful of the information the agency provides to the public and, consequently, they feel a lower need to seek information from alternative sources like a physician. This suggests that building public confidence in health agencies may provide a buffering mechanism to prevent doctors from being overwhelmed with inquiries from concerned individuals during a pandemic.

Regarding the intention to receive the H1N1 vaccine, younger individuals in our sample reported a greater intent to be vaccinated. This suggests that CDC's message about younger people being at elevated risk for the pandemic flu was getting through to the public. Furthermore, respondents without a high school diploma were more likely than those with at least some college education to intend to be vaccinated. This is in line with previous research findings on the positive association between one's education level and one's level of concern about medical contraindications resulting from vaccination (24).

Compared to Whites, African-Americans in our sample expressed less intention to be vaccinated against H1N1 influenza, and this held true even when the influence of an individual's susceptibility and severity beliefs and their perceptions of the costs and benefits of vaccination in general was statistically accounted for. This is consistent with past research showing that African-Americans tend to hold more negative beliefs and more resistant attitudes toward seasonal influenza vaccination compared to other races (25). Clearly, health agencies need to continue to look into the underlying causes behind African-Americans' hesitation or unwillingness to be vaccinated against influenza in order to develop targeted messages to encourage vaccination within this community.

Psychological factors identified by the Health Belief Model, including an individual's perceived susceptibility to the H1N1 flu, their perceived severity of the disease as well as their beliefs about the costs and benefits of vaccination in general, all influenced their

intention to receive the H1N1 flu shot in the direction predicted by the model. In other words, intent to be vaccinated was positively related to believing that H1N1 influenza was severe, feeling personally susceptible and associating vaccination with a relatively high level of benefits and a low level of costs. These findings suggest that public health agencies may do well to rely on validated theoretical frameworks of behavioral change, such as the Health Belief Model, to develop future risk communication strategies.

Another psychological variable, confidence in CDC's ability to effectively respond to the pandemic flu, also affected individuals' intention to receive the H1N1 flu shot. However, confidence in CDC did not appear to enhance adherence to everyday precautions, such as more frequent hand-washing or avoiding sick individuals. This suggests that confidence in health agencies may be most crucial when it comes to compliance with a more effortful, relatively new or controversial recommendation, such as receiving the newly-developed H1N1 shot. In light of the constant emergence of new diseases and new treatments, public health agencies must give priority to building and maintaining public confidence.

The present study was limited by the fact that self-efficacy associated with practicing various H1N1-preventive behaviors was not measured directly and therefore could not be entered into the analyses. One could argue, however, that self-efficacy or feeling that one is capable of performing a specific behavior is not a major factor with respect to everyday precautions such as washing one's hands more frequently or trying to avoid close contact with sick individuals, and therefore this psychological factor might not have a strong influence over the adoption of these everyday behaviors. Whether self-efficacy prevents individuals from discussing their concerns about a newly emerging disease with a doctor remains to be addressed by future studies.

Another limitation of this study was that it assessed factors associated with the intention to be vaccinated against H1N1 influenza rather than the actual behavior of having received the vaccine. While behavioral intent is commonly used as a proxy for the actual behavior of interest, it is a less than perfect measure. However, given the limited access to the H1N1 flu vaccine in October and November of 2009, behavior intent was the only option available. The self-reported nature of the data might also lead to problems associated with individuals' tendency to over-report their adoption of preventive behaviors. While future efforts should be made to verify the actual behaviors of survey respondents, self-reported data remain the only way for assessing individuals' health beliefs, confidence in health agencies, and other psychological variables known to influence health behaviors. In addition, the cross-sectional nature of the data did not allow caUSl inferences to be made. Finally, it should be noted that we surveyed a random sample of adults living in the US, and further research is needed to determine the extent to which our findings on media exposure and trust in public health agencies are general-izable to other parts of the world.

Despite these limitations, the present chapter has illustrated that a complex pattern of association exists between adherence to official recommendations and a range of predictors during an EID outbreak. Our findings suggest that the nature of an emerging disease, the way it is communicated to the public by the mass media, the nature of the preventive behavior recommended by a public health agency, and the public's level of confidence in that agency are all likely to influence compliance with the recommended behavior. In line with previous research, sociodemographic attributes may also affect compliance, but different socio-demographic variables are likely to be associated with different preventive behaviors.

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Chapter 5

EXPLORING THE RELATIONSHIP BETWEEN GENRE-SPECIFIC TELEVISION VIEWING AND TANNING BELIEFS AND ATTITUDES

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ABSTRACT

Indoor tanning practices and skin cancer incidence rates are a growing global concern. Although the media has been frequently thought of as a source of positive perceptions about tanned appearances, little research has empirically examined this concern. This chapter explored the relationship between television exposure, and beliefs, attitudes, and intentions regarding indoor tanning. A cross-sectional survey was administered to 365 White American college students at a large, Midwestern university. Results revealed that viewing reality television was positively related to females' beliefs, attitudes, and intentions regarding indoor tanning, and males' intentions towards indoor tanning. Viewing sitcoms was negatively related to males' attitudes towards indoor tanning. This chapter offers correlational evidence of the relationship between genre-specific exposure to television and beliefs, attitudes, and intentions about indoor tanning. Future effort to prevent the risk of indoor tanning should address the role of the media.

INTRODUCTION

Each year, between two and three million people are diagnosed globally with some form of skin cancer (1). In fact, skin cancer incidence rates are rising dramatically; the U.S. National Cancer Institute (NCI) states that the percentage of melanoma cases has doubled in the past

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thirty years (2). Although several different risk factors can lead to skin cancer, the most common is exposure to ultra-violet radiation (UVR) (3).

UVR exposure occurs naturally from sunlight, however it can also occur through the use of indoor tanning beds (4). Problematically, indoor tanning may be even more dangerous than tanning outside. Some researchers estimate that indoor tanning beds expose users to several times the amount of UVR than suntanning for the same amount of time (5,6). Thus, indoor tanning represents unnecessary exposure to a carcinogenic agent. In the US alone, over one million people frequent indoor tanning salons each day (7).

Extant research indicates that the use of tanning salons is predicted by positive attitudes toward tanning (8). If so, then sources of those attitudes must be identified and addressed. Although mass media have frequently been thought of as a source of positive attitudes (9-11), few empirical studies have been conducted to examine whether there is an association between media exposure and tanning attitudes.

Importantly, recent media effects theory and research suggests that genres of media need to be differentiated to understand the media's influence on individuals' beliefs and attitudes. Scholars suggest that the meta-narrative underlying different genres may present social issues or social groups from different angles, producing differential effects on beliefs and attitudes (12). Existing research on genre-specific media effects has frequently investigated the difference between informational and entertainment genres (13-15). Few studies focused on entertainment genres [for an exception, see 14], despite a growing body of research suggesting the potential of entertainment media to influence health and risk related perceptions and practices (16, 17). Furthermore, little research has examined the relationship between genre-specific exposure and beliefs and attitudes within the applied domain of indoor tanning.

Thus, the goal of the current chapter is to explore whether and how genre-specific television exposure is related to beliefs, attitudes, and intentions concerning indoor tanning among young men and women. Four major genres of entertainment television were examined: reality shows, dramas, comedies, and talk shows. The findings of this study may add to the extant research on genre-specific media effects and provide useful implications for efforts to effectively prevent the risk of indoor tanning.

Media exposure and attitude formation

Much of the research examining the linkage between media representations and audience attitudes has been conducted using cultivation theory (18) and social cognitive theory (19). Generally, cultivation theory specifies that over time, media exposure can influence beliefs about society (18, 20). In particular, media exposure can be viewed as one contributor to the social construction of reality (21).

Social cognitive theory (SCT) (19) posits a transactional and reciprocal relationship between personal factors, behavioral factors, and environmental factors. One noteworthy environmental factor is mass media (19). A prominent aspect of SCT is that individuals are self-reflective, and in relation to media influence, evaluate the validity of media content and compare it to one's own beliefs and views about the world.

Both cultivation theory and SCT can be used by researchers to concept-tualize the ways that television programs can influence the audience. In this case, cultivation theory is useful

as a meta-theoretical framework to understand how media effects function at the societal level. Alternatively, SCT may provide a lens to understand the cognitive mechanisms that contribute to cultivation. Overall, both theories have been used to investigate the association between media content and the beliefs, attitudes, and ultimately the behaviors of the audience.

Television genres

While cultivation theory specifies a gross, additive effect of television viewing on attitudes and SCT recognizes the cognitive mechanisms that underlie media influence, neither theory explicitly accounts for the role of media genres. Recent research, however, has emphasized the importance of recognizing genres and detailing their association with television exposure outcomes (12-15). As the number of television channels continues to expand and attract more heterogeneous audiences, it may be possible that different genres of television are differentially related to audience beliefs and attitudes.

Television genres are groups of programs that are similar in content, format, or both. There may be two ways with which genre-specific exposure produces differential outcomes. First, different genres may present information on the same issue from different angles or perspectives, an effect of the underlying meta-narrative of genre (13), as news coverage of a health issue may be substantially different in format and content than a soap opera storyline featuring a character who experience the health issue. Alternatively, individuals may choose to view certain genres of television to fulfill different gratifications (15). For example, exposure to news media genres may be related to surveillance needs, while exposure to entertainment media genres may be related to enjoyment needs. Although more theory and research is needed to precisely explain the mechanism of genre-specific media effects, existing evidence does suggest that exposure to different television genres may be associated with different perceptions and opinions about the same issue.

For example, Holbert, Kwak, and Shah's study (13) suggested differential influence of viewing news and entertainment genres and pro-environmental behavior. On one hand, exposure to news genres (i.e., television news, nature documentaries) was positively related to pro-environmental tendencies, including the desire to recycle, purchase environmentally friendly products, and conserve energy. On the other hand, exposure to primetime entertainment shows (i.e., situational comedy, progressive drama, traditional drama) was largely unrelated to such tendencies. The authors claim that positive associations witnessed in the news may be due to disaster reporting, which elicits fear of environmental disasters and implicitly advocates environmentally conscious behavior. Similarly, nature documentaries may elicit pro-environmental attitudes and behavior by highlighting the importance of conservation. Considering entertainment programming, such as sitcoms and dramas, the authors contend that these shows rarely depict environmental issues, and when they do, a neutral or apathetic stance is usually taken (13).

Further, another study by Holbert et al. (14) suggested that there can be differences within entertainment media genres. In this study, they found that exposure to different types of entertainment shows are differentially related to attitudes toward social issues. Specifically, sitcoms (e.g. Friends, Frasier) and progressive dramas (e.g. Law and Order, NYPD Blue) were positively associated with support for women's rights, whereas exposure to traditional dramas (e.g. Touched by an Angel, Walker, Texas Ranger) was negatively associated. The

authors contend that this association may be because traditional dramas tend to espouse more conservative values. Specifically, the authors suggest that situational comedies frequently portray strong-willed women and present open discussion about sexuality. Similarly, progressive dramas depict women in positions of power and holding liberal perspectives on sexuality. In contrast, traditional dramas often present conservative values such as motherhood.

The apparent differences within the category of entertainment television found by Holbert et al. (14) may need to be examined further. Generally, major genres of entertainment television may include the following four categories: reality shows, dramas, comedies, and talk shows. In previous research, each of these genres was examined separately for their potential to influence various health and risk-related issues and behaviors. For example, viewing reality shows about cosmetic surgery led to a small but significant increase in the desire to obtain cosmetic surgery (23), and soap opera viewing time was significantly related to participants' drive for thinness (24). There is also reason to suggest that talk shows viewing can be associated with attitudes. For example, adolescents viewing of talk shows resulted in an overestimate of deviant behavior (25). Talk show viewing was also positively related to self-esteem, when viewers engage in derogation of guests of the show (26).

Building on previous research, this study seeks to explore the relationship between exposure to four general genres of entertainment television (reality shows, dramas, comedies, talk shows) and beliefs, attitudes, and intentions related to indoor tanning practices.

Gender differences in indoor tanning beliefs, attitudes and intentions

Often, research on indoor tanning is focused on females only, as previous studies have demonstrated that females are significantly more likely to frequent indoor tanning facilities than males (8,27). However, a German study (28) found that although more females engage in tanning behavior than males, between the ages of 18-44, roughly the same proportion of females and males reported tanning more than 10 times per year. Further, both men and women believe that tanned individuals look healthier and more attractive than those without a tan (29). This research suggested that males no longer be neglected in studies on tanning behavior.

Importantly, evidence suggests that television may portray ideal images of men and women differently, which in turn may be related to differential audience beliefs and attitudes about male and female gender roles. Gerbner and Gross (30) asserted that television is a message-system that distributes societal stories and myths that influence and are influenced by that society. For instance, some studies have found that males are depicted as having a wider range of jobs, higher status jobs, and higher paying jobs than females (31, 32).

In addition to traditional sex role stereotypes, some researchers have found other sex differences on television. A recent content analysis of primetime Taiwanese dramas revealed that compared to older male characters, older female characters were underrepresented and more likely to be portrayed in negative, stereotypical ways (33). Other researchers found that underweight women are over-represented on sitcoms (34). Further, in the same genre, obese male characters received fewer negative comments about their weight than obese females characters (35). These finding suggest that media representations of certain social groups (e.g., those who are overweight) are different for males and females. These existing findings

suggest that media represenations of tanned men and women may also differ. The different representations may result in different relationships with audience beliefs, attitudes, and intentions (18, 19).

Therefore, the goal of the current research is to explore the possible relationships between genre-specific media use and beliefs and attitudes related to indoor tanning, and gender differences in the association. As such, the following research questions are proposed:

- RQ1a-b: To what extent, and how, is genre-specific exposure to television is related to stereotypical beliefs about tanned (a) women and (b) men?
- RQ2a-b: To what extent, and how, is exposure to television is related to attitudes toward tanning beds among (a) women and (b) men?
- RQ3a-b: To what extent, and how, is exposure to television is related to intentions to use tanning beds among (a) women and (b) men?

OUR STUDY

An online survey of undergraduate students at a large, Midwestern American university was conducted. The study was described as an effort to understand college students' mass media use and lifestyle-related beliefs and behaviors. The availability of the study was announced over email, which contained a link to the online survey site. A total of 490 students participated in this survey for extra credit (female sample n = 282, male sample n = 208).

For the purpose of this study, the responses of 74.5% of the participants who were White were retained (n = 365; female n = 205, male n = 160). The literature indicates that significant differences exist between Whites' and other races' (e.g., Blacks') media consumption patterns (36). Research has also shown that White and Black youth interpret media images differently (37). Thus, it is also likely that Whites' and non-Whites' perceptions about a tan differ.

The typical White male participant was about 20 years old (M = 19.4, SD = 1.25, range = 18-23), and the typical white female participant was also about 20 years old (M = 19.5, SD = 1.67, range = 18-29). Age difference was not significant between the male and female samples (t = -1.06, df = 362, p = ns).

The online survey guided female and male participants to complete a different version of a questionnaire. The questionnaire for females contained items relevant to tanned female images on television; the one for males contained items on tanned male images on television. The rest of the items were identical for both females and males.

Measures

Television exposure. Exposure to four genres of television was assessed: reality shows, dramas/soap operas, comedies/sitcoms, and talk shows. Participants were asked: on a typical day, how many hours they watch reality shows (female M = 2.58, SD = 1.49; male M = 1.21, SD = 1.71), dramas/soap operas (female M = 1.95, SD = 1.27; male M = .46, SD = 1.25), comedies/sitcoms (female M = 1.41, SD = 1.20; male M = 1.92, SD = 1.45), and talk shows (female M = 1.42, SD = .87; male M = .57, SD = 1.27).

Beliefs about tanned women. Cho, Lee, and Wilson's (22) stereotypical beliefs about tanned women scale was employed. The "fashionable" dimension was assessed with three items: "In general, tanned women are [fashionable/stylish/trendy] (M = 4.27, SD = 1.33, a = .97). The "fit" dimension was also assessed with three items: "In general, tanned women are [fit/ toned/athletic] (M = 3.76, SD = 1.45, a = .94). The "shallow" dimension was assessed with four items: "In general, tanned women are [fake/shallow/spoiled/vain] (M = 3.74, SD = 1.54, a = .90). Participants indicated their degree of agreement or disagreement on a scale ranged from 1 to 7.

Beliefs about tanned men. Prior to conducting the survey, a free-response format, paper and pencil pilot study was conducted with a different sample of male undergraduate students (n = 19). Participants were asked to provide thoughts that come to mind when they hear the term, "a tanned man" in a thought-listing response format (38). The free response adjectives related to tanned men elicited in the pilot study were incorporated into the main survey. In the main study, participants indicated their degree of agreement or disagreement in response to the stem describing tanned men's outward and inward qualities (i.e., "in general, tanned men …"). The response scale ranged from 1 to 7. A factor analysis with principal axis factoring extraction and varimax rotation methods identified two factors: "strong" and "metrosexual" The "strong" factor consisted of eight items "strong," "toned," "in shape," "fit," "active," "adventurous," "tough," and "have muscles" (M = 3.91, SD = 1.70, a = .97). The "metrosexual" factor consisted of six items "metrosexual," "have feminine qualities," "cares about appearance,' "worried about self-image," "egotistical," and "insecure" (M = 4.04, SD = 1.57, a = .92).

Attitudes toward tanning bed use. Items taken from Cho (39) and Hillhouse, Adler, Drinnon, and Turrisi's (40) were used to assess attitudes toward tanning bed use. The scale comprised of three set of word pairs including "bad/good" "undesirable/desirable," and "unfavorable/favorable." A seven-point response scale ranging from 1 to 7 was used, so that higher scores would indicate more positive attitudes (female M = 4.34, SD = 1.93, a = .87; male M = 3.30, SD = 1.70, a = .93).

Intentions to use tanning beds. Items adapted from Hillhouse, Turrisi, Stapleton, and Robinson's (41) scale were used to asses intention to use tanning salon: "I may use tanning salons in the future," "I am likely to use tanning salons in the next twelve months," "I will use tanning salons in the next twelve months." A seven-point Likert scale ranging from 1 "strongly disagree" to 7 "strongly agree" was given (female M = 4.74, SD = 2.43, a = .98; male M = 2.66, SD = 1.95, a = .97).

Control variable. Past tanning bed use behavior was assessed with a dichotomous scale (0 = no, 1 = yes).

FINDINGS

To answer these research questions, regression analyses were conducted. For all analyses, independent variables were exposure to the four genres of television. Criterion variables were stereotypical beliefs about tanned women/men, attitudes toward tanning bed use, and

intentions to use tanning beds. The beliefs about tanned women were "fashionable," "fit," and "shallow." The beliefs about tanned men were "strong" and "metrosexual." Participants' previous use of tanning beds was used as a control variable.

Research question 1

RQ1a asked whether and how exposure to television is related to stereotypical beliefs about tanned women. A significant positive association between exposure to reality shows on television and the belief that tanned women are fashionable was found in the female sample (ß = .21, p = .013). Women who viewed reality shows more frequently indicated a stronger belief that tanned women are fashionable. No other association between exposure to television genres and beliefs about tanned women (i.e., "fit" and "shallow") was significant in this sample. The association between prior tanning bed use and the belief that tanned women are "shallow" was significant (ß = -.23, p = .001). Women who have used tanning beds indicated a weaker belief that tanned women are shallow than those who have not used tanning beds.

RQ1b asked whether and how exposure to television is related to stereotypical beliefs about tanned men. No significant association between exposure to television and stereotypical beliefs about tanned men was found. Additionally, no association between prior tanning bed use beliefs was significant.

Research question 2

RQ2a asked whether and how exposure to television is related to attitudes toward tanning beds among young women. A significant positive association between exposure to reality shows on television and tanning bed use attitudes was found in the female sample (ß = .20, p = .003). Women who viewed reality shows more frequently indicated a more positive attitude toward tanning bed use. No other association between exposure to television genres and attitudes toward tanning bed use was significant in this sample. A significant positive association between prior tanning bed use and tanning attitudes was found (ß = .55, p < .001). Women who have used tanning beds indicated more positive attitudes than those who have not.

RQ2b asked whether and how exposure to television is related to attitudes toward tanning beds among young men. A significant negative association between exposure to comedies/ sitcoms and attitudes toward tanning bed use was found (ß = -.20, p = .035). Men who viewed comedies and sitcoms more frequently indicated less positive attitudes toward tanning bed use. No other association between exposure to television genres and tanning bed use attitudes was significant. A significant positive association between prior tanning bed use and tanning attitudes was found (ß = .54, p < .001). Those who have used tanning beds indicated more positive attitudes than those who have not.

Research question 3

RQ3a asked whether and how exposure to television is related to intentions to use tanning beds among young women. A significant positive association between exposure to reality shows on television and intentions toward tanning bed use was found in the female sample (ß = .14, p = .029). Women who view reality shows more frequently indicated stronger intentions to use tanning beds in the future. No other association between exposure to television genres and tanning bed use intentions was significant in this sample. A significant positive association between prior tanning bed use and tanning intentions was found (ß = .59, p < .001). Women who have used tanning beds indicated stronger intentions than those who have not.

RQ3b asked whether and how exposure to television is related to intentions to use tanning beds among young men. A significant positive association between exposure to reality shows on television and intentions to use tanning beds was found (ß = .20, p = .035). Men who view reality shows more frequently indicated stronger intentions to use tanning beds in the future. No other association between exposure to television genres and tanning bed use intentions was significant. A significant positive association between prior tanning bed use and tanning intentions was found (ß = .54, p < .001). Men who have used tanning beds indicated more positive attitudes than those who have not.

DISCUSSION

Research has shown that television viewing is a significant contributor to individuals' beliefs and attitudes concerning various health issues. For example, Lemal and Van den Bulck (42,43) showed that television viewing predicted Flemish women's risk perceptions related to cervical cancer and other health problems. Little research, however, has investigated whether and how television viewing is related to indoor tanning-relevant beliefs and attitudes.

The results of this study support the notion that genres of television programming are differentially related to beliefs, attitudes, and intentions concerning indoor tanning behavior. Specifically, the more women watched reality television, the more positive beliefs, attitudes, and intentions they held toward indoor tanning. In contrast, exposure to other genres of television was not associated with women's beliefs, attitudes, or intentions. Similar to women, the more men watched reality television, the stronger their intentions to engage in indoor tanning. In contrast, men's high exposure to sitcoms was related to more negative attitudes toward indoor tanning.

From a theoretical perspective, the results suggest that television exposure cannot be viewed as a homogenous influence on beliefs and attitudes, as proposed by cultivation theory. Since cultivation theory was initially developed, the television environment has grown increasingly heterogeneous. The disparate relationships noted between different genres and perceptions about indoor tanning lend support to the increasing body of literature that suggests that genre is a necessary component to adequately parse out the relationship between media exposure and audience beliefs and attitudes. Future efforts to identify sources of positive attitudes toward a tanned appearance would need to differentiate genres of media.

This research also contains practical implications of interest to public health officials. Extant efforts to prevent the risk of skin cancer often focus on the dangers of skin cancer when constructing interventions or promoting prevention behavior (43-46). While research addressing people's risk-related beliefs and attitudes are important, researchers must not overlook external, environmental factors that may promote positive beliefs and attitudes toward the risk behavior (19, 47, 48). The current research found that exposure to certain genres of media, particularly reality television, has positive relationships with indoor tanning beliefs and attitudes. Addressing these positive relationships will be important for future development of health campaigns and interventions.

The pattern of relationship between genre-specific television exposure and tanning tendencies among men differed from that of women. Whereas men's watching of comedic programming was negatively related to tanning attitudes, women's watching of the same programming was unrelated. One may speculate that tanned men and women are portrayed differently in different genres. Perhaps the association in the male sample was witnessed because sitcoms tend to make jokes about men who use indoor tanning beds. An example of this can be seen in the American sitcom Seinfeld, where Jerry's idiosyncratic neighbor, Kramer, falls asleep in a tanning booth and emerges as the focus of several jokes throughout the episode (49). Genre-specific content analyses are needed to empirically ascertain how tanned men and women may be differentially depicted across different genres of television.

Whereas women's exposure to reality shows on television was positively related to the stereotypical belief that tanned women are fashionable, men's exposure to four genres of television was unrelated to either of the stereotypical beliefs "strong" or "metrosexual." Future research should investigate the source of men's stereotypical beliefs about tanned men. The two seemingly contradictory beliefs about tanned men may be worth noting. It appears as if those holding beliefs about tanned men being "strong" infer that a tanned appearance is the unintentional byproduct of an active lifestyle, spent outdoors working or engaging in stereotypically masculine activities. Conversely, those that held beliefs about tanned men being "metrosexual" may believe that a tanned appearance is the result of vanity, a purposive and intentional act to look attractive (e.g., indoor tanning). Because the survey asked for perceptions about "tanned men," the types of UVR exposure were not specified. It may be worthwhile to assess the potential differences in future research.

There are some limitations with the current study design that should be addressed by future research. First, a convenience sample of college undergraduates was used. Although in many respects, college students represent an adequate sample for indoor tanning research, as those under twenty have the highest rates of common forms of skin cancer, and young people are most at risk for skin damage (50, 51). Another limitation of the study is that a correlational design was utilized that cannot establish or assume causation between television genre and beliefs, attitudes, and intentions. Finally, exposure to television genres was assessed with single item measures. The use of reliable, multiple item measures is recommended for future research.

Additionally, future research should focus on identifying why the relationships between genre and the beliefs, attitudes, and intentions of the audience were observed. For instance, reality television was positively associated with women's beliefs, attitudes, and intentions about indoor tanning, but only men's intentions. Is this association because more women on reality shows are tan than men, women on reality shows are more positively depicted than men, some combination of the two, or perhaps another explanation altogether? It may also be

beneficial for future research to explore the effects of news broadcasts on indoor tanning attitudes, as recent studies have shown that exposure to television newscasts can result in increased risk perceptions and fear of specific health threats, suggesting that television news may be an effective outlet for health education research (43). Further, researchers should work to identify whether and how media contributes to perceptions of tanned men.

This study demonstrated a relationship between viewing particular television genres and indoor tanning beliefs, attitudes, and intentions. Specifically, viewing reality television was positively associated with females' beliefs, attitudes, and intentions, as well as males' intentions toward indoor tanning. Also, comedies and sitcoms were negatively related to males' attitudes toward indoor tanning. These findings highlight the importance of considering genre when examining the linkage between media exposure and audience perceptions. Public health efforts to prevent the risk of indoor tanning should address the linkage between the media and positive beliefs and attitudes toward tanning.

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Chapter 6

REPORTING THE RISKS OF THE 2009 SWINE FLU PANDEMIC: COVERAGE IN MAJOR U.S. NEWSPAPERS

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ABSTRACT

Media can contribute to the public assessment of a health risk and provide general knowledge of basic preventive methods. The current study content analyzed the coverage of the 2009 swine flu in major U.S. newspapers to uncover: the general pattern of swine flu coverage in 2009, the presentation of health risk, and the depictions of self-efficacy-related information. The results of this study revealed that the risk of swine flu was frequently depicted with qualitative risk and thematic frames. About one third of the stories compared swine flu to a previous known health risk. Swine flu was less frequently portrayed as a deadly disease or a global risk compared to the previous coverage of avian flu. Social disorder more often appeared as a consequence beyond health than economic loss and political disturbance. The depiction of the symptoms of swine flu and general preventive efforts appeared less frequently than the mention of the H1N1 vaccination, however, newspapers widely expressed uncertainty about the effectiveness of the vaccine.

INTRODUCTION

At the end of 2009, more than 208 countries had confirmed cases of H1N1 with estimated death tolls at 12,220 (1). The H1N1 flu of 2009 is an event that will not be soon forgotten.

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The flu impacted many people in a variety of ways. For most of us it simply resulted in an increased use of hand sanitizer, being vigilant about washing hands, and being aware of who was sick around us. For some it resulted in economic loss and others the loss of a loved one. Most people in 2009 knew about or were impacted by the H1N1 flu in one way or another.

Media have been regarded as one of the major platforms to publicize issues related to a health crisis. General audiences assess a health risk and make judgments about their daily-life behaviors based on the perceived severity of the disease presented by the media. They also learn various preventive methods through media's reports (2-5). Therefore, understanding how media have presented the 2009 swine flu pandemic and ways to protect one's health is crucial.

The current study content analyzed the coverage of the 2009 swine flu in major U.S. newspapers. The primary purpose of this project was to assess the presentation of risks related to swine flu and how media acted as an educational podium in disseminating knowledge of swine flu prevention. The authors wish to provide a base to further understand how media could serve as an important information source to public's perceptions in a health crisis.

The 2009 swine flu

The virus. The first suspected case of the swine flu or H1N1 virus was detected on March 18, 2009 in Mexico (6). The initial cause for concern over the virus was the fact that it is an animal strain of flu that had mutated and had become transmissible among humans. Along with the fact that it was an animal virus, additional concerns were the rapid rate of transmission, age of those affected, and geographic spread of the disease (6). The flu virus was confirmed as the H1N1 strain in mid-April 2009 (7). During this time organizations such as the World Health Organization noted the quick spread of the disease. On June 11, 2009, the WHO raised the pandemic alert level to 6, the organization's highest alert level (8). This was the first time since the 1968 flu pandemic that the WHO issued a level-6 pandemic alert (9). One of the main reasons for the raise in alert level was the rate of transmission and the lack of a vaccine.

Consequences of swine flu. The swine flu caused several disturbances to everyday life. Fears loomed over the world regarding the swine flu, and the best course of action to be taken. Many schools, especially in the U.S. and Mexico, were closed due to growing concerns over the swine flu. Schools were closed during both the spring and fall of 2009 as fears grew over the spread of the swine flu. This fear was not limited to local communities.

The fear of the H1N1 flu swept around the world faster than the virus itself and damaged the economy in many ways. The pork industry suffered a great deal of economic loss associated with the swine flu; estimates from April through early December of 2009 totaling $1.9 billion (10). Early on in the pandemic pigs were killed out of fear of transmission of the disease. In Cairo, 300,000 pigs were slaughtered as a precaution against the disease (11). Mexico's tourism industry faced large losses on account of the disease. Cruise ships that often frequented ports in Mexico changed their routes (12). In addition, many Mexican resorts, hotels, and restaurants closed to prevent the spread of the disease (13). Once they re-opened there were few customers due to concerns over the disease. Some resorts even started offering the "flu-free guarantee" (13).

Vaccination. The vaccine for the swine flu was approved by the Food and Drug Administration on September 15, 2009 (14). Manufacturers faced many obstacles to making a safe and effective vaccine. Some of the issues pharmaceutical manufacturers faced were the current production of the seasonal flu vaccine, obtaining a sample of the H1N1 virus that was suitable for the vaccine, and the amount of time it took to grow the weakened vaccine in eggs (15). Once the vaccine was manufactured there were also issues with distribution and long lines for those wanting to be vaccinated.

LITERATURE REVIEW

Media's coverage of flu-related pandemics

Examination of the media's coverage of flu-like threats has become increasingly common. For a historical perspective, Blakely (16) examined how *The New York Times* framed the 1918, 1957, and 1968 flu pandemics. The 1918 pandemic was initially covered through the lens of anxiety and fear, which was confirmed by Hume's (17) research into the anxieties portrayed in magazines. Subsequent pandemics were increasingly influenced by the optimistic expectation of science to solve public health problems. In the 1918 flu, individuals were the arbiters of public health policy, such as the Surgeon General. In 1957, the newspaper relied on medical experts for information, and by 1968, the media shifted its reliance on medical information from individuals to public agencies, such as the Centers for Disease Control. Also of note was the use of foreign names to label each pandemic, for examples, 1918 Spanish flu, 1957 Asian flu, and 1968 Hong Kong flu. This type of practice disappeared during the 2009 swine flu pandemic (i.e., the flu is not commonly referred to as the Mexican flu, the place popularized as the emergence of the disease).

Koteyko, Brown, and Crawford (18) examined avian flu coverage in newspapers in the United Kingdom (UK) between the years 2005-2006. The researchers studied the use of metaphor in flu coverage, and discovered that newspapers employed three major metaphor scenarios: journey/invasion, war, and house. Initial coverage took on the journey metaphor, as the virus marched and advanced toward the UK's shores. The closer the virus got to people, the more war metaphors writers used. However, the same types of metaphors were not always used to describe airborne viruses. Wallis and Nerlich (19) studied the use of metaphor in describing Severe Acute Respiratory Syndrome (SARS) in five United Kingdom newspapers in 2003. Instead of finding SARS described using war and plague metaphors, they found that SARS was predominantly described as a killer.

Researchers have studied the ways in which newspapers framed stories on SARS. In examining five dominant frames in U.S. newspapers — economic consequences, responsibility, leadership, conflict, and human interest — for covering the SARS virus, Luther and Zhou (20) found that Chinese newspapers have adopted these Western frames, but that U.S. newspapers put much more focus the economic consequences, responsibility, leadership, and conflict frames than Chinese newspapers.

Dudo, Dahlstrom, and Brossard (3) investigated print news stories on the H5N1 avian flu virus in major U.S. newspapers between 2000-2006. The researchers systematically examined

the presentation of risks related to avian flu and personal protection information, suggesting that the papers did not always provide quality information to their readers about the avian flu.

The current study aimed at advancing the previous literature on the media's coverage of flu-like pandemics. The following three questions were proposed to examine the general pattern of the coverage of swine flu in 2009.

- RQ1: How did the amount of coverage of swine flu vary from month to month in the year 2009?
- RQ2: What were the leading sources that were used in the swine flu coverage in 2009?
- RQ3: What was the geographic focus of the swine flu coverage in 2009?

In addition, this study examined how the risk of the swine flu pandemic in 2009 was depicted in U.S. newspapers and hoq the media presented knowledge of the preventive methods.

Risk assessment of flu-related coverage

The assessment of how health risks are portrayed in the media has attracted much attention from communication scholars. The coverage of a variety of health risks in the media has been systematically investigated, such as cancer (23), West Nile (24), community health risks (25), smoking (26), and avian flu (3). The current study emphasized the risk assessment of the 2009 swine flu in U.S. newspapers. The concept of "risk assessment" was operationalized into the following dimensions: 1) episodic and thematic frames; 2) risk magnitude, 3) risk comparison, 4) risk sensationalism, and 4) consequences beyond health.

News stories can be examined by frame that an article mainly adopts, namely, an episodic or a thematic frame (27). An episodic frame refers to the use of single or individual cases to present a given issue, whereas a thematic frame often provides general and useful knowledge related to an issue (27). Previous research discovered that although media tend to use mixed frames in journalistic reports, one frame is normally more dominant than the other (27, 28). Episodic frames may focus on individual cases associated with a health risk. However, episodic frames may inhibit an individual's understanding of a health risk and limit the audience's ability to make a judgment. Thematic frames may increase the sense of societal and public responsibility related to a health risk and provide content which allow the audience to make informed risk assessments (3, 28). Previous research also discovered that when covering health-related issues, episodic frames were used much more often than thematic frames (3, 29). Therefore, the following hypothesis was proposed:

- H1: The coverage of swine flu will use episodic frames more often than thematic frames.

Risk magnitude was defined as the likelihood of individuals to get infected, be hospitalized, or die from the disease. Risk magnitude can be presented in both qualitative and quantitative risk depictions (3, 30). Qualitative risks are normally presented with imprecise

words such as "serious outbreak" or "large threat." This type of risk magnitude presentation does not involve the description of numbers or statistical statements and thus lacks precision. The presentation of quantitative risk includes two types: quantitative risk without a contextual denominator (e.g., 35 people died) and quantitative risk with a contextual denominator (e.g., 35 out of 1 million people died) -- the latter presentation is regarded as more precious and accurate (3). Previous research has revealed that coverage of health risks, especially infectious disease such as avian flu or West Nile virus, often lacked precision. Journalistic reports related to such health risks were often dominated by depictions of qualitative risk or quantitative risk without a contextual denominator (3, 30). Therefore, the following hypothesis was proposed:

- H2: The coverage of swine flu will use qualitative risk depictions or quantitative risk without a denominator more often than it will use quantitative risk with a denominator.

The comparison between the existing risk and a previous known risk may help readers to understand the challenges or dangers they are facing (3). Roche and Muskavitch (30) discovered that less than 15% of the media's coverage of West Niles virus compared the disease to a known risk. In another study, Dudo, Dahlstrom, and Brossard (3) discovered an increase in risk comparison – 38% of the stories related to avian flu were compared to common influenza, the 1957 Asian flu, or the 1968 Hong Kong flu. The authors also discovered that about 25% of the articles compared the avian flu with the 1918 Spanish Flu. Based on the previous literature, the following research question was proposed:

- RQ4: How often has the 2009 swine flu been compared to a known flu-related risk?

Many have criticized the media as intending to engage in sensationalism and exaggeration in reporting to attract viewers and advertising sales (31). Often, the sensationalized new events may distort or inhibit readers' judgments of the risks involved (2, 32). When analyzing the sensationalism of the coverage of avian flu, Dudo, Dahlstrom and Brossard (3) defined the sensationalism in two dimensions – 1) the extreme negative outcomes such as "global pandemic and breakdown of global economies"; and 2) loaded words such as "lethal," "deadly," "severe," or "killer." Following the previous conceptualization of risk sensationalism, the current study defined the concept as the likelihood of depicting swine flu as a global pandemic (i.e., the extreme negative outcomes), or a deadly disease (i.e., loaded words).

- RQ5: How often has the 2009 swine flu been portrayed as a global pandemic or a deadly disease?

The influence of health crises covered in the media can sometimes go far beyond the domain of health. For example, Luther and Zhou (20) found that when covering SARS, U.S. newspapers put much focus on economic consequences, governmental responsibility, and political leadership. In swine flu outbreak of 2009, the shutdown of schools, the delay of movie openings, and the cancelations of international cruises (12) were often seen in the

media's coverage of the disease. Therefore, the authors proposed the following research question:

- RQ6: How often did the consequences beyond health appear in the coverage of 2009 swine flu?

The concept of self-efficacy related to health refers to the degree to which people can protect themselves from getting involved in health risks (33). A higher sense of control over a health risk reflects higher levels of self-efficacy (33). When assessing the presentation of self-efficacy in the media, researchers focused on the depictions of disease symptoms and information related to personal protection (3, 30). Symptoms associated with swine flu may include sore throat, fever, cough, runny nose, headache, body ache, or fatigue (1). Personal preventive information may include washing hands, diet, or physical activity. Immunization (i.e., H1N1 vaccination) was also a preventive method developed during the swine flu pandemic (1). In addition to the examination of the frequency of the coverage of H1N1 vaccination, this study also analyzed the level of vaccination effectiveness portrayed by the media.

- RQ7: How often did swine flu stories offer information to increase self-efficacy?

METHOD

Sample. Three highly-circulated national newspapers in the United States were chosen for this content analysis study -- *The New York Times*, *USA Today*, and *Los Angeles Times*. Newspaper articles were located via the ProQuest database using two key words: H1N1 and swine flu. All news articles covering issues related to H1N1 from March 23 to the end of 2009 were coded. March 23, 2009 was the first day that newspapers mentioned H1N1, though the outbreak in Mexico wasn't covered until April 22. A total of 638 stories about H1N1 issues were coded.

Coding scheme. Our coding scheme used individual articles as the unit of analysis. The articles were coded only if 70% of the paragraphs talked about the disease or the pandemic. Letters to the editor were excluded from coding. The date, publication, each article's page location, geographic focus of the article (e.g., the U.S., Mexico, global, or another country other than the U.S.), and the first source used in the article were coded first. The first source that was used in the article was categorized into 1) medical experts; 2) government officials; 3) people with swine flu; 4) WHO; 5) CDC; 6) public figures; 7) other media; 8) NGOs; 9) school officials; 10) pharmaceutical; 11) business persons; 12) ordinary people; and 13) no source.

This study also investigated the dominant news frames of an article. To do so, coders would determine whether the article followed a thematic or an episodic frame. The thematic frame synthesized the H1N1 events into a prevailing issue and provided general knowledge surrounding the issue. The episodic frame, on the other hand, presented single and specific cases related to the issue. The article was coded as "mixed" if the length of each frame was relatively equal.

The coding categories that investigated the risk presentation of H1N1 included several dimensions. The first dimension examined the risk magnitude – the degree to which the disease was depicted as serious or deadly. This dimension examined the depictions of both qualitative risk and quantitative risk. A set of words were used to determine whether the article included depiction of qualitative risk, such as "large threat," "threatening," "global pandemic," or "outbreak." The presentations of quantitative risk were coded with two aspects: quantitative risk without contextual denominators (e.g., 30 people died) and quantitative risk with contextual denominators (e.g., 30 out of 1 million people died, or 10% of the local population).

The second dimension of risk presentation of H1N1 examined whether an article compared the 2009 swine flu to an outbreak that happened before. Examples of previous flu-like pandemics included the 1918 Spanish flu, 1957 Asian flu, 1968 Hong Kong flu, and 1976 swine flu. Comparisons to seasonal flu, the avian flu, and SARS (severe acute respiratory syndrome) of the 2000 were also coded. Comparisons to other diseases and risks, such as anthrax, measles, smallpox, the West Nile virus, chickenpox, polio, Black Death, AIDS, cholera, mad cow disease, and Hurricane Katrina were examined.

The third dimension of risk presentation of H1N1 investigated the sensationalism of the entire event. Specifically, this study coded whether H1N1 was depicted as a deadly disease, or the issue was portrayed as a global pandemic. Common words expressing the lethality of the disease were "tragedy," "fatal," "devastating," "deadly," "lethal," "dangerous," and "severe."

The last dimension of risk presentation of H1N1 examined the consequences of the disease beyond health, including social disorder, economic loss, or political disturbance. Social disorders were coded if the article mentioned interruptions to work schedules, school closings, and quarantines of people with the virus. Economic loss was coded if the article mentioned business closings, travel restrictions, and sports event cancellations. Political disturbance was coded if the article mentioned changes in government personnel, border closings, or conflict between nations over the spread of the swine flu.

Furthermore, this study examined the presentation of preventive knowledge of H1N1. Specifically, coders investigated whether the article mentioned the diagnosis of H1N1 (e.g., the symptoms of the disease, or when to seek medical help); the methods that could help prevent H1N1 (e.g., washing hands or sleeping well); or H1N1 vaccination. If the article mentioned H1N1 vaccination, the effectiveness of the vaccination was coded from 1 (not effective) to 5 (very effective).

Coders and reliability. The three coders were graduate students from a Midwestern university (three males, two Caucasians and one Asian). The reliability of coding schemes was accessed by having the three coders independently analyze 20% of the sample. The overall inter-coder reliability was calculated by averaging the reliability of all categories which range from 84% to 90%. The agreement across all categories was 88%.

FINDINGS

Amount of coverage (RQ1). Altogether 638 articles in the three newspapers were coded. Figure 1 shows the general trend of the amount of coverage. Most of the US media started to

pay attention to this issue about one month after the first case was discovered in Mexico (March 18, 2009). Swine flu coverage increased much in April and May. Coverage declined over the summer, and surged again from September through November due to the introduction of the H1N1 vaccination. The coverage in December remained as low as it was in the summer months (see Figure 1).

Figure 2 shows the percentage of swine flu articles that came from each newspaper. *The New York Times* published 317 articles about swine flu issues, accounting for 49.7% of the total; *USA Today* published 137 articles (21.5%), and *Los Angeles Times* published 184 articles (28.8%). Roughly 10% of the articles in The *New York Times* and 9% of the articles in *USA Today* ran on the front page, in contrast to *Los Angeles Times* (8%).

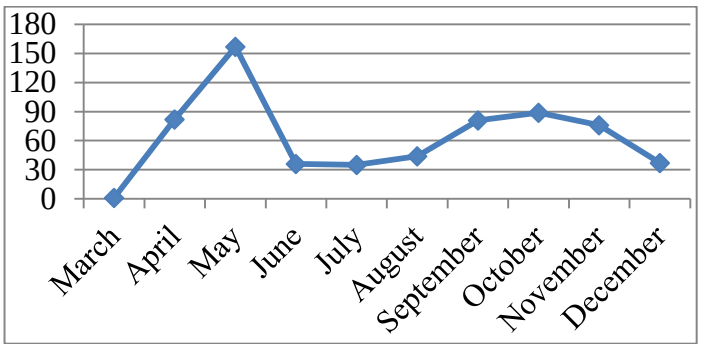

Figure 1. Frequencies of swine flu stories by months (*N*=638)

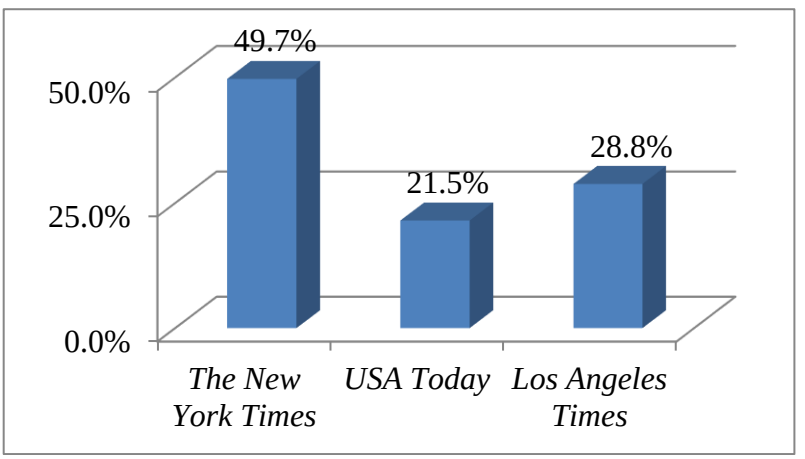

Figure 2. Percentage of swine flu stories by newspapers (*N*=638)

Source (RQ2). The top four first sources used were government officials (32.1%), medical experts (17.6%), the Centers of Disease Control and Prevention (14.3%) and World Health Organization (7.8%). These four sources accounted for 71.8% of the first source used in the coverage. People with swine flu only appeared as the first source 1.9% of the time. About 3.6% of the total coverage did not include any sources. Table 1 represents the results discussed above. The findings demonstrated that newspaper coverage on swine flu heavily relied on the sources from medical professionals (i.e., medical experts, CDC or WHO) and government officials.

Table 1. Percentages of various sources in swine flu stories(*N*=638)

Government	32.1%
Medical Experts	17.6%
CDC	14.3%
WHO	7.8%
Ordinary People	7.7%
General Business	6.9%
No Source	3.6%
School Officials	3.1%
NGOs	2.3%
People with Swine Flu	1.9%
Other Media	1.3%
Pharmaceutical	1.3%
Public Figures	0.2%

Geographic focus (RQ3). A total of 25 countries were treated as focal countries of swine flu issues in the coverage. The most frequently covered country was the United States (69.7%), followed by Mexico (8.3%). The rest of the 23 countries accounted for 9.1% of the total coverage. Swine flu articles that mentioned more than 3 countries and depicted the pandemic as a global outbreak accounted for 12.9% of the total coverage. Figure 3 shows the geographic concentration of the swine flu coverage. These results revealed that U.S. newspapers closely followed the domestic issues related to this health risk.

Episodic and thematic frames (H1). Thematic frames were overwhelmingly dominant in the swine flu-related stories (see Table 2). Thematic frames dominated in 81.7% of the articles, episodic frames only dominated in 11.9% of the coverage. Thematic and episodic frames appeared equally in 6.4% of the stories (mixed frames). Thematic frames were used significantly more often than episodic frames ($\chi^2[2, N=597] = 331.70$, $p < .001$) and mixed frames ($\chi^2[2, N=562] = 409.96$, $p < .001$).

Risk magnitude (H2). The presentation of swine flu risks was assessed with three different types. First, qualitative estimates of swine flu were examined with the appearances of the words that portrayed the swine flu as a serious public health issue. Words such as "pandemic, crisis, spreading like wildfire," were frequently used to describe the qualitative risk. In addition, quantitative estimates of swine flu risks without a contextual denominator (e.g., 30 people died today), and quantitative estimates of swine flu risks with a contextual denominator (e.g., 30 out of 10,000 people died) were examined. About 32.9% of the stories did not present clear information about the risk of swine flu.

Quantitative risks with a contextual denominator appeared in 23.4% of the swine flu coverage, whereas the 43.7% of the swine flu stories used either qualitative risk presentations or quantitative risk without a contextual denominator. Chi-square tests showed that significantly more articles used less accurate risk magnitude presentation (i.e., qualitative risks or the quantitative risks without a contextual denominator) than those that used more accurate presentations of risk magnitude (i.e., quantitative risks with a contextual denominator) ($\chi^2[1, N=428) = 39.49$, $p < .001$]. H2 was supported.

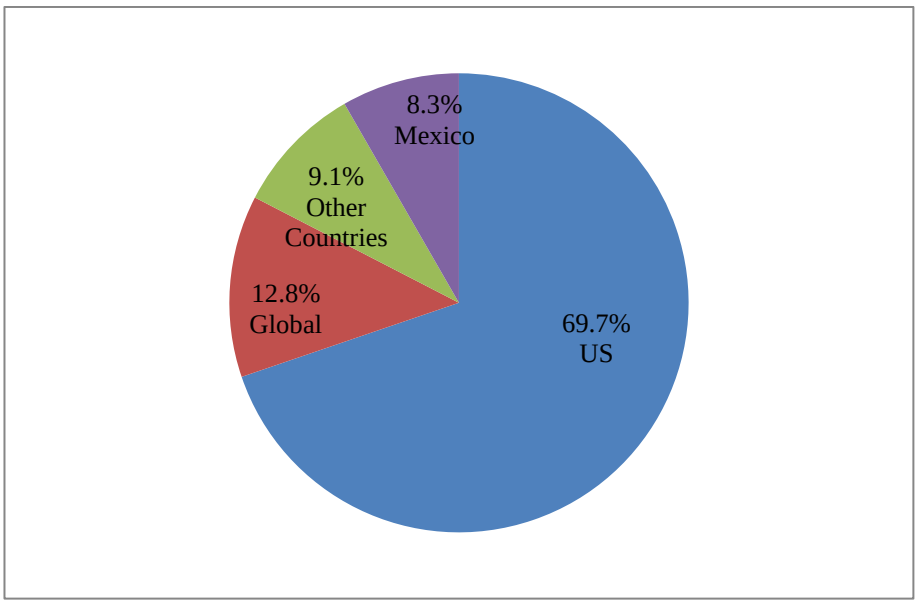

Figure 3. Geographic focuses of the swine flu coverage (*N*=638)

Table 2. Percentages of swine flu stories dominant frames in swine flu coverage (N=638)

Thematic Frames	Episodic Frames	Mixed Frames
81.70% $_{a}$	11.90% $_{b}$	6.40% $_{c}$

Note: Percentages with no subscript in common differ at $p < .05$ using Holm's Sequential Bonferroni post hocs comparisons.

Table 3. Percentage of swine flu stories comparing the swine flu of 2009 to a known risk (*N*=204)

More than one known risk	37.3%
Seasonal Influenza	32.4%
1918 Spanish Flu	7.8%
2003 SARS	6.4%
Avian Flu	5.9%
1957 Asian Flu	4.4%
1976 Swine Flu	4.4%
1968 Hong Kong Flu	1.0%
West Nile	0.5%

Risk comparison (RQ4). About 32% of the stories compared the swine flu of 2009 to a known health risk. Among the articles that used risk comparison, 32.4% compared the 2009 swine flu to the common seasonal influenza, followed by the Spanish Flu of 1918 (7.8%), SARS pandemic of 2003 (6.4%), avian flu (5.9%), the Asian flu of 1957 (4.4%), the swine flu of 1976 (4.4%), the Hong Kong flu of 1968 (1.0%), or the West Nile virus (0.5%). Around 37.3% of the swine flu stories compared the 2009 H1N1 pandemic to more than one known risk (see Table 3).

Risk sensationalism (RQ5). Sensationalism was operationalized as the extent to which the swine flu of 2009 was portrayed as either a deadly disease or the disease was spreading across the globe. A small amount of articles (5.3%) used loaded words to depict H1N1 such as "deadly," "lethal," "fatal," and "huge death toll." Only 10.7% of the stories portrayed the swine flu of 2009 as a global pandemic. These findings suggested that in general, the coverage of swine flu in U.S. newspapers did not use much sensational content to depict the 2009 swine flu (see Figure 4).

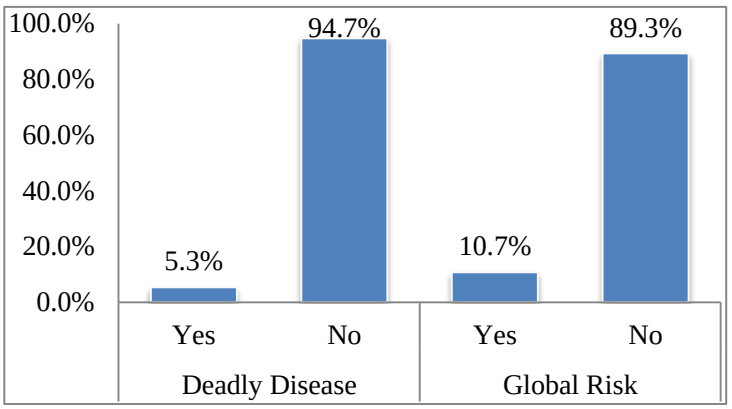

Figure 4. Percentage of swine flu stories presenting risk sensationalism (*N*=638)

Consequences beyond health (RQ6). Our findings showed that 28.4% of the articles mentioned social disorder caused by the swine flu, such as disruptions of school, sports games, or movie openings. About 17.9% of the stories reported economic disturbance caused by the swine flu, such as the reduction of tourists to Mexico or the negative impacts on international trade. Only 4.9% mentioned effects of swine flu on politics, such as the closure of borders or the cancellation of delegations' visits to other countries (see Figure 5). Overall, about 20% of the articles covered at least one aspect of consequence beyond health.

Self-efficacy (RQ7). Newspapers provided very little information about the symptoms of swine flu (8.5%). Stories describing the general prevention methods that could decrease the risk of getting infected with the virus – (e.g., washing hands or regular exercise) accounted for 33% of the coverage. Over 40% of the coverage contained information about the H1N1 vaccination as a preventive method. About 38% of the stories mentioned the effectiveness of the H1N1 vaccination. Among these articles, over 62% of the stories were uncertain about the usefulness of the vaccine; very few stories (0.8%) described the vaccination as not effective; and 36.4% depicted the vaccination as being effective.

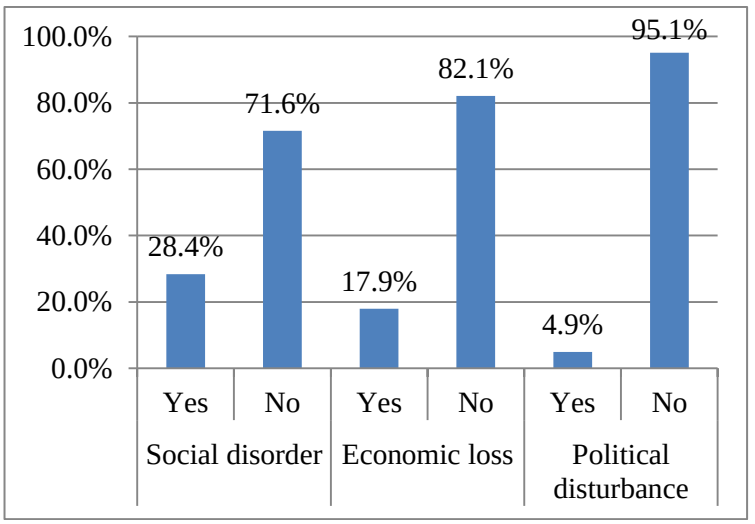

Figure 5. Percentage of swine flu stories presenting consequences beyond health (*N*=638)

Our findings revealed that stories that depicted the effectiveness of the vaccination as being uncertain were significantly more than those portrayed it as effective ($\chi^2(2, N=240) = 17.07$, $p < .001$) as showed in the Table 4.

Table 4. Percentage of stories depicting the effectiveness of H1N1 vaccination (*N*=242)

Not effective	Unclear	Effective
0.8% $_c$	62.8% $_a$	36.4% $_b$

Note: Percentages with no subscript in common differ at $p < .05$ using Holm's Sequential Bonferroni post hocs comparisons.

Summary. The results of this study revealed that the risk of the swine flu was frequently depicted with qualitative risk and thematic frames. About one third of the stories compared swine flu to a previous known health risk. Swine flu was not often portrayed as a deadly disease or a global risk. Social disorder appeared more often as consequences beyond health than economic loss and political disturbance. The depiction of the symptoms of swine flu and general preventive efforts appeared less frequently than the mention of H1N1 vaccination. However, newspapers widely expressed uncertainty about the effectiveness of the vaccination.

DISCUSSION

General patterns of media coverage of the 2009 swine flu

Most of the U.S. media ignored the threat of swine flu when it first hit Mexico in March and started to cover this issue about one month later. The great increase of swine flu coverage in April and May of 2009 was primarily due to the rapid spread of the disease as the health

problem had caused the closure of several schools and stadiums. Coverage declined over the summer for a number of reasons. First, the spread of the flu traditionally slows over the summer months. Second, business resumed normalcy in Mexico during summer. At the same time the CDC quit laboratory confirmation of cases of the swine flu. Third, the flu was deemed to be less serious than initially feared in terms of fatalities over the summer months.

Coverage increased again from September to November due to the introduction of the H1N1 vaccination. Another reason the coverage increased during this time was the resuming of the academic school year as schools were often one of the sites where transmission of the flu occurred. Also, by this point in time much news was circulating about vaccinations taking place for the swine flu.

The coverage in December remained as low as it was in the summer months due mainly to the fact that the severity of the flu was indeed similar to the seasonal flu. Additionally, the vaccine had been largely distributed to populations who wished to be vaccinated, and no issues arose on account of vaccination. Further, individuals who had been infected with and survived the H1N1 virus were at very little risk of getting the disease again.

Since leading sources in news articles are often the ones with the most relevant news and information, studying the first sources provided us an idea of who generated the news on swine flu. The top four sources – government officials, medical experts, the CDC, and the WHO – accounted for 71.8% of the total coverage, which shows that the coverage of the virus was determined by the medical and governmental spheres. This fits with the predominant frame used to cover the virus, the thematic frame (81.7%). Had the coverage used more episodic frames, there would have been greater use of ordinary people, people with swine flu, businesses, and NGOs as sources. The use of official and credible sources is also, perhaps, linked to the low amount of sensationalism exhibited in the swine flu coverage. The three newspapers did portray the opinions, thoughts, and reactions of "ordinary people" to round out the coverage.

The dominance of governmental and medical sources may be linked to other factors in the U.S. during 2009. For instance, swine flu emerged during President Barack Obama's first year in office. Perhaps as a way of bolstering the administration's credibility, the Obama administration's aggressive campaign to educate people about the dangers of swine flu and the value of getting vaccinations was a major factor in determining the media's use of governmental and medical sources in covering the spread of the virus.

Swine flu coverage predominantly centered on events happening in the U.S. (69.7% of coverage). Though the 2009 virus emerged in Mexico, surprisingly little coverage came from the country (8.3%). While it makes sense that U.S. newspapers are largely concerned with U.S. interests, there might be two key reasons why swine flu coverage was not as focused on other parts of the world. First, the U.S. dominated scientific coverage of the virus. The CDC was instrumental in tracking the virus, and the U.S. pharmaceutical companies, being the largest producers of vaccines in the world, had the capital available to produce the large volume of vaccines needed to combat the threat of swine flu. Second, because of the size of the country, the U.S. government provided vaccines to other countries that did not have the means to produce vaccines themselves.

Outside of Western nations, many nations had fewer scientific resources to track the virus, and may not have had the means to properly educate the public on how to slow the spread of the virus. Contrast, for instance, the U.S.'s sustained effort to educate the public early on how to prepare for the flu season and where and when vaccines will be available to

Egypt's erroneous practice of slaughtering the country's pig population. Since major advancements and news were breaking out of the U.S., it seems fitting that most of the coverage focused on the country, whereas coverage on other countries was often concerned with updating the public on new places the virus had reached.

Risk assessment of the 2009 swine flu coverage

Based on previous research, such as Dudo, Dahlstrom and Brossard's (3) coverage of the avian flu virus, we hypothesized that the coverage of swine flu would use more qualitative risk depictions or quantitative risks without a denominator than quantitative risks with a denominator, the latter depiction considered more accurate and useful to the public. Our data supported this hypothesis. Only 0.8% of stories only used quantitative risk with contextual denominators, a precise portray of a health risk. A majority of the stories (66.3%) used less accurate depictions, such as qualitative risk quantitative risk without contextual denominators when covering the flu. And significantly, a third (33.0%) used no indicators of risk. In general, the media failed to provide the public with the proper perspective on the virus. This finding is further intriguing considering that the majority of the sources used were official governmental and medical sources. However, since the CDC stopped keeping tallies on the spread of the virus during summer 2009, perhaps the quantitative risk with contextual denominators disappeared because of that reason. Or, it may be impossible to provide the public with an accurate context about the spread of any such virus, as potentially millions of people could have been infected with a mild form of the virus, never went in for treatment, and subsequently did not alert authorities about the spread of the virus.

Thematic frames were more dominant in the coverage of 2009 swine flu than episodic frames, with over 80% of the stories containing the presence of thematic frames. This pattern was the exact opposite to the previous research where episodic frames privileged the coverage of health risks such as avian flu (3). For infectious diseases like swine flu, the thematic frame might be advantageous for it could create a sense of social responsibility for individuals involved in fighting the disease (28). Overall, the media have well provided the contextual and background information of swine flu. Scholars have criticized the dominance of the episodic frames in risk coverage, claiming that it may hinder readers' ability to assess the scale of the risk (3, 27). With that said, the media benefited the audience with the frequent use of thematic frames.

About one third of the articles compared swine flu to a known flu-related pandemic. Swine flu stories frequently compared H1N1 with the regular seasonal influenza. This depiction may help to ease the public fear toward the disease. In addition, when conducting risk comparisons, the media normally mentioned more than one type of previous flu-like risk, such as 1918 Spanish flu, avian flu, or regular seasonal influenza. This may help readers to evaluate the risk of swine flu based on their understanding of ongoing health risks.

The use of risk sensationalism in the coverage of swine flu was trivial as discovered in this study. Only 5% of the stories used loaded words depicting swine flu as a deadly disease. The presence of loaded words was much lower than in the coverage of avian flu in the U.S. newspapers (3). Infectious diseases such as influenza were also depicted as a global issue (34). The findings in this study revealed an opposite pattern with only 10% of the stories depicted the disease as a global pandemic.

Pandemics have many consequences beyond health. The largest conse-quence noticed in this study was the economy loss. Often references were made to the travel industry and the pork industry. On account of these economic impacts, some articles stressed the importance of no longer calling the pandemic "swine flu" and called for a move to the scientific nomenclature of H1N1 virus. Interestingly, previous pandemics have been named in accordance with their region of origin (16) whereas the swine flu got its name from the type of animal suspected for causing the disease. This could very well be one of the main causes of economic impact for the pork industry.

The travel industry was also hit hard by the swine flu. The travel industry was largely impacted by the restrictions on travel to Mexico. Also, as fear grew about the rapid spread of the disease, travel became a less appealing option for many, regardless of destination. Many articles stated that one of the reasons the flu came about, and spread so rapidly, was largely because of our highly mobile population.

Another largely seen consequence beyond health was in the disruptions to everyday life. The most commonly noted social impact was closure of schools and a wide variety of events. School closures were prevalent from the beginning of the pandemic in April until May 2009, and again during the fall of 2009 and waning as the year ended.

The presence of self-efficacy information was dominated by the discussions of the H1N1 vaccination: over 40% of the stories contained such information. However, when depicting the effectiveness of the vaccination, over 60% of the coverage was uncertain about it, or provided no information on the effectiveness of the vaccine. General preventive methods were mentioned 33% of the time, which was much higher than the presence of such information in avian flu coverage (3). The H1N1 vaccination was recom-mended by health professional as an effective preventive method against swine flu. Pregnant women or people with chronic health conditions were strongly recommended to get the H1N1 vaccination and to stay away from the virus. However, it seemed that the media provided conflicting and uncertain messages regarding the vaccination. This may have created public confusion about the effectiveness of the vaccination.

Limitations and future research

This study was conducted only using newspapers as the source for the content analysis. Other studies may want to focus on television and new media. Similar coding scheme could be used for future research to determine if these same themes emerge from other sources. Sources such as the CDC and WHO websites would be interesting to analyze as these were the sources most often used by the media. These sources were the most prevalent, and could provide insight into how the media utilized these sources.

Additionally, this study only focused on major U.S. newspapers from metropolitan areas. Coverage of the pandemic from a local perspective could provide useful information in terms of analyzing how the media disseminates information. Conversely, comparing and analyzing newspapers from different countries could provide a more global look at information dissemination of the mass media.

We hope that this research can help advance our understanding of the role of media in publicizing health risks and preventive knowledge during a pandemic. By doing so, both the media and their audience can become more critical about the information they respectively

spread or consume during a health crisis. Future studies along this line of research can help strengthen the educational role of media in disseminating health-related messages.

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Chapter 7

THE PORTRAYAL OF HEALTH PROBLEMS IN ENTERTAINMENT TELEVISION: IMPLICATIONS FOR RISK PERCEPTION AND HEALTH PROMOTION

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ABSTARCT

The objective of this content analysis was to assess the depiction of health content in Flemish entertainment television programs. The quantity and context of health content messages was investigated in a sample of 266 program episodes which were recorded during one month. Based on theories and research, a number of context variables were assessed which may increase or inhibit risk perception and positive health behaviour. The results indicated that entertainment shows offered a steady diet of health content. Further, health messages were depicted in such a way that viewers are likely to learn that they are susceptible to the depicted health problems. In contrast, substantially less attention was devoted to depicting treatment and prevention options, which may inhibit viewers from taking positive health actions.

INTRODUCTION

Research indicates that the television is an important source of health information. A large scale survey on behalf of the European Commission found that 20% of Europeans viewed television as their main source of information about health and 38% perceived television as an

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additional source of health information (1). In addition, research on health communication channels suggests that television programs are a primary source of health information for less healthy individuals (2).

Further, a growing number of studies have shown that television entertainment programs may educate the public on a variety of health issues (3, 4) An important step in understanding which lessons may be learned, then, is to examine television's coverage of health portrayals.

Previous content analyses have found that television seems to offer a steady diet of health content. Entertainment programs frequently portray stories about health risks and devote substantial programming time to health-related issues (5-7). In addition, a review of the literature indicates a pattern in the amount of coverage devoted to specific illnesses or health problems. The majority of studies revealed that television most frequently portrays dramatic or unusual illnesses, such as trauma. On the other hand, stories about health problems such as heart disease and cancer were, in general, less frequently depicted (7-9).

In 2008 a large scale study on the coverage and construction of health content in popular prime time television programs was conducted by The Kaiser Family Foundation and The USC Annenberg Norman Lear Center (10). Apart from assessing the frequency of occurrence of health story lines in top 10 scripted entertainment shows, the authors also evaluated the manner in which health issues were presented. Analyses of context factors showed that the majority of portrayals focused on symptoms (59%) and treatment (50%). On the other hand, only one in 10 health stories contained a prevention perspective. In 33% of the health stories the patient's health improved. But results indicated that it was equally likely that the outcome was decline (12%), death (16%), or unchanged health (27%).

The aim of this study was to analyse the prevalence of health content in Flemish television entertainment programs and to examine the context in which these issues were presented. Theories, such as the psychometric model of risk perception (11) social cognitive theory (12) and the extended parallel process model on health behavior (EPPM) (13), were used to identify contextual characteristics which might (at least partially) account for the construction of risk perception and the learning of health behavior. Table 1 presents an overview of the contextual attributes and their hypothesised relationship with the health outcomes.

In the present analysis four characteristics of health content portrayals were taken into account. A first contextual feature was patient demographics. Research has found that perceived similarity to the person who experiences a health threat can increase personal risk perception about that health problem. In particular, similarities in demographics (e.g. age, sex) seemed to have a strong effect on vulnerability beliefs (14). Social cognitive theory predicts that people will be more likely to learn from models they find attractive or that share demographic characteristics (15). Therefore, it can be hypothesised that viewers will be more apt to engage in positive health behaviors if they watch a character on television that displays such actions and has similar background characteristics.

Severity of the portrayal is also likely to influence risk perceptions and to motivate viewers to take positive health actions. The EPPM (13) identifies severity as the magnitude of harm expected from a health problem or the significance and seriousness of the threat. According to the EPPM perceived severity can contribute to the learning of health behavior. The theory suggests that a sufficient level of severity should be perceived before people are likely to evaluate actions to avert a threat and to decide whether a health behavior will be adopted.

Further, information about the consequences of health problems may also increase personal risk judgments. Research testing the psychometric model of risk perception has shown that perceived level of severity or dread explained much of the variance in risk judgments (11).

Efficacy messages or "messages which convey specific information about learning a health skill or modeling of the behavior" (16, p.489) may facilitate learning of the health behavior. Such portrayals, depicting recommended responses or information about the steps that can be taken to prevent or treat a health problem may teach viewers that the health problem can be avoided or controlled (13).

Table 1. The predicted relationship between contextual attributes of television's portrayal of health content, health risk perceptions and positive health behaviour

	Potential outcomes of exposure to health content	
Contextual attributes	Health risk perceptions	Adopting positive health behaviour (if the behaviour is portrayed/discussed)
Patient demographics	⇧	⇧
Graphicness / Negative consequences — Severity	⇧	⇧
Negative consequences — Severity	⇧	⇧
Prevention / Treatment — Efficacy/ control	⇩	⇧
Treatment — Efficacy/ control	⇩	⇧
Risk factors/causes (controllable)	⇩	⇧

Note: ⇧ likely to increase outcome, ⇩likely to decrease outcome. Blank space indicates that no hypothesis could be made based on literature and previous research.

Research has shown that high perceived efficacy leads to the adoption of the depicted behavior (treatment or prevention), whereas low perceived efficacy is likely to result in rejection or denial (17). Information about what can be done to minimize the health threat or to cope with it may also decrease people's perceptions of risk. Sjöberg investigated the relationship between beliefs about the extent to which a threat could be controlled and risk judgments (18). Results indicated that the more a hazard was perceived to be controllable the more people denied the probability of experiencing the threat.

Messages about risk factors or antecedents provide people with information about what causes a health problem. Awareness about the antecedents of a health threat may increase knowledge about what can be done to reduce or avoid the risk. Such efficacy knowledge is likely to decrease risk perception and may also increase behavior aimed at minimizing the threat.

The summary of contextual features shows that in addition to measuring how many instances of health content occur on television, it is important to take into account how these health stories are presented. As discussed above, the context of health portrayals on television may influence how viewers perceive their risk and may motivate them to engage in healthy behaviors (table 1). The purpose of this study, then, was to analyse the quantity and the

contextual features of health content depictions on television. Overall, this study addressed the following questions:

- RQ 1: How often does television entertainment portray health content?
- RQ 2: Which specific health problems receive (how much) coverage?
- RQ 3: How does television entertainment portray health content? Which contextual features of health problem portrayals are present in entertainment television?

OUR STUDY

Based on weekly CIM viewer ratings (19) the three top ranked programs were selected weekly for each of the seven major Flemish public and commercial networks (Eén, VTM, VT4, Ka2/2BE, Canvas, VijfTV, Vitaya) in the genres soap operas, crime/police/ investigation, comedy, drama, medical drama, and reality programs on health. If the program was selected every episode broadcast that week was included in the sample. Genres that did not appear in the CIM viewer rating list were not sampled. We also did not include sports programs (e.g. Uefa Cup Soccer) and game shows (e.g. Beauty and the nerd) because viewer ratings varied from week to week and the content of these programs (e.g. focus on dating, celebrities or survival) tends to differ strongly across seasons. Program episodes were recorded during a period of four weeks from September 24 to October 21 in 2007. The final sample consisted of 266 program episodes, across 46 different programs.

Defining health content

Health content was defined as any visual and/or verbal message related to disease, injury, disability or death caused by any of the foregoing. In the remainder of the text, portrayal or depiction refers to visual as well as verbal instances of health content.

Units of analysis

As discussed above, content was coded as health content (HC) every time there was some visual and/or verbal message related to disease, injury or disability.

If HC contained an ill, injured, disabled or dead character, that character was recorded on a separate 'character' coding sheet. Each individual character was coded only once: if the same character appeared in a subsequent HC (within the same program) no new record was made.

A health scene begins whenever HC is observed. It ends when there is a significant break in the depiction of the HC. This means there has to be a shift in topic, time, place, character or setting in a way that extensively interrupts the narrative flow of the health message. If a health issue was discussed before it was visually portrayed, the conversation or discussion

about the health problem was coded as a separate scene. One scene could contain one or more HC depictions. Two characters might, for instance, have been simultaneously involved in a car accident. One of them has breathing problems and the other has serious injuries. In that case one health scene would contain two HC portrayals.

A story line was defined as a "coherent part of a broadcast, a partitioned narrative within a program that exhibits unity within itself and separation, by topic and/or central focal character, from other segments within a program" (20, p.227).

The last and most macro level unit of analysis was the program. Variables recording the nature of the program were coded after watching the entire show.

Measured variables

For each level of analysis a number of variables were coded which are outlined below.

Health content (HC) variables

Coders had to record the specific health problem that was portrayed. The coder instruction booklet contained a list of 24 categories of health problems. If any of the encountered health problems did not fit into one of the categories listed, a blank space was provided to specify 'other health problems'. Health related issues such as pregnancy, which are generally considered to be no problem for health, were not coded.

A number of other variables dealing with the portrayal of illness, disability or injury were coded at the HC level: the cause of the health problem or risk factors associated with the health problem (accident, crime, genetic and heredity factors, lifestyle, age, environmental causes, contamination, other cause, unknown cause, not portrayed) and the physical impact of the health problem (no/small impact, large impact, death, unable to determine/ not portrayed). If a portrayed cause of a health problems did not fit into one of the categories listed, a blank space was provided to specify 'other cause'. Coders also assessed whether risk information (incidence data) was explicitly included in the message (no, yes). The coding scheme also included questions about treatment provided or talked about (no, yes), the specific type of treatment portrayed (diagnostic, surgery/stitches, plaster/bandage, medication, CPR/radiation, psychological help, change in lifestyle) and the efficacy of treatment (not efficient, slightly efficient, very efficient, unable to determine). Similarly, coders recorded whether there was any mention or depiction of prevention (no, yes), the type of prevention if depicted (preventive screening, healthy diet, physical exercise, safe sex practices, tobacco cessation, reducing alcohol consumption, sun protection habits, maintaining a healthy body weight) and the efficacy of prevention (not efficient, slightly efficient, very efficient, unable to determine). At the end of the coding sheet, the consequences of the health problem were coded (death, ill/no improvement, improvement, cured, unable to determine/ no consequences are depicted).

Health scene variables

On the scene level, coders recorded the duration of each health scene by indicating the starting time (hh:mm:ss) and the ending time (hh:mm:ss). Coders coded verbal and visual graphicness of the health scene (general/vague description/portrayal, concrete and detailed description/portrayal, unable to determine).

Story line variables

The coders recorded the consequences of the health problem for the character on story line level (dead, will die in the future, alive but ill, alive and cured, mixed, unknown, not applicable/no character).

Character variables

On the character coding form the coders recorded the age of the character (child/adolescent aged 0-19, adult aged 20-64, elderly aged 65+, mixed group, unable to determine), gender (male, female, mixed group, unable to determine) and socio-economic class (upper/upper middle class, middle class, blue collar or working class/lower class, unable to determine).

Program variables

On the program level the following variables were coded: the channel (Eén, VTM, VT4, Ka2/2Be, Vijftv, Vitaya, Canvas), the program genre (soap operas, crime/police/investigation, comedy, drama, medical drama, reality programs about health) and starting time (hh:mm) and ending time (hh:mm)of the program.

Coders, training and intercoder reliability

The television programs were coded by two coders: the author of this study and a master student. After three joined training sessions training sessions, the master student coded two weeks of programming or 38% of the sample (N=101), and the author of this study coded 62% of the total sample (N=165). In addition, the author also coded a subsample of the programs of the student coder to compute intercoder reliability. The intercoder sample consisted of 13 episodes or 10% (N=120) of the total number of HC units coded, 10% (N=110) of the number of scene units, 10% (N=37) of the number of story line units and 12% (N=40) of the number of character units. Reliability was computed using Krippendorff's alpha. Because of low reliabilities, the variables verbal graphicness (a =0.31), consequences of the health problem on storyline level (a =0.35), efficacy of prevention (a =0.01) and efficacy of treatment (a =0.37) were removed from the sample. The remaining variables all had a reliability of a=0.70 or higher. The mean reliability was 0.87.

OUR FINDINGS

This study analysed 266 television episodes or approximately 170 hours of broadcasts. More than six out of 10 entertainment shows depicted health content (65%, N=172). Every episode in the genres medical drama en health reality shows featured health content. In addition, health content was most prevalent in crime shows (83%, N=41) and drama series (78%, N=11). About half of the soap opera episodes (53%, N=72) and comedy shows (47%, N=16) contained health depictions. Table 2 gives an overview of the amount and density of health units per genre.

Table 2. Amount and concentration of health content in different genres of entertainment television

	Episodes containing health content	Density of health scenes per episode containing HC	Density of HC per episode containing HC	Density of story lines per episode containing HC
Medical drama	100% (N=21)	19 (N=399)	20.43 (N=429)	4.48 (N=94)
Reality health	100% (N=11)	10.09 (N=111)	11.45 (N=126)	4.36 (N=48)
Crime/ Police/ Investigation	83% (N=41)	5.66 (N=232)	6.17 (N=253)	1.88 (N=77)
Drama	78% (N=11)	5.73 (N=63)	6.73 (N=74)	2.73 (N=30)
Soap opera	53% (N=72)	3.74 (N=269)	3.93 (N=283)	1.65 (N=119)
Comedy	47% (N=16)	1.69 (N=27)	1.81 (N=29)	0.31 (N=5)
Total Entertainment	65% (N=172)	6.42 (N=1104)	6.94 (N=1194)	2.17 (N=373)

In total, 1,104 health scenes were coded. The mean duration of a health scene was 1 minute and the total duration of health scenes was 20 hours and 33 minutes. This means that health scenes accounted for approximately 9% of the total programming time.

The coders identified 1,194 health content (HC) units. On average, each scene contained 1.08 HC units and every episode depicted 6.42 instances of HC.

Further, 373 health story lines were coded. Each episode featuring health content contained, on average, 2.17 health story lines.

In total, 1,175 ill, disabled, injured or death characters were depicted in the coded sample. Because it was possible that a character appeared more than once during one episode, coders had to give each character a unique character ID. On average, one character appeared 6.83 times within a same episode. In total, 399 separate characters were coded.

Amount of coverage devoted to specific health problems

Table 3 shows the frequencies for health problem depictions at the HC level. The most frequently portrayed health problems were injuries (severe trauma: 23.62%, minor: 18.20%), followed by mental and behavioral disorders (8%), cancer (5.72%), handicap/paralysis (5.36%), heart problems (4.99%) and pulmonary or respiratory problems (4.77%). In 12.18% of the HC depictions coders identified a health problem that was not listed. Of the other

health problems 62.2% was identified by the coders: 27.9% were coded as skeletal/muscular problems, 18.9% as eye or hearing problems, 12.6% as nausea, 8.1% as skin problems, 2.7% as blood problems and 29.7% were coded as rare diseases (e.g. myomyo syndrome).

Table 3. Frequency of portrayal of health problems on health content level

Health problem	Total sample (N=1194)
Severe injury	23.62
Minor injury	18.20
Other health problem	12.18
Mental and behavioural disorder	8.00
Cancer	5.72
Handicap/paralysis	5.36
Heart problems	4.99
Pulmonary or respiratory problem	4.77
Infectious disease other than HIV/AIDS	3.08
Neurological disorder	2.86
Sexual health problem	2.27
Immunologic disorder/allergy	1.91
Cosmetic problem	1.47
Disease of the digestive system	0.88
Fainting	0.88
Dental problem	0.66
Complication during pregnancy	0.66
Liver problem	0.59
Coma	0.59
Headache	0.59
Diabetes	0.37
Kidney disorder	0.15
Fever	0.15
Obesity	0.07
AIDS/HIV	0.00

Context of health portrayals in television entertainment on health content (HC) level

Cause/risk factors health problem. In more than half of the HC portrayals (66.2%), no cause of the health problem was portrayed or discussed. If the cause of the health problem was mentioned, crime was the most frequently coded cause (42%), followed by accidents (38.3%) and lifestyle (8.1%). Further, environmental causes (1.8%), genetic and heredity factors (1.3%), contamination (0.9%) and age (0.7%) were less frequently recorded. In 7% of the cases the coders indicated an 'other cause'. An analysis of other causes that were specified in

a blank space revealed that almost half of these causes (45.5%) were related to medical treatment (e.g. medical mistake, side effects of medicines). In addition, 36.4% of the other causes were psychological (e.g. stress) and 18.2% was related to problems during pregnancy.

Risk information. Risk information was only mentioned in 1.4% of the HC portrayals. Physical impact of health problem. In 33.3% of the HC the physical impact was not depicted or coders were unable to determine the impact of the health problem. If there was a portrayal of the physical impact (66.7%) the majority of the HC was depicted as having a large physical impact (67.5%). A small physical impact was recorded in 19.1% of the health content depictions. In addition, 13.4% of the health problems led to death.

Short term consequences of the health problem. In 73.7% of HC the short term consequences were not depicted or coders were unable to determine the consequences of the health problem. If a consequence was depicted, it was death in 31% of the HC portrayals, improvement in 28.6 % of HC, illness or no improvement in 38.1% of HC and cure in only 2.4% of the HC depictions. This means that 69% of the health problems consequences were negative and 31% of the consequences were positive.

Mention of treatment. Less than half of the HC showed or mentioned treatment (46.3%). Surgery or stitches were portrayed in 37.9% of HC, followed by medication (23.6%) and plaster/bandage (23.6%). Psychological help was coded in 3.7% of HC portrayals and CPR or radiation occurred in 2.4% of HC. A change in lifestyle was only depicted in 0.7% of HC.

Mention of prevention. Prevention was only coded in 0.1% of the health content portrayals. Types of prevention that were depicted were a healthy diet (N=1), physical exercise (N=3), tobacco cessation (N=1) and sun protection habits (N=1). Preventive screening, maintaining a healthy body weight, safe sex practices and reducing alcohol consumption were never coded in the sample.

On scene level

Visual graphicness scene. The majority of health scenes contained a general/vague portrayal of health content (67.5%).

On character level

Character gender. The analysis revealed that more than half of the characters were male (55.1%) and 39.4% were female. In addition, 4.2% was coded as being a mixed group. Coders were unable to determine the gender for 1.2% of the characters.

Character age. The majority of characters were adults (age 20-64) (76.2%). Further, 15% were children/adolescents (age 0-19) and 5.8% were elderly (age 65+). Coders identified 0.2% as groups of mixed ages. For 2.8% of the characters coders were unable to determine the age group.

DISCUSSION

The goal of this study was to examine the prevalence and context of health problem portrayals in a large sample of Flemish entertainment television programs. The first research question asked how often television portrayed health content. Results showed that six out of 10 entertainment episodes contained a message related to disease, injury and disability. Overall, scenes containing health messages filled 9% of the total broadcasting time. The findings thus indicate that entertainment programs offer an extensive amount of health content depictions. This conclusion is in line with reports from recent studies examining the quantity of health content portrayals: Murphy et al. also found that six out of 10 episodes from entertainment shows contained health related issues (10).

The most frequently portrayed health problems in entertainment shows were injuries, followed by mental and behavioral disorders, cancer, handicap/paralysis, heart problems and pulmonary or respiratory problems. Some previous studies have concluded that media less frequently reported on prevalent health problems compared to unusual illnesses [9,10]. Although our results indicate that chronic health conditions such as heart disease and cancer did receive a substantial amount of television coverage, acute injuries dominated the list: four out of 10 depicted health problems were minor or severe injuries. Further, some chronic diseases such as diabetes and obesity received relatively little coverage (respectively 0.37% and 0.07%). The relatively low amount of television coverage is alarming because although there is a considerable chance to be diagnosed with these health problems viewers are hardly shown any risk.

Measuring the quantity of health content on TV, however, may not be sufficient to draw potential implications for audience effects. The way in which television presents health stories is probably more important (20). Based on social cognitive theories of health behavior and models on the construction of risk perception, we defined a number of contextual characteristics that could increase or decrease susceptibility perceptions and positive health actions.

The evidence showed that the portrayal of prevention or treatment options was problematic. In less than half of the health content portrayals treatment was depicted and in only 0.1% of the HC prevention was mentioned. Further, if treatment was portrayed, a change in lifestyle was rarely covered. Similarly, the data revealed that less than one out of 10 health scenes were portrayed from a lifestyle frame. If people do perceive a threat from a health problem, a lack of information about prevention or treatment may prevent them from taking proper action. Additionally, if a viewer feels at risk, but does not feel able to treat or avert the health problem, he or she may perceive increased risk and fear (13).

Likewise, risk factors related to the health problem (causes) were only portrayed in 33.8% of the HC messages. If little or no information is portrayed about what causes an illness, injury or disability, few conclusions can be drawn about what can be done to prevent the threat. Consequently, viewers may be prevented from taking action. The results also indicated that if the HC did feature information about a cause, lifestyle problems were less frequently depicted compared to less controllable causes such as accidents and crime. According to Sjöberg, individuals who feel that they are not capable of controlling a threat may perceive more risk (18).

This study also found that the physical impact of a health problem was depicted in the majority of health content portrayals. Moreover, most of the illnesses, injuries or disabilities were depicted as having a large physical impact. Whereas the short term consequences of health problems were less frequently mentioned in HC messages the data showed that almost seven out of 10 health problems resulted in a negative outcome (death, no improvement). These contextual attributes may teach viewers that the depicted health threats are severe. Following the EPPM (13) and the psychometric model (11), perceived severity is likely to contribute to heightened risk perceptions and ultimately to actions to avert the threat.

Television's demographic representation of the ill and healthy may result in a bias of susceptibility perceptions. The majority of television characters experiencing a health problem were adults (age 20-64 years) and no more than 6% were elderly (age 65+). Nonetheless, on average, seniors have been found to experience more health problems. In a survey on the subjective health of the Flemish population 44.2% of elderly indicated that their health was moderate to very bad (compared to good to very good), whereas only 17.33% of adults rated their health as being moderate to very bad (21). The overrepresentation of young and middle-aged adults in television illness depictions may give people in this age group the impression that they are more at risk. But more alarming, it may create a false sense of invulnerability for elderly.

Summarizing, it appears that television portrays health content in such a way that viewers are likely to learn that they are susceptible to the depicted health problems. Substantially less attention is devoted to depicting treatment and prevention options. This finding is disconcerting because a high perceived threat combined with no information about recommended behavior greatly limits the potential for engaging in positive health behavior. It is likely to result in even higher susceptibility beliefs (13). These results are largely consistent with earlier studies showing that television health messages rarely contain prevention information but are chiefly discussed in terms of risk (10).

Limitations

This content analysis has several limitations that should be taken into account. First, non-scripted shows other than reality shows about health, such as game shows and sports, were not included in the sample. Although we chose not to select these programs because of strong variations in content and viewer ratings it could be argued that this limits the generalizability of the results. Further, the time frame of the sampled content was restricted to one month. Because television content may vary by month or season, future research should analyse health content at different periods in time.

Second, efficacy messages were operationalised by measuring whether the health content portrayal contained information about treatment or prevention options. Previous studies have shown that seeing someone performing a health behavior, such as breast self-examination, can increase viewer's beliefs that they can complete this action (22). However, to motivate positive health actions the efficacy message should also include information about the effectiveness of the depicted behavior (labelled response-efficacy) and information about whether the individual is able successfully to perform the behavior (labelled self-efficacy) (13). In addition, facts about perceived benefits and information about (overcoming) potential barriers, such as costs, time and difficulty, are also important in motivating behavior (12).

Two variables measuring response-efficacy of prevention and treatment were included in the coding form of this study, but intercoder reliability tests showed that these measures were not sufficiently reliable. Future content analyses should include other measures to evaluate response-efficacy, barriers, benefits and self-efficacy of the health message.

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Chapter 8

NEWS COVERAGE OF PUBLIC HEALTH ISSUES: THE ROLE OF NEWS SOURCES AND THE PROCESSES OF NEWS CONSTRUCTION

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ABSTRACT

This chapter examined the use of news sources in New York Times' coverage of West Nile virus and avian flu through a quantitative content analysis. Our findings indicate that government and scientists were the most prominent sources in the coverage of West Nile virus, with the World Health Organization taking over as the second most prominent source in avian flu coverage. These results suggest that source selection reflected not only intrinsic differences between diseases but also the influence of journalistic values and norms. This study went a step further to link source use with the amount of attention media paid to these diseases. Our findings show that stories at the phase of increased attention utilize more varied sources and that most stories use more than one source of information in the coverage of epidemic hazards. In addition, source prevalence, including both presence and dominance, did not vary a lot at different stages of media attention. Implications are discussed.

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INTRODUCTION

Concerns over public health issues have risen considerably as epidemics (such as SARS, West Nile virus, avian flu and H1N1) and personal health problems (such as cancer and diabetes) have attracted increasing attention both from the mass media and from the general public in the last century (1). To the extent that media coverage of complex subject matters often constitutes the most important source of information for lay audiences (2), understanding how news stories about these subjects are constructed is, therefore, a critical step in the assessment of possible public reactions toward issues such as emerging epidemics or new technologies.

An important approach to investigating the news construction process is through the examination of news sources. Previous studies have recognized the critical role of news sources in providing context, explanation, and comments for journalists (4-5). The reliance of journalists on sources is particularly exacerbated in complex areas, such as health-related issues, in which a significant amount of specific technical expertise is required (4), and media coverage tends to reflect the perspectives of vocal spokespersons (6).

Research on the use of sources in relation to public health issues has mainly focused on the analysis of the distribution of different source categories or on how journalists decide which source to use (7-9). Rarely does research compare the sourcing patterns across different public health issues, although it has been demonstrated that the pattern of source use varied by issues (4). Comparison of media coverage across diseases could help determine whether journalists account for the specifics of each disease or cover the diseases similarly based on professional values and organizational constraints (2,8-9). By using West Nile virus and avian flu as case studies, this study addresses this gap.

West Nile virus and Avian flu

Since it was first isolated in the West Nile province of Uganda in 1937, West Nile virus outbreaks have occurred in portions of Africa, Southern Europe, North America, and Asia. In the U.S., the first human cases of West Nile encephalitis were recorded in 1999. The Centers for Disease Control and Prevention's (CDC) surveillance of West Nile virus had reported more than 4,000 cases of human infections by the end of 2002. Surveillance programs and precautionary measures such as chemical spraying have been effective in curbing major outbreaks of West Nile virus. However, because increased infections are normally detected in the summer or early fall, West Nile virus has been permanently established as a seasonal epidemic in North America (15).

Avian flu, on the other hand, is a more recent epidemic threat. Since the beginning of the outbreak in 2003, 387 human cases, with 245 fatalities, have been confirmed (16). Although the World Health Organization (WHO) considers the highly pathogenic H5N1 avian influenza virus to be mainly dangerous to birds, a pandemic among humans is feared to begin should human-to-human infections ever occur. In the United States, this threat has been viewed to be very serious as evident by President Bush's $7.1 billion plan to prepare for the possibility of a flu pandemic.

Both epidemic hazards have originated outside the United States and both have potential for a major pandemic. Although avian flu is currently considered the bigger threat, a West Nile virus outbreak has actually occurred in the United States, making it more of a local issue. In 2007, 3,630 human cases, with 124 fatalities were recorded (17). As evident from the number of reported human cases, West Nile virus has affected a large number of U.S. citizens. In contrast, avian flu can be viewed as mainly an international health risk issue. In addition, these two diseases have generated different types of media attention, with West Nile virus having been confirmed as a seasonal disease and being periodically reported in the news, whereas avian flu is still considered a current issue in the media.

Research has concluded that the intrinsic differences between West Nile virus and avian flu had resulted in observable differences in media frames used in media coverage (18). The extent to which these differences would also translate into different sourcing patterns in the coverage is, however, unclear. More particularly, concurrent examination of West Nile virus and avian flu provides a unique opportunity to compare the use of news sources in media coverage of a seasonal disease (West Nile virus) and that of a non-seasonal disease (avian flu) because it remains unclear whether disease seasonality is reflected in the selection of news sources through the years. In a nutshell, comparing avian flu and West Nile virus coverage could help answer the question of whether journalists are mainly influenced by issue specificity or by their professional/organizational values and constraints when selecting news sources.

News sources and the construction of news stories

In line with Gans (5), we define news sources as "actors whom journalists observe or interview," including those who are quoted or those who provide only background information.

The dependence of journalists on news sources was documented in Nelkin's (19) study about news coverage of scientific issues. Such dependence on the use of news sources gives an unusual degree of power to those sources that are best organized to provide technical information in a manageable and efficiently packaged form. However, not every proactive social actor can successfully become a news source. Past research has indicated that the media consistently reflects visible events and the perspectives of vocal spokespersons (6). Past research has also noted the complex relationships between journalists and news sources in the construction of health/medical-related news coverage [20-21]. In the context of public health risks, understanding such complexities is important, as the media play a significant role in providing information in relation to public health issues (3). Although people might not believe every medical-related story they read (21), their perceptions of specific issues are very likely influenced by media coverage of the issues (20). The news sources used in media coverage of epidemics, as a result, represent the point of views available to the general public in making judgments about particular health risks.

News sources in Avian flu and West Nile virus coverage

News sources are an integral part of a news story because of professional constraints (e.g., the limit of time, the tenet of being objective) and personal constraints (e.g., lack of knowledge about certain scientific and technological issues). Such constraints usually predetermine the type of sources from which journalists seek information. Specifically, journalists tend to quote experts as sources, especially those they have previously interviewed or those famous in areas relevant to the news under development (22-23). In the field of science and public health, these experts usually include bureaucratic officials, scientists affiliated with relevant institutions, and medical professionals (2, 4, 7).

A decent illustration of the prominence of government officials as news sources is a study by Shepherd (8), finding that 70 percent of the sources used in stories about marijuana were administrative officials, such as agents in the National Institute of Mental Health and Food and Drug Agency. In the case of West Nile virus and avian flu, likely bureaucratic sources include government officials in relevant agencies, political party spokesperson, congress-person, WHO, and the European Union.

Mainstream scientists enjoy a similarly privileged status as potential sources in that they possess the expertise to deal with the complexity inherent in sciences (24). In his analysis on news coverage of genetics research, Conrad (4) found that scientists and researchers constituted the majority of the "expert" sources, which also include administrators, activists, physicians, family of the affected, and the affected. A similar result was obtained through the examination of media coverage of stem cell research, where journalists depended greatly on governmental officials and scientists (25). Therefore, we formulated the following hypothesis:

- H1: Government officials and scientists will be the most used sources in news coverage of West Nile virus and avian flu.

Other sources, such as social organizations, consumer groups, laypeople, or business/ industrial representatives (which in the case of West Nile virus and avian flu might include pharmaceutical companies, consumer industries, and farmers with poultry at risk), may have more difficulty in getting access to journalists (26-27). They are not on top of the journalists' interviewing list in part because they are not considered as credible or "legitimate" sources of information and in part because journalists tend to go to familiar and predictable sources repeatedly. These less powerful sources can only gain media attention when they take extreme actions, when their perspectives contradict with those of other sources, or when journalists have the needs to highlight experience or human interest in a news story (4, 28).

Although extant literature suggests similarity regarding the structural distribution of sources (i.e., bureaucratic sources and scientific/health experts are expected to appear most often), the frequency distribution of sources may vary between diseases (i.e., the importance or weight given to each source may vary across diseases). Therefore, the following research question is formulated:

- RQ1: Except for government officials and scientists, does the sourcing pattern (frequency distribution) differ between West Nile virus coverage and avian flu coverage?

Sourcing patterns in relation to issue development

Research has shown that scientific and health related issues receive different levels of media attention as they develop into different stages. For example, Nisbet and Huge (12) found that the issue of plant biotechnology did not generate significant media attention before events with social significance, such as the announcement of the Monarch study in 1999 and the StarLink affair in 2000, catapulted it into the media agenda. Similar cyclical patterns were also identified in news coverage of climate change (13, 14) and epidemic diseases, such as mad cow disease and West Nile virus (18,31).

Scholars have identified different forces that are capable of driving continuous media attention to an issue, including the issues' intrinsic level of excitement (32), the need for different narratives of journalists at different time points (14), and the different "carrying capacity" of various public arenas, which provide venues for debates (33). Journalists may also seek novel frames or news angles of an issue over time in order to keep people attentive (13, 14).

Most of the past studies on "issue attention cycle" in the media shared two characteristics. First, they operationalized the attention cycle as increase and decrease in the number of stories across time. In other words, the cyclical pattern of an issue was defined by the numerical ups and downs of story count. Second, they focused mainly on the linkage between news frames and attention cycles and ignored the role of news sources, as well as other potential factors that are able to drive media attention, such as public relations efforts, actual human infected cases, issues happening concurrently, and the features of the arena where public debates about an issue take place (for an exception, see Nisbet and Huge (12). News coverage of these public health issues is mostly event-based (18). We therefore focused on relevant (pseudo-) events that were staged to attract media attention to these two diseases; that is, the number of casualty and press releases:

- RQ2: What is the extent to which the amount of coverage of West Nile virus and avian flu is related to different types of sources, the number of press releases, and the magnitude of the disease?

OUR STUDY

This study is intended to generate comparison of news coverage across diseases and not across media outlets. We focused on one media outlet so that any differences in our results can be attributed to the differences between diseases rather than to the differences in journalistic practices between different media outlets. We performed a content analysis of The New York Times' coverage of West Nile virus and avian flu (34).

The news story was the unit of analysis. News stories were obtained through searches in the online academic database Lexis-Nexis, using the keywords "West Nile", "avian", "bird", and "flu" in the headlines and lead paragraphs. We analyzed stories related to each disease from its first occurrence to its last appearance in 2005 in The New York Times, yielding a census of 251 West Nile virus stories and 126 avian flu stories published between January 1999 and December 2005.

As outlined earlier, we are interested not only in how these two issues were covered by the media overtime, but also in how this trend may be related to the longitudinal use of different sources and other "contextual factors." We operationalized contextual factors as the number of press releases from various government agencies and social organizations, as well as the number of infected human cases.

Variables

We operationalize a news source as people or groups whose words or information were adopted by journalists either in the form of direct quotes or paraphrased sentences. The source categories were developed based on previous literature on news coverage of health-related issues (see table 1).

We then recorded whether these predetermined source categories were "not present" (0), "present" (1), or "dominant (2)" in news coverage of the two diseases. A news source was coded as present whenever a piece of information could be attributed to that specific entity (i.e., individual, company, organization, etc.).

If the type of source appeared more often than the others in the same news story, it was coded as dominant. If two types of sources appeared the same number of times, the source appearing first was considered the dominant source.

With the ordinal nature of our coding system, intercoder reliability was assessed using Krippendorff's alpha coefficients for all source categories. The coefficients range from 0.62 to 1, with an average of 0.90 for West Nile virus and from 0.63 to 1, with an average of 0.89 for avian flu (35).

FINDINGS

Based on a content analysis of 377 news articles from The New York Times, this study examined the use of news sources in stories about West Nile virus and avian flu, two public health issues that exhibit differences in terms of seasonality, proximity, and magnitude.

The first hypothesis predicted that government officials and scientists would be the two most prevalent sources across issues. As expected, the results indicated that journalists relied greatly on institutional and administrative sources when covering these public health issues.

The findings indicate that government officials were the "dominant" sources in that they outnumbered other types of sources in a particular story in about 45 percent of the stories about West Nile virus, followed by scientists (14.3%).

Government officials and scientists were also the most prevalent sources in the sense that they were "present" in almost 40 percent and 20 percent, respectively, of West Nile virus stories. In the case of avian flu, government officials (32.5% "dominant" and 42.9% "present"), WHO officials (19.8% "dominant" and 27.8% "present"), and scientists (9.5% "dominant" and 23.8% "present") were the three most prevalent sources, both in terms of dominance and presence.

Table 1. Typology of news sources in New York Times' coverage of West Nile virus and Avian flu

Government	Sources with a position in government agencies, including federal, state, and city officials (e.g., governor, mayor, city/district council, city attorney, town sheriff, city judge, state/provincial representatives); and employees of government agencies (FDA, CDC, Department of Agriculture, etc.)
WHO	Including spokespersons, representatives, and officials
European Union	Including ministers, spokespersons, officials, and representatives
Political parties	Including US political parties and their international counterparts, who do not have a position in government agencies
Congress	Members of the House/ Senate
Social organization	Including humanitarian organization, community groups, non-profit organization, interest groups, and their affiliated representatives, officials, spokespersons, and scientists
Scientists[1]	Including academic researchers or scientists from science academy or institutions (including scientists working in the academic world, professors, academic experts)
Health professionals	Including doctors, nurses, veterinarians, hospital/clinic workers
Pharmaceutical industries	Including owner, management team, workers, representatives, board members, researchers, and spokespersons affiliated with companies in pharmaceutical industry
Farm and ranch workers	Including farmers, farm owners, ranch owners, ranch workers
Industry	Including stores, supermarkets, restaurants, and other industry affiliates not related to the pharmaceutical industries
Secondary data	Including survey, report, poll, and coverage from other media
Individuals / citizens	Individuals that are not affiliated with source 1-13
Other	Sources that cannot be recorded under source 1-14 and sources that are not clearly described/specified (e.g., some experts, workers, inspectors, etc.

[1] Scientists working in government branches, WHO, social organizations, or the industries were coded according to their affiliations. For example, a scientist working with CDC will be coded as "government agencies" in this study.

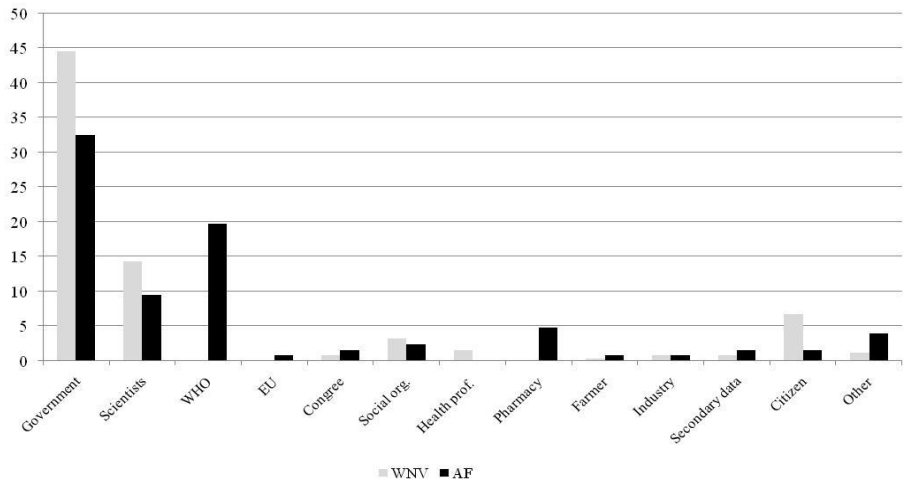


Figure 1. Dominant sources in stories about West Nile virus and stories about avian flu.

Due to the potentially global impact of avian flu and its swift rate of spreading, the WHO has taken a major role in coordinating the efforts to contain this disease. Therefore, if we consider WHO as an organization assuming a role similar to that of the government at the global level, our hypothesis is confirmed.

The sourcing pattern is related not only to the nature of the subject matter (i.e. public health), but also to the function of professional requirements and constraints from the journalist part. In other words, journalists seek information from bureaucratic and institutional sources in part because they are credible and authoritative. It is also because they are able to provide quickly, and in a usable format, the information journalists need when covering public health issues; that is, the magnitude of impact and what actions will be taken (18).

Our first research question explored the frequency distribution of news sources, other than government officials and scientists, across issues. In the case of West Nile virus, citizens (6.8%), social organizations (3.2%), and health professionals (1.6%) ranked below government officials and scientists in terms of their frequency of being "dominant" sources in a news story. In regard to "presence," social organizations (14.3%), citizens (12%), "other" sources (10.8%), and health professionals (6.8%) were the four most visible sources in addition to government officials and scientists. In the case of avian flu, pharmaceutical companies (4.8%), "other" sources (4%), and social organizations (2.4%) also sometimes appeared as "dominant" sources. As far as "presence" is concerned, "other" source (19%), information from secondary data, including other media, scientific reports, and journals (15.1%), and health professionals (7.9%) also appeared in stories about avian flu.

Our findings therefore indicate obvious differences between sources used in the coverage of the two diseases in terms of frequency distribution. Except for government officials, which appeared to be the most prevalent sources in stories about both diseases, other sources received different levels of attention from journalists. For example, pharmaceutical companies did not appear at all in stories about West Nile virus, but they played an important role in stories about avian flu as "dominant" sources. On the other hand, journalists granted more weight to scientists, health professionals, and citizens in stories about West Nile virus than in stories about avian flu.

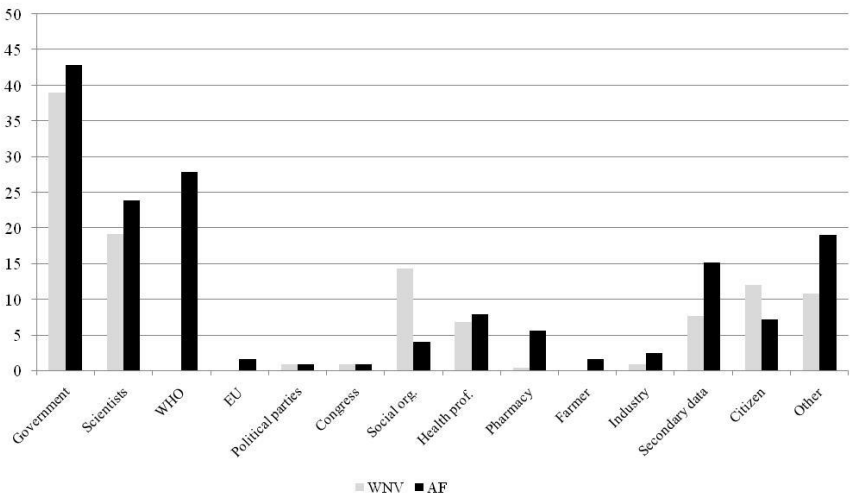


Figure 2. Sources present in stories about West Nile virus and stories about avian flu.

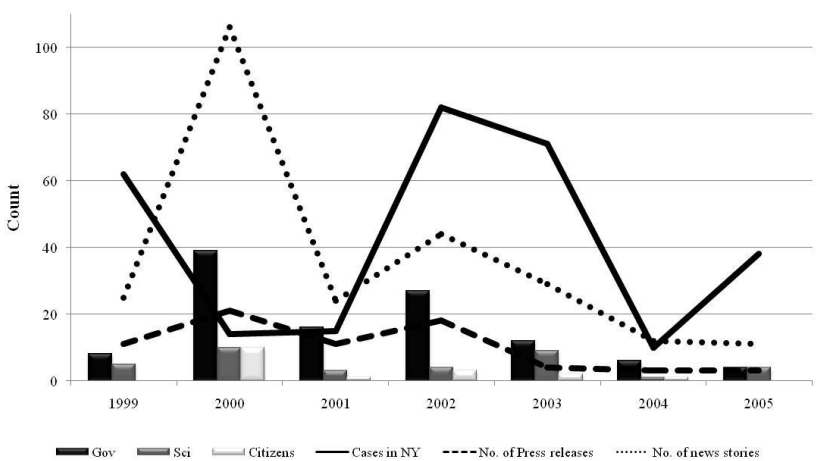
However, the sourcing patterns were similar in terms of structural distribution. Journalists rely more on routine sources, such as government agents, WHO officials, and university scientists, regardless of the disease they were covering. In sum, although the "ranking" of source importance is similar across disease, with bureaucratic sources receiving greater attention, the frequency at which they appeared in news stories is not the same. Journalists quoted scientists, media/journals, and pharmaceutical companies in stories about avian flu, whereas they privileged scientists, social organizations, and citizens as news sources in stories about West Nile virus. Again, the sourcing patterns of West Nile virus and avian flu showed similarity in the structural distribution, but differ in the frequency distribution. In contrast, people who were affected the most, such as poultry farmers, citizens, medical professionals, and consumer-related industries, did not obtain as much chance to voice their perspectives.

Two observations can be derived from the results. First, the relatively obscure role of "the affected" in news stories suggests that although journalists cared about casualties and the infected people, they approached public health issues more often with the aggregate point of view (i.e., the count of total or new infected cases) than with the angle of "human interest" (i.e., focusing on a specific citizen's story). Second, the results also conformed to the notion that the powerless can get access to the media only when they take dramatic or extreme actions (5). In the case of West Nile virus, most stories in which citizens or social organizations appeared as news sources were related to the sentiments and mobilized actions against government-mandated spray of chemicals to obliterate mosquitoes and larva. The fact that we found more citizen sources in stories about West Nile virus than in stories about avian flu confirms that the powerless sources need to get organized and mobilized in order to shape media agenda (36). Alternately, this result also indicates that the proximity of these sources, in contrast to their avian flu counterparts, might have led the journalists to use them more often.

Our second research question examined whether the amount of news coverage in relation to each disease over time can be explained by the use of some key sources or other contextual factors, such as infected human cases and the number of press releases. We focused only on the sources that appeared most frequently as the dominant source in a news story because

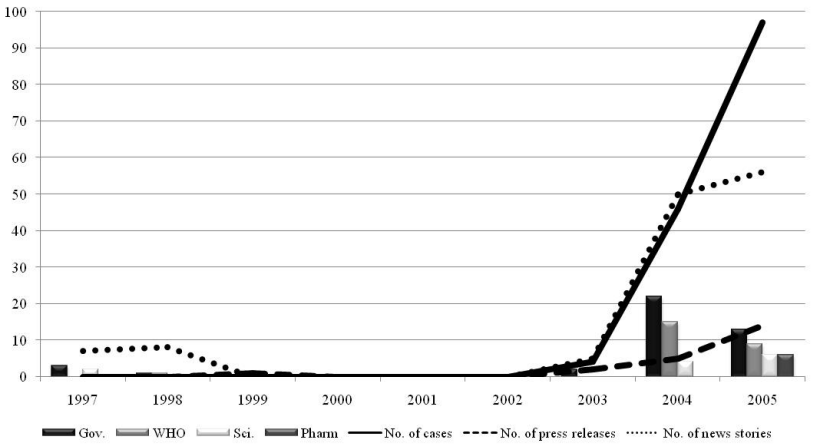
they played the most important roles in shaping news content. In West Nile virus stories, we found that the number of news stories about West Nile virus showed a close relationship with the number of press releases and dominant government sources across years (see Figure 3). For example, when news stories about West Nile virus spiked in 2000 and 2002, we also recorded an increased use of government officials as the dominant source and an increased number of press releases. In contrast, in 1999, 2001, and the years after 2003, when we documented fewer news stories about West Nile virus, the frequency with which government officials appeared as the dominant source and the number of press releases also went down. However, the number of news stories across time did not seem to correlate well with the use of other sources (i.e., scientists and citizens) and the number of infected human cases. As far as avian flu sourcing patterns are concerned, we found that news story distribution and the distribution of pharmaceutical companies as sources were similar to that of press releases, which is different from the distribution of the other sources examined, especially after 2003. The top three sources that dominated stories about avian flu exhibited a very similar distribution with each other across years—the use of government officials, WHO officials, and scientists increased drastically in 2004, along with the increased media attention to the issue, and decreased in 2005. However, the frequency with which pharmaceutical companies appeared as the dominant source increased abruptly in 2005. It is also noteworthy that WHO became the dominant source in a news story more often after 2004 than during the early years of the issue development.

In sum, the disease specificity is reflected to certain degree in the use of news sources in public health risks coverage. Although journalists relied heavily on government officials in general, they used other sources based on the nature and characteristics of diseases. For example, journalists quoted WHO and EU officials in stories about avian flu, but not in stories about West Nile virus, because avian flu had appeared worldwide and is considered a global issue.



The sources refer to dominant sources only.
Note: Gov= governmental officials; Sci= scientists.

Figure 3. Longitudinal distribution of key West Nile virus news sources, number of human cases, number of press releases, and number of news stories.



The sources refer to dominant sources only.

Note: Gov= governmental officials; WHO= World Health Organization; Sci= scientists; Pharm= pharmaceutical companies.

Figure 4. Longitudinal distribution of key avian flu news sources, number of human cases, number of press releases, and number of news stories.

On the other hand, journalists interviewed citizens more often in stories about West Nile virus because a major West Nile virus outbreak has occurred in the U.S., in the state of New York specifically. It is interesting to note that although West Nile virus has also originated outside the U.S., it has been presented only as a local issue from its first appearance in the media.

This study also shows how the trajectory of media attention to public health issues is related to news sources and several contextual factors, such as the infected human cases, the number of press releases, and the evolvement of these diseases, an area rarely explored by previous research. Our study indicated that the amount of news coverage related to public health issues paralleled nicely with the public relations efforts of a few powerful government agencies, but had less to do with the actual infected human cases and the types of sources used. In other words, for active operatives, the most efficient way to affect news coverage of public health issues is to provide journalists with handy information in the form of press releases. However, such public relations efforts did not guarantee them the status of news sources.

Another key finding of this study rests with the importance in distinguishing the structural distribution from the frequency distribution of news sources. For example, although the relative ranking of sources was similar across diseases (i.e., government officials and experts were prevalent in both West Nile virus stories and avian flu stories), the specific frequency of each source varied. In other words, journalists, in general, would consult government officials or experts for basic information, regardless of the nature of an issue. However, in response to the requirement of presenting different perspectives, they approached other sources, such as citizens and social organizations, based on the specificity of the issue. Although these less prominent sources would not replace the leading role of government officials, scientists, and other experts (i.e., we will see the same structural distribution of sources), the frequencies of appearance of each type of news sources can vary.

This differentiation between structural and frequency distribution suggests the necessity of a more thorough investigation into the sourcing patterns in media coverage of complex issues.

The value of examining the longitudinal trajectory of news sources was also attested to by the prominent status of pharmaceutical companies in avian flu stories in 2005. This illustrates the fact that different types of sources may become prominent in different stages of issue development. In general, pharmaceutical companies did not show up as an important source in the news construction process. However, they appeared more frequently in 2004 and 2005 as the number of avian flu related stories increased. As avian flu continues to spread, it is reasonable to assume that pharmaceutical companies would be considered a more important player because they are directly involved with efforts to limit the damaging impact of the disease through invention of vaccines or more effective medicines. The emergence of pharmaceutical sources also provides partial explanation for why the amount of news coverage still increased while the use of government officials, WHO officials, and scientists were declining in the 2004 and 2005 period.

CONCLUSIONS

There are limitations to this study that should be addressed before concluding our findings. First, we do not claim any generalization to other newspapers because The New York Times is certainly not representative of all print media in the U.S. However, the goal of this study was to examine whether the media cover two public health risks with different seasonality patterns differently. Targeting one single media organization enables us to attribute the observed findings to the difference between diseases, rather than to different journalistic practices across media.

Despite this limitation, this study has significant implications for the study of media coverage, especially sourcing patterns, of public health issues. First, this study presents an overview about how sources were used by journalists in covering public health issues. Specifically, our findings suggest that the affected—the infected individuals, the medical professionals treating the patients, and the avian flu-inflicted poultry farmers—did not receive much attention from the journalists. Instead, journalists were constrained by routine news channels, thereby giving bureaucratic sources more power to shape the content of news about epidemic hazards. This indicates that news coverage of health issues is not much different from coverage of political or risk issues, which is consistent with previous research findings [37, 38]. The reliance on routine and institutional sources would possibly lead to news stories that accentuate perspectives from the government or certain social elites, not perspectives from the most affected and the general public that the media serve. However, it should be noted that although similar structural distribution holds across diseases, there are considerably more differences in the frequency distribution of sourcing patterns across diseases as well as across seasons. Future research should look into the relationship between sources and frames to further understand how journalists and sources interactively construct news.

This study shows that when conducting research on the sourcing patterns for media storied related to public health issues, simple frequency comparison between issues is not sufficient. However, very few studies have done more than that. Our study addresses the empirical gap by suggesting that both the longitudinal examination of the issues and the

nature of the diseases can make research results look very different. Future research should consider the factors examined in this study such that we can paint a more accurate picture about the sourcing patterns in relation to public health issues.

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Chapter 9

DANCE4LIFE. EVALUATING A GLOBAL HIV AND AIDS PREVENTION PROGRAM FOR YOUTH USING THE PRE-IM FRAMEWORK FOR PROCESS EVALUATION

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ABSTRACT

Dance4life is a global organisation specifically aiming to establish a social youth movement around HIV and AIDS prevention. The aim of this chapter is to evaluate the implementation of the dance4life school-based HIV and AIDS prevention program, by sending questionnaires to two target groups in Africa and Europe, i.e. the staff members of the local implementing partners and participants of the dance4life program. As there was no existing framework to evaluate all relevant dimensions, the Pre-Im framework for process evaluation was developed. This framework makes a distinction between Prerequisites and Implementation topics. In total, 36 African and European staff members of implementing partners (51.5%) and 485 African and European participants (24.8%) from fourteen different countries completed the questionnaire. The results showed that, from a theoretical point of view, dance4life provides a robust HIV and AIDS prevention program. Both the implementing partners and the participants assess the dance4life concept and the health prevention school program as strong. This is an important prerequisite to realize successful implementation. However, the social movement concept needs more attention. A considerable proportion of participants is not well registered, which makes it impossible to remain in contact and reach continuation and maintenance.

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In conclusion, the continued involvement of participants after the school program has finished challenges dance4life's main goal to establish a social youth movement around HIV and AIDS worldwide.

INTRODUCTION

Young people aged 15 to 24 account for almost half of new HIV infections (1). Because of the high rates of HIV-infected adolescents, numerous education and school-based prevention programs have been set up worldwide. Dance4life is an international initiative that actively involves young people and wants to give them a powerful voice in pushing back the spread of HIV and the stigma and taboos that surround it. Young people (13-19 years old) are attracted and empowered through the use of experience marketing, dance, music, youth icons and their own language, encouraging them to learn more about HIV and AIDS and sexual and reproductive health and rights (2).

Dance4life uses a Entertainment-Education strategy, which can be defined as a way of informing the public about a social issue or concern, by incorporating an educational message into popular entertainment content in order to raise awareness, increase knowledge, create favourable attitudes, and ultimately motivate people to take socially responsible action in their own lives [3, 4]. At the start of this study (April 2009), dance4life was active in 19 different countries worldwide. Dance4life developed a four-step school program that aims to inspire, educate and empower, activate and celebrate as well as a campaign. The school program firstly exists of an interactive entertainment-educational experience at which a dance4life tour team of peer educators discuss with youngsters about sex and HIV in an open way, combined with music and dance (heart connection tour (hct)). Next, the youngsters are educated with a life skills program about their sexual and reproductive health and rights (skills4life (s4l)). They also learn valuable skills about negotiation, communication and decision making, which they can apply in their daily lives. In the third step, they are stimulated to take action by organising their own activities that involve their friends, families and communities (act4life (a4l)). Finally, after having passed through these three essential components, every two years on the Saturday before World AIDS Day, the young people attend the dance4life event (d4l event) to celebrate their achievements. During the event there is a live satellite link between all participating countries, so that the young people are united. The aim of the dance4life program is not only to learn young people important knowledge and skills on HIV and AIDS prevention, but also to inspire them to become actively involved in pushing back HIV and AIDS through their own actions. These actively involved young people are called agents of change (aoc), which at the time of this research were defined as 13 to 19 years old in school youngsters, who participated in at least two of the three essential components (hct, s4l, a4l) of the dance4life school program (2) (note: this definition has been changed later in 2009: since then, aoc have to participate in all three essential components). Aoc are supposed to be personally active in halting the spread of HIV and to make a positive impact in their communities.

The long-term goal is to establish a worldwide social youth movement of one million agents of change by 2014 to push back HIV and AIDS. Melucci (5) defines a social movement as a type of collective behavior that challenges the ends, values and power structures of a given society. The dance4life social youth movement should remind the world

leaders specifically about the Millennium Development Goal number 6 (MDG6), target 1: 'Have halted by 2015 and begun to reverse the spread of HIV and AIDS' (1). UNAIDS states that until HIV prevention programs incorporate elements focused on creating social change they will prove to be ineffective in the long run (1). To realise the aim of establishing a social youth movement, dance4life collaborates with a global network of 19 worldwide or national grassroot implementing partners, each active in a particular country. These implementing partners are termed 'national concept owners'. Therefore, we use the abbreviation 'ncos' to indicate staff members of the 'national concept owners'. The head office ('dance4life international') is responsible for the managerial oversight.

Until now, the dance4life program has not been evaluated structurally. Many studies show that a sound theoretical foundation, such as Social Cognitive Theory (6) or the Theory of Planned Behavior (7), contributes to the effectiveness of HIV and AIDS interventions (8, 9). However, structured evaluations of the effectiveness of HIV and AIDS prevention programs have seldom been conducted (10), and investigation of process variables is often lacking. Such a process study is needed though, because it allows researchers to understand which aspects of the intervention are successfully implemented (11-13) and to draw adequate conclusions regarding outcome measures (11, 14). The aim of a process evaluation is to determine whether the program was implemented according to plan, but also to provide program account-ability to sponsors, the public, clients and funders. The act of evaluating is, moreover, an intervention in itself, because it can stimulate the implementers to think more consciously about their work, which can have an immediate effect on the implementation and improve the quality of the program (15). The aim of the current study is to make an accurate assessment of the implementation of the dance4life program. This process evaluation will give insight in the extent to which the intervention is implemented as intended, support further improvement and enable the interpretation of results and conclusions regarding outcome measures.

Framework for process evaluation

As there was no existing framework or model that evaluates all the dimensions we considered relevant, we developed the Pre-Im framework for process evaluation. In this framework, we made a distinction between Prerequisites and Implementation topics. Figure 1 provides an overview of the Pre-Im framework and the theoretical basis of the dimensions, which will be explained below.

The Pre-Im framework is based on two process(-effect) evaluation frameworks, i.e. RE-AIM model (16) and ICHC model (17,18). The RE-AIM model is a combination of process and outcome evaluation (16). It states that the ultimate impact of an intervention is due to its combined effects on the following five evaluative dimensions: Reach, Efficacy, Adoption, Imple-mentation and Maintenance. The Reach consists of the amount, proportion and representation of the target group that has been reached, e.g. participation rates of aoc. The Efficacy in the RE-AIM model refers to an (in between) outcome evaluation and was therefore not included in the framework. Adoption is the proportion and representativeness of settings (such as work sites, health departments or communities) that adopt a given policy or program. We transferred this dimension to the environmental support and the social support experienced by ncos resp. participants. Implementation refers to the extent to which a

program is delivered as intended, e.g. the implementation of the three essential dance4life components (hct, s4l, a4l) and the dance4life campaign. Maintenance is the continuation of the behavior of the participants, i.e. continuation of contact between aoc and ncos, and the extent to which a program is sustained over time by the organisations, i.e. ncos (16).

I. Prerequisites			
	Dimension	*Topics*	*Main theoretical basis*
I.a	General program strength	- Concept of program - Knowledge - Attitude	- SCT, SMT - ICHC - TPB
I.b	Organisational prerequisites	- Communication organisation - Staff professionalism	- ICHC (organisation) - ICHC (skills)
I.c	Environmental and social support	- Organisational support - Social support of aoc	- RE-AIM (adoption), SCT - SCT, RE-AIM (adoption)
II. Implementation			
	Dimension	*Topics*	*Main theoretical basis*
II.a	Reach	- Frequency - Participation rates	- RE-AIM (reach) - RE-AIM (reach)
II.b	Implementation in practice	- Program Implementation	- RE-AIM (implementation), SCT, TPB
II.c	Continuation	- Registration of aoc - Contact between aoc and ncos - Continuation of the dance4life program by country	- RE-AIM (implementation) - RE-AIM (maintenance), ICHC, SMT - RE-AIM (maintenance), ICHC, SMT

Figure 1. Pre-Im framework for process evaluation.

SCT = Social Cognitive Theory (6,20-22)
SMT = Social movement theory (5)
ICHC = Implementation of Change in Health Care (17,18)
TPB = Theory of Planned Behaviour (7,19)
RE-AIM = Process and effect framework (16)

The ICHC model – Implementation of Change in Health Care - is made for evaluation of the implementation of a new intervention among caregivers who work in a health care institution (17-18). This model represents several dimensions at caregivers' level and at organisational level that need to receive attention to establish long-term changes. We incorporated the dimensions knowledge, organisational prerequisites, staff professionalism (skills) and continuation in the dance4life process evaluation framework. The Theory of Planned Behavior (TPB) (7, 19) provides an additional theoretical perspective that is used in the development of the Pre-Im Framework, especially in the dimension 'General program strength'. According to the TPB, a positive attitude towards the dance4life program, i.e. a general positive evaluation of implementing the program, as well as self-efficacy of staff members of nco, i.e. belief in their capabilities to implement the program and overcome the difficulties inherent in implementation processes, are prerequisites to reach optimal

implementation behavior. Moreover, the Social Cognitive Theory (SCT) (6, 20-22) is used. Bandura describes two basic modes of learning: through the direct experience of the rewarding and punishing effects of actions, as well as through the power of social modeling (21). Social modeling is observing others, forming an idea of how new behaviors are performed, and using this coded information as a guide for action on later occasions (6). Role modeling is integrated into the dance4life program and incorporated in the dimension 'Implementation in practice' of the Pre-Im Framework.

In the current study, we focus on the results of the dimensions 'General program strength' (I.a), 'Reach' (II.a), 'Implementation in practice' (II.b) and 'Continuation' (II.c). More results are described elsewhere (23).

OUR STUDY

Our study is part of a larger research project on evaluating the dance4life program. Two target groups in all nineteen countries participating in dance4life received a questionnaire that was adapted to the specific group: a) the implementing partners of dance4life, i.e. staff members (ncos), and b) participants, i.e. youngsters who participated in the past in the dance4life program (aoc). All staff members (n=103) from the ncos in nineteen countries received a link to the online questionnaire by e-mail. After the initial e-mail, two reminders were sent (after two and four weeks). Regarding the second target group, the ncos were involved in contacting the participants, who received a link to the online questionnaire by e-mail. Again, two reminders were send after two and four weeks. The majority of African participants had no access to internet. Therefore, the ncos of five African countries (Sierra Leone, Kenya, Tanzania, Zimbabwe and Uganda) visited schools and gave former participants of dance4life a paper version of the questionnaire.

Measurements

All 5-point Likert scales and statements mentioned below used answering options ranging from 1= completely disagree to 5=completely agree, unless otherwise stated.

General program strength

Both target groups received an open question, i.e. 'what is the main goal of dance4life?' to measure 'knowledge'. 'Collective self-efficacy' (five items; Cronbach's a = .82) and 'Perceived strength of the combination of different elements in the dance4life program' (two items; Pearson's R = .69, p<.001) were measured among the ncos on a 5-point Likert scale.

'Attitude' was measured on a 5-point semantic differential, based on Osgood et al. (24). The scale assesses the extent to which the specific dance4life components (hct, s4l, a4l, d4l event, dance4life campaign) were considered weak–strong, negative–positive, annoying–nice, passive–active and superficial – in depth. Cronbach´s alpha was on average .91 (range .85 to .93).

'Goal attitudes' were measured among participants with a subscale based on Melucci (5), e.g. 'dance4life gives young people the opportunity to show the world that we are involved in fighting HIV/AIDS' (three items; Cronbach's a = .70).

Reach

General information about the reach of the dance4life program in 2008 was derived from the monitoring system from dance4life international. We collected information about the number of schools that participated, the number of youngsters that participated in the hct, s4l, a4l (and in which combination), the total number of aoc and the number of participants of the d4l event.

Implementation in practice

Perceived 'ease of implementation' by the ncos was assessed with five items (Cronbach's a = .70). Role-modeling of 'peer educators', i.e. young people with HIV or AIDS who tell stories during the hct, was measured among participants with two single items. Ncos received a single statement on 'famous' role models. Moreover, ncos as well as participants received the statement 'students who participated liked dance4life'.

Content information about the implementation of different components of the dance4life program (hct, s4l, a4l and dance4life campaign) was only collected among the ncos. These items are all based on the instructions in the handbooks from dance4life international. The ncos were asked how often elements such as videos and music instruments (1=never, 5=always) were used in the hct, how often youngsters were trained in the s4l program in specific skills, such as negotiation skills, leadership skills and public speaking' (1=never,5=always) and how often youngsters were provided in the a4l program with supporting materials, such as a special youth action package and an advocacy toolkit' (1=never, 5=always). They also received eleven statements. Last, the ncos were asked to mark the media they use for the dance4life campaign in their country, e.g. 'radio', 'internet' and 'newspapers'.

Continuation

Ncos received questions as 'do you maintain a register of the aoc in your country?' Contact between aoc and ncos was measured by five questions, e.g. 'does your nco stay in contact with all agents of change who participated after the dance4life program has finished?' The participants received three questions on continuation, e.g. 'when was the last time you had contact with dance4life?'

Analysis

For the analyses, we divided the respondents into two groups, according to the division of countries among the regional project coordinators of dance4life: Africa (Sierra Leone, Zimbabwe, Kenya, Uganda, Zambia, Zimbabwe, South Africa) and Europe (UK, The Netherlands, Germany, Serbia, Turkey, Ibiza/Spain, Ireland). The data from the third dance4life region (Mexico, Vietnam, USA, Russia, Moldova) were left out, because this group appeared to be very heterogeneous. Differences between the groups on background characteristics were examined using t-tests or chi-square tests, if appropriate.

The question that was developed to measure knowledge (i.e. 'write down the main goal of dance4life') was analysed qualitatively. We analysed the answers according to the official main goal as defined by dance4life international: 'Dance4life is a global organisation within the field of HIV/AIDS specifically aiming to establish a social youth movement of one million youngsters, called agents of change (aoc), by 2014, pushing back HIV/AIDS' (2). All answers were categorized in seven categories that were derived from this definition: 1) pushing back HIV/AIDS; 2) social youth movement; 3) recruitment of aoc; 4) worldwide/ global; 5) network of organisations; 6) one million (aoc) and 7) 2014.

The other data were analysed quantitatively. Although the Pre-Im frame-work intends to provide descriptive data, differences between quantitative scores from respondents from Africa and Europe were explored using one way anova analysis or chi-square tests, if appropriate. We used a significance level of $p<.05$. It must be noted that the amount of subjects in subgroups was sometimes low, especially in the subgroups of the ncos. This diminishes the power and the chance to find significant differences, indicating that there might be meaningful differences that didn't reach significance. In the result section, quotes are illustrative in addition to the quantitative responses given by the respondents. All statistical analyses of quantitative data were carried out using SPSS 16.0.

OUR FINDINGS

The ncos of South-Africa, Zambia and Ireland collaborated in completing the questionnaire for implementing partners (first target group), but not in the recruitment of participants (second target group). Spain didn't participate in both. All other countries are represented in both target groups. In total, all 38 staff members from the implementing partners (ncos) in the seven participating countries in Africa were approached as well as 33 ncos of the seven participating countries in Europe. The mean response from the ncos was 50.7% (60.5% response of African ncos (n=23) and 39.4% response of European ncos (n=13)). In addition, 460 participants (aoc) were approached in Africa (hard copy questionnaire) and 1491 in Europe (online questionnaire). In total, 485 aoc responded (24.8%). African participants (n=400; 87.0%) responded clearly more than European participants (n=85; 5.7%) (see also limitations).

Subjects

The mean age of the responding ncos was slightly, but significantly older in Africa (30.2 years) than in Europe (29.8 years). There were more male respondents in the African subgroup (65.2%) than in the European subgroup (30.8%). The majority of the staff members in both groups (72.2%) had at least a bachelor degree.

The mean age of the responding participants (aoc) was 17.6 years old. The African participants were about one year older (M=17.9) than the European participants (M=16.7). Of the African responding participants, 61.3% was male, while 78.8% of the European participants was female.

General program strength

From the official dance4life definition, only 'pushing back HIV and AIDS' was mentioned as (part of) the main goal of dance4life by almost two thirds of the ncos (64.2%) and the aoc (65.0%) in their answer on the knowledge question. Almost half of the ncos named 'the recruitment of aoc' (47.2%), and around one third '2014' (37.7%), 'one million (aoc)' (34.0%) and 'social youth movement' (30.2%). The latter was also mentioned by 13.0% of the participants. All other elements of the definition were written down by less than 10% of the participants.

Table 1 shows that the ncos are rather positive about the extent to which the dance4life program contributes to the empowerment of young people and, subsequently, to collective efficacy.

Table 1. General program strength

CONCEPT OF PROGRAM					
	Africa; ncos (n=14)			Europe; ncos (n=9)	
Subscales (M (sd); range 1-5)[a]	*M*	(sd)		*M*	(sd)
Collective efficacy	4.47	(.64)		4.57	(.42)
Strengths of the combination of different elements of dance4life to empower youngsters	4.26	(.97)		4.54	(.50)
ATTITUDE					
	Africa; aoc	Europe; aoc		Africa; ncos	Europe; ncos
Subscales (M (sd)*; range 1-5)*[b]	*M* (sd)	*M* (sd)		*M* (sd)	*M* (sd)

CONCEPT OF PROGRAM					
	Africa; ncos (n=14)			Europe; ncos (n=9)	
heart connection tour (hct)	(n=302)	(n=53)		(n=18)	(n=9)
Attitude	4.63 (.87) * [c]	4.30 (.59)		3.78 (1.31)	4.16 (.85)
Skills4life (s4l)	(n=319)	(n=32)		(n=16)	(n=10)
Attitude	4.63 (1.08) ** [c]	4.04 (.82)		4.49 (.61)	4.56 (.64)
act4life (a4l)	(n=254)	(n=40)		(n=15)	(n=11)
Attitude	4.61 (.86)	4.35 (.76)		4.00 (1.15)	4.64 (.59)
Dance4life event (d4l event)	(n=310)	(n=60)		(n=16)	(n=11)
Attitude	4.71 (1.02)	4.57 (.67)		4.10 (1.23)	4.56 (.56)
Dance4life campaign	(n=242)	(n=46)		(n=14)	(n=11)
Attitude	4.45 (1.05)	4.29 (.75)		3.78 (1.31)	4.16 (.85)

* p<.05; ** p<.01; ***p<.001

a The highest score is the most favourable score; 1=completely disagree; 2=disagree; 3=neutral; 4=agree; 5=completely agree

b The highest score is the most favourable score

c Comparison between African and European aoc

Reach

The reach in 2008 was largest in Africa. The total number of aoc was 121 980 in Africa, which is more than 100 000 more than in Europe (21 296). In Africa, quite a large amount of youngsters (58 201) participated in the hct as well as s4l and a4l. In Europe, many participants participated in the hct as well as a4l (18 237), but only 1 018 participants participated in all three essential components. This means that s4l seems to be less often implemented in Europe.

Program implementation

Most of the ncos give scores between three (neutral) and four (agree) in reaction on statements about the perceived ease of the implementation of the dance4life program, indicating some room for improvement. One of the obstacles mentioned by European respondents is the implementation of the s4l program, which is illustrated by the following statement: 'It is not possible to oblige schools to participate in skills4life. Therefore, not all youngsters pass through the whole program' (Europe). A lack of internet access and/or computers hinders the implementation of the s4l program in Africa: 'Yet most schools don't have computers and the program is computer based' (Africa).

Although the ncos in general believe that participants like the program, the European participants themselves report lower likeability scores (Table 2). Regarding role models (i.e.,

young people who tell stories and can be observed with the aim of social modeling), more than 40% of respondents from Europe and almost a quarter of the African respondents report that they did not 'met a young person who talked about becoming infected with or being infected by HIV', although this is intended in the dance4life program. With regard to the 'famous' role models, or ambassadors, especially the African partners do not really agree with the statement that dance4life 'has great ambassadors who appeal to the young people in our country'. Table 2 also shows the results of the implementation of the different components of the dance4life program. In the hct, images and videos are often used in Europe, while Africa more often perform a play. All ncos are very positive about the hct when it comes to the possibility to speak in an open and safe environment, to alternate fun with education and to break taboos about HIV. In the s4l component, the African partners are putting more efforts in the training of negotiation skills and leadership skills than the European partners. In the a4l program, Europe seems to be more active than Africa in the provision of support, for instance by offering a fundraising toolkit or opportunities to register the youngsters' plans on internet or in a notebook.

Table 2. Implementation in practice.

PERCEIVED LIKEABILITY AND ROLE MODELING DANCE4LIFE PROGRAM		Africa; aoc (n=389)	Europe; aoc (n=83)
According to participants (aoc)			
Students who participated liked dance4life *(M* (sd)*;* range 1-5) [a]		4.09 (.79) *	3.18 (.99)
I saw young people from my age participating *(n (%) yes)*		339 (89.4%) *	57 (74.0%)
We met a young person who talked about becoming infected with or being infected by HIV *(n (%) yes)*		293 (77.7%) *	45 (58.4%)
		Africa; ncos (n=21)	Europe; ncos (n=12)
According to implementing partners (ncos)			
Students who participated liked dance4life *(M* (sd), range 1-5) [a]		4.38 (.63)	4.33 (.69)
PERCEIVED LIKEABILITY AND ROLE MODELING DANCE4LIFE PROGRAM		Africa; aoc (n=389)	Europe; aoc (n=83)
We have great (global) dance4life ambassadors who appeal to the young people in our country *(M* (sd), range 1-5) [a]		2.71 (1.10) *	3.75 (1.25)
IMPLEMENTATION IN GENERAL			
Subscale (M (sd), *range 1-5)* [a]			
Perceived ease of implementation		3.99 (.79)	3.64 (1.52)
IMPLEMENTATION DIFFERENT COMPONENTS DANCE4LIFE			
In the hct, they……. (M (sd), range 1-5) [a]			
	Use images	3.06 (1.39) **	4.89 (.33)
	Use videos	3.11 (1.32) ***	4.89 (.33)
	Perform a play	4.56 (.62) ***	2.38 (1.41)
	Use music instruments	4.17 (.99)	3.22 (1.86)
	Include short testimonials by young people from other dance4life countries	3.19 (1.80)	4.00 (1.73)
	Include young people living with HIV	4.28 (.90)	3.78 (1.86)
In the hct, they……. (M (sd), range 1-5) [a]			
	Make it possible for young people to speak in an open and safe environment about HIV and AIDS	4.17 (1.10)	4.78 (.44)
	Correct misperceptions about HIV and AIDS	4.44 (.62)	4.78 (.44)
	Break taboos about HIV	4.17 (.86)	4.89 (.33)
	Alternate fun with information	4.67 (.59)	4.89 (.33)

PERCEIVED LIKEABILITY AND ROLE MODELING DANCE4LIFE PROGRAM		Africa; aoc (n=389)	Europe; aoc (n=83)
	Include the experiences of agents of change (aoc) of previous years	3.61 (1.04)	4.38 (.74)
In our skills4life program……. (M (sd), range 1-5) [a]			
	Youngsters get training in negotiation skills	4.82 (.53) **	3.38 (1.77)
	Youngsters get training in leadership skills	4.69 (.60) *	3.50 (1.85)
	Youngsters get training in debating	4.44 (.73)	3.63 (1.19)
	Youngsters get training in entrepreneurship	3.50 (1.27)	4.25 (.71)
	Youngsters get training in public speaking	4.44 (.81)	3.88 (.99)
In our act4life program……..(M (sd), range 1-5) [a]			
	We provide youngsters special youth action package	3.60 (1.30)	4.25 (1.49)
	We provide youngsters with a fundraising toolkit	1.79 (1.19) **	3.80 (1.55)
	We provide youngsters with an advocacy toolkit	2.87 (1.51)	4.10 (1.45)
In our act4life program……. (M (sd), range 1-5) [a]			
	Youngsters get the opportunity to register their plans (on internet or in a notebook)	3.07 (1.39) *	4.38 (.52)
	We encourage youngsters to take action	4.47 (.64)	4.60 (.52)
	We support youngsters with a clear list of what we can offer them (an action plan, a T-shirt, condoms, posters, stickers, etc.)	4.07 (.80)	4.78 (.44)
	PERCEIVED LIKEABILITY AND ROLE MODELING DANCE4LIFE PROGRAM	Africa; aoc (n=389)	Europe; aoc (n=83)
	We are available for youngsters when they need us	4.47 (.64)	4.90 (.32)
	We offer the youngsters various volunteering opportunities	4.14 (.86)	4.60 (.97)
	We offer the youngsters a plan (or tips and tricks) to raise awareness in the community	4.20 (.68)	4.70 (.48)
Kind of media used for the campaign by nco (n (% used))			
	Flyers	7 (30.4%)	7 (53.8%)
	Posters	8 (34.8%)	8 (61.5%)
	Radio	11 (47.8%)	6 (46.2%)
	TV	9 (39.1%)	4 (30.8%)
	The movies	2 (8.7%)	1 (7.7%)
	Internet	2 (8.7%) ***	9 (69.2%)
	Newspapers	11 (47.8%)	8 (61.5%)
	Magazines	3 (13.0%) **	9 (69.2%)
	Other	1 (4.3%)	2 (15.4%)
Mean number of different media used by nco for the dance4life campaign (range 0-9) (M (sd))		2.3 (2.7)	4.2 (3.1)

* p<.05; ** p<.01; ***p<.001

a The highest score is the most favourable score; 1=completely disagree; 2=disagree; 3=neutral; 4=agree; 5=completely agree

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Regarding media use for the dance4life campaign, almost half of the responding African partners and almost a quarter of the European partners report that they do not use media for the dance4life campaign. In Africa, a mean number of 2.3 different media is used. Radio, newspapers and TV are mentioned most often. The European partners report a mean number of 4.2 different media, particularly the Internet, magazines, newspapers, posters, flyers and radio.

Registration and continuation

Most of the ncos register part of the aoc (65.0% in Africa and 66.7% in Europe). Less than a quarter of both the African (25.0%) and European (16.7%) ncos register all aoc and more than half of the partners report that contact details such as address, email address or telephone, essential to keep contact, are not registered.

Although the ncos completely agree that 'it is important to stay in contact with the younsters after the program is finished', there is on average less than twice a year contact with all aoc who are registered. If there is contact, African participants mention 'personal contact' (i.e. school visits by the nco) as the main way to keep contact (36.3%), while the European respondents more often mention Internet and e-mail (both 48.2%). The majority of the African participants (67.4%) would like to have more contact with dance4life as compared to a third of the European respondents (33.8%; $p<.001$).

DISCUSSION

The aim of this study was to investigate to what extent the different components of the dance4life program are implemented as intended by the collaborating partners in Africa and Europe. The Pre-Im framework for process evaluation appeared to be applicable to identify strengths and weaknesses of the program. The results indicate that, from a conceptual viewpoint, the d4 program is fairly successful as a preventive health program. The general program strength is considered high and the results show a very positive attitude towards the dance4life concept among both ncos and participants. Respondents generally perceive dance4life as a program that contributes to the empowerment of young people and collective efficacy, although among the participants there is a lack of knowledge and awareness of the main goal of dance4life, i.e. establishing a social youth movement.

A strong element in the actual implementation is the reach of dance4life, which is very large, especially in Africa. However, implementation is not perceived as really easy by both the African and the European ncos. More in-depth research is needed to get more insight into the beliefs of the ncos in their capabilities to implement the program adequately, the underlying factors of these beliefs and the difficulties they experience in practice.

The biggest barriers for successful implementation are found in the last dimension of the Pre-Im framework, i.e. registration and continuation. Less than a quarter of the ncos in both Africa and Europe register all aoc. This means that a considerable proportion of aoc is not registered (as yet), which makes it impossible to remain in contact with them and reach continuation and maintenance. There is, moreover, no systematic tracking of related activities that are prompted or facilitated by aoc in the wake of the schools4life program. Because there is no ongoing contact with the dance4life organisation, the potential for aoc to continue activities is unknown. Such activities could be stimulated (and implemented) to strengthen the social youth movement that dance4life is endeavouring to establish. Ultimately, activities should continue without the presence of dance4life, but conditions required to establish an actual movement should first be provided by dance4life. This might enhance the sense among aoc that they belong to a network after the schools4life program is finished and continue in their activities. If there is no continuation of activities or an

engrained sense of membership then we cannot speak of a member of a social movement according to accepted definitions (5, 25).

Overall, the combined ingredients of dance4life's schools4life program should provide a solid HIV and AIDS prevention program, at least if the components are implemented adequately. There are some strong elements, such as establishing a good balance between fun and content, which is based on an Entertainment-Education strategy. The program provides robust formats that cover the essential elements for each component, such as breaking taboos, creating a safe environment to speak freely (hct) and being trained in negotiation skills (s4l). All these elements and the Entertainment-Education approach contribute to an HIV and AIDS prevention program from a positive health perspective, which is absent in most other sexual prevention programs, which still over-emphasize negative consequences (26). However, a potential risk of focusing too much on the program's entertainment aspect is that funding bodies and other stakeholders might feel that the fun component seem to prevail over the serious educational aspects and content, even though this is not the case. Raising the profile of a strong content of the schools4life program could prevent such misconceptions.

Another potential threat to the global implementation of the program is that youngsters from developed (Western) countries might perceive dance4life as a program primarily for helping the poor in developing countries, rather than it being as much a program for them, intended to empower them to assume personal responsibility for safety precautions and offering them the personal benefits of being a member of the movement. This is affirmed by the results of this study, indicating that in Europe the a4l component seems to be more often implemented than the preceding s4l component. According to several social psychological models, the sequence of the four components (hct › s4l › a4l › d4l event) is a key element for achieving behavioral change (see for instance the Information Processing Model (27, 28)), but the s4l component is regularly left out in Europe. Moreover, the a4l component in Europe mainly focuses on fundraising, while the central aim of a4l is to propagate and stimulate participants to become an active aoc in a broader sense. The severe life-threatening HIV and AIDS pandemic in African countries might be grabbing most of the attention of participants and the emphasis on fundraising for 'others' might be feeding the notion that this program exists only to help others. This is the opposite of what dance4life is striving for. The content of the dance4life program in Europe should be evaluated in greater detail to unravel the motives and perceptions of youngsters from developed countries, thereby ascertaining whether adjustments are needed in order for aoc to perceive dance4life as a program which also embraces their personal interests.

Limitations

This study has some limitations. The overall response was low among the target group of European participants. Although 87.0% (n=400) of the African participants given a printed questionnaire responded, only 5.7% (n=85) of the European participants approached by e-mail completed the questionnaire. A higher response could possibly have been received when printed questionnaires were used, partly because some of the emails might not have been received (e.g. e-mail address not in use anymore or considered as junk e-mail). However, the low response also prompts the question of whether the aoc are sufficiently engaged with dance4life. Given that dance4life's main goal is to establish a social youth movement in

which aoc actively participate, a much higher response was to be expected. The participants who responded were probably the most committed aoc. Therefore, the results have to be interpreted with great caution. Further research should be conducted among a more representative group of aoc in Europe, including participating youngsters who did not become an aoc and might provide different opinions and views on the strengths and weaknesses of the program and its implementation.

The response from ncos was moderate (50.7%), but above the average response rates in social science research (29, 30). Moreover, all countries except for Spain were represented in the sample. Therefore, the response among this target group was high enough to consider the data reliable.

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Chapter 10

INFLUENCE OF INCIDENTAL AFFECT AND MESSAGE FRAMING ON PERSUASION: THE CASE OF PROMOTING SUN PROTECTION BEHAVIORS

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ABSTRACT

This chapter examines the interplay of incidental affect (positive vs. negative) and message framing (loss vs. gain) on individuals' beliefs and behavioral intentions related to sun protection behaviors. Existing theoretical frameworks concerning the influence of incidental affect on persuasion and information processing are reviewed (e.g., mood interference models, mood mainteinance/repair models, hedonic contingency model, extended hedonic contingency model, mood congruence model). A pretest and an experiment were conducted to answer the research questions. The pretest demonstrates the success of the self-reflective writing task as an emotion induction method. In the main experiment, happy or sad participants were presented with either gain-framed or loss-framed sun protection messages. Results indicate that incidental affect and message framing interact to influence perceived susceptibility to health risks resulting from sun exposure and perceived response efficacy. In particular, for happy participants, the loss-framed message led to greater perceived susceptibility and response efficacy than the gain-framed message. For sad participants, the gain- and loss-framed messages did not make a difference in perceived susceptibility or response efficacy. Incidental affect and message framing appear to have no independent or interactive effects on intentions to adopt sun protection behaviors. It is shown, however, that message framing has an indirect effect on behavioral intention through perceived susceptibility to health risk for people in a positive affective state. Theoretical and practical implications of the findings are discussed.

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INTRODUCTION

Constructing health promotion messages that motivate target audience to voluntarily adopt the advocated behaviors is a key priority for public health researchers and practitioners. One of the challenges encountered in such efforts is whether a message should focus on the benefits (or gains) of adopting the desired behavior or the costs (or losses) of not following the recommended action. Unfortunately past research on the relative persuasive-ness of gain- versus loss-framed messages has produced ambiguous results; it seems both gain- and loss-framed messages could have persuasive advantages under certain circumstances (1-4). In a recent meta-analysis, O'Keefe and Jensen (5) showed that the main effect of message framing is statistically non-significant. Their finding suggests the importance of identifying individual or situational variables that moderate the relative effectiveness of the two types of messages.

This research focuses on a possible moderator that has received limited research attention. Specifically, it explores how incidental affect might influence the relative effects of gain- versus loss-framed health messages. Incidental affect is defined here as a transitory emotion or mood induced by stimuli unrelated to a persuasive message. Previous research has shown that incidental affect has a potent impact on judgment (6-9) and persuasion (10, 11). With a few exceptions (12, 13), incidental affect as a moderator of message framing effects in the domain of health communication has rarely been explored.

Understanding the role of incidental affect in the persuasion process is important for effective delivery of health messages. Nowadays many health promotion messages are placed in the mass media where there is a great deal of editorial content and entertainment programs that can induce a wide range of emotions among the audience. Joyfulness engendered by late night talk shows, for instance, could influence audience processing of health messages that come after the shows. Likewise, a sad mood induced by news stories on tragic events could impact the persuasiveness of the health messages that follow the news reports. It is therefore critical for public health researchers and practitioners to grasp the potential interactions between incidental affect and message features such as framing.

The current study examines the interactive effects of incidental affect and message framing in the context of promoting sun protection behaviors. Every year, more than one million new cases of skin cancer are diagnosed in the United States (14). Sun exposure is considered one of the leading factors contributing to skin cancer. Sun exposure also has undesirable cosmetic effects such as speeding up the aging process of skin. Simple sun protection behaviors such as applying sun screen and wearing hats are effective measures against negative consequences of sun exposure. Findings from this study hold important implications for designing and delivering health messages that advocate voluntary adoption of sun protection behaviors.

MESSAGE FRAMING

The relative persuasiveness of gain- versus loss-framed messages has received considerable research attention, particularly in the field of health communication (5, 15). By definition, a gain-framed message emphasizes the advantages or benefits of adopting the recommended behavior, whereas a loss-framed message focuses on the disadvantages or costs of not

following the advocated action. In one of the earliest studies on message framing, Meyerowitz and Chaiken (16) found that female participants who were exposed to a loss-framed message on breast self-examination (BSE) showed more positive BSE beliefs, attitudes, and behaviors than those exposed to a gain-framed message. The authors concluded that the findings were consistent with the notion of negativity bias (17) – the tendency for people to overweigh negative information in their judgments. A number of other studies similarly found a persuasive advantage for loss-framed messages (18, 19, 20). On the other hand, however, there is also no shortage of studies showing that gain-framed messages are more persuasive than loss-framed messages (21, 22).

Given the conflicting findings, many researchers have proposed moderators. Rothman and his colleagues, for example, suggest that loss-framed messages will be more persuasive than gain-framed messages when detection behaviors (e.g., breast self-examination) are promoted and the reverse will be true when prevention behaviors (e.g., physical exercise) are advocated (23-25). Their conclusion rests on the assumption that performing a detection behavior is construed by individuals as risky (i.e., it could identify an illness), whereas performing a prevention behavior is construed as non-risky (i.e., it prevents the onset of an illness). According to prospect theory (26), people choose the riskier option when evaluating alternatives framed in terms of losses, but the less risky option when evaluating alternatives framed in terms gains. As such, it is argued by Rothman and his colleagues that intentions to perform a detection behavior will be stronger after people are exposed a loss- versus gain-framed message. Intentions to perform a prevention behavior, on the other hand, will be stronger after people are exposed to a gain- versus loss-framed message.

Further, a number of researchers suggest that whether a loss-framed message is more or less persuasive than a gain-framed message is a function of the audience's regulatory focus (4, 27). According to regulatory focus theory (28), some individuals are chronically oriented toward pursuing achievements and aspirations (i.e., promotion-focused or approach-oriented), while others are oriented toward avoiding failures and mistakes (prevention-focused or avoidance-oriented). It is argued that promotion-focused individuals will be more persuaded by gain-framed messages, whereas prevention-focused individuals will be more influenced by loss-framed messages. Mann et al (27), for instance, exposed undergraduate students to either a gain- or loss-framed message promoting flossing. They found that, when given a loss-framed message, avoidance-oriented people reported flossing more than approach-oriented people, and when given a gain-framed message, approach-oriented people reported flossing more than avoidance-oriented people.

Drawing upon the notion of individual difference in regulatory focus, some scholars suggest that health messages, too, can be differentiated in terms of their regulatory focus (1, 2, 4, 29). A promotion-focused health message highlights a desirable end-state or kernel state. It can take the form of a gain-framed message when it emphasizes the desirable end-state that will be achieved by adopting the recommended health behavior. It can also take the form of a loss-framed message when it emphasizes the desirable end-state that will be lost by non-compliance. On the other hand, a prevention-focused message highlights an undesirable end-state or kernel state. A gain-framed, prevention-focused health message focuses on the undesirable end-state that will be avoided by adopting the recommended health behavior. A loss-framed, prevention-focused health message stresses the undesirable end-state that will be made more likely by non-compliance. In a series of studies, Lee and Aaker (1) found that gain-framed, promotion-focused messages and loss-framed, prevention-focused messages are

in general more persuasive than other combinations. Research has also shown that whether or not message regulatory focus moderates message framing effects is further contingent upon the audience's regulatory focus (4) and issue involvement (2).

In an effort to consolidate the literature on message framing, O'Keefe and Jensen conducted a series of meta-analytic studies (5, 15). They reported that there is no main effect of message framing; gain- and loss-framed messages do not seem to result in differential persuasive effects. They also analyzed the effects of two moderators (type of health behaviors and message regulatory focus). Their findings suggest that the type of health behaviors (prevention vs. detection) does appear to moderate the effects of message framing, but the detailed patterns of moderation are only partially consistent with the predictions made by Rothman and his colleagues (23, 24). Specifically, for encouraging prevention behaviors gain-framed messages are in general more persuasive, but for encouraging detection behaviors loss-framed messages are no more persuasive than gain-framed messages. The other moderating variable – a message's regulatory focus (or desirability of end-state/kernel state) was found to have little effect on the relative persuasiveness of gain- versus loss-framed messages. O'Keefe and Jensen's reviews suggest that current theoretical models proposed to predict the relative effects of gain- versus loss-framed messages are in need of further refinement. The reviews also indicate the importance of unveiling other moderating variables that might be at work. Previous research on the relationship between affect and persuasion suggests that incidental affect might be one of such possible moderators.

AFFECT, INCIDENTAL AFFECT, AND PERSUASION

Examining the role of affect in the persuasion process has been a vibrant research area. Previous research has explored the effects of both message-induced and incidental affect on persuasion. In the realm of message-induced affect, fear (30-32) and guilt (33) are probably the two most studied emotions. Effects of other message-induced emotions have also been investigated, though less extensively (34, 35). Different from message-induced affect, incidental affect is induced by stimuli unrelated to a persuasive message. It is therefore expected that incidental affect would influence persuasion through different mechanisms than would message-induced affect. The following section reviews a number of theoretical models that have been put forward to explain the role of incidental affect in the persuasion process. Each of these models offers a unique prediction regarding whether and how incidental affect could interact with message framing to influence persuasion.

Mood interference models. Mood interference models suggest that positive affect inhibits an individual's ability or motivation to process information, whereas negative affect does not (10, 11). According to the Elaboration Likelihood Model (36), there are two types of message processing styles: central processing characterized by careful message elaboration and peripheral processing characterized by cursory message elaboration. Mackie and Worth (11) argue that positive affect inhibits an individual's ability to fully scrutinize persuasive messages and therefore encourages peripheral processing. On the other hand, Bohner et al. (10) posit that positive affect reduces a person's motivation to carefully process persuasive messages and similarly draw the conclusion that positive affect is likely to induce peripheral processing. Mood interference models therefore indicate that people will process both gain-

and loss-framed messages heuristically if they are in a positive mood and will process both types of messages systematically if they are in a negative mood. As such, incidental affect is not expected to interact with message framing to influence persuasion.

Mood-maintenance/repair models. The mood-maintenance/repair view argues that people in a positive mood will choose to attend to information that is likely to maintain their positive mood, whereas those in a negative mood will be motivated to repair their mood by focusing on information that will uplift them (37). As such, positive or negative affect is not necessarily associated with a particular message processing style. Rather, persons in a positive mood will carefully process a message to the extent that the message is expected to maintain their positive mood. On the other hand, individuals in a negative mood will be motivated to process a persuasive message to the extent that the message is expected to repair their bad mood. Since gain-framed messages are likely to be more uplifting than loss-framed messages, the mood-maintenance/repair perspective predicts a main effect of message framing: people in both negative and positive mood states will process gain-framed messages to a greater extent and be persuaded more by gain-framed messages than loss-framed messages.

Hedonic contingency model. In contrast to Mackie and Worth's (11) view that positive affect inhibits an individual's ability to fully scrutinize persuasive messages, the hedonic contingency model (38) argues that people in a positive mood have the ability to scrutinize persuasive messages, but they will choose to carefully process a message only when the message is perceived to offer a positive hedonic consequence. In line with the mood-maintenance/repair perspective, the hedonic contingency model assumes that people in a positive mood are motivated to maintain their positive mood. Different from the mood-maintenance/repair view, however, the model also suggests that people in a negative mood will systematically scrutinize a message regardless of its hedonic consequence. Following these views, we may expect that people in a positive mood will process gain-framed messages to a greater extent and be persuaded more by gain-framed messages than loss-framed messages. Those in a negative mood, according to the model, will systematically scrutinize a message regardless of its hedonic consequence. Therefore we may anticipate that gain- and loss-framed messages are similarly persuasive for these people.

Extended hedonic contingency model. Whereas the hedonic contingency model suggests that people in a positive mood will not attend to negative information, Isen (39) argues that people in a positive mood will disregard negative information only if it is inconsequential. When the information is deemed important and real loss is possible, people in a positive mood may be more motivated to process negative information than those in a neutral mood. According to Isen and her colleagues (40), when stakes are high, people in a positive mood are more likely to attend to negative information than those in a neutral mood because they think about losses more and have more to lose. Supporting this prediction, Keller, Lipkus, and Rimer (12) found that female participants induced with a positive mood were more persuaded (i.e., greater behavioral intentions, greater perceived risk, less perceived costs) by a loss-framed health message emphasizing the disadvantages of not getting mammograms than a gain-framed message focusing on the advantages of the health behavior. On the other hand, participants induced with a negative mood were more persuaded by the loss-framed message than the gain-framed message, which is consistent with the mood repair view.

Mood congruence model. Some researchers also argue for a mood congruence model, in which a match between the valence of incidental affect and the valence of persuasive

messages is predicted to lead to more persuasion than a mismatch (13). As such, people in a positive mood are expected to be persuaded more by positive information than negative information. People in a negative mood are expected to respond more favorably to negative information than positive information. According to this view, a gain-framed message will be more persuasive than a loss-framed message for people in a positive mood, whereas the reverse will be true for those in a negative mood. These predictions failed to receive empirical support in a study on the effects of incidental affect and message framing on information seeking about genital herpes (13). The researcher found no significant interactions between incidental affect (happiness vs. sadness) and message framing (gain vs. loss) for a number of persuasion measures.

RESEARCH QUESTIONS

Overall, each of the theoretical models reviewed here offers unique insight into the potential interplay of incidental affect and message framing. The models are not in agreement with regard to whether and how incidental affect and message framing might interact to influence persuasion, however. Instead of proposing specific hypotheses based on a particular theoretical model, this study casts a series of research questions regarding the potential interactive effects of incidental affect and message framing on persuasion in the context of promoting sun protection behaviors.

- RQ1: Will incidental affect (positive vs. negative) interact with message framing (gain vs. loss) to influence intention to perform sun protection behaviors? If so, how?

- RQ2: Will incidental affect (positive vs. negative) interact with message framing (gain vs. loss) to influence perceived susceptibility to health risks resulting from sun exposure? If so, how?

- RQ3: Will incidental affect (positive vs. negative) interact with message framing (gain vs. loss) to influence perceived effectiveness of performing sun protection behaviors (i.e., perceived response efficacy)? If so, how?

PRETEST

To address the research questions, it would be necessary to induce either positive or negative affect among participants prior to their exposure to sun protection health messages. A widely used emotion induction method – self-reflective writing task was employed to induce a desired emotion (12). The writing task asks participants to write about a past event that made them experience a particular emotion (e.g., happiness, sadness). A pretest was conducted to make sure that the emotion induction method would work for the type of respondents in the main study (i.e., college students). Further, previous research has suggested that having participants self-report their emotions in a manipulation check could reduce or eliminate the

impact of the emotions on subsequent judgments (41). Therefore a pretest was conducted in lieu of a manipulation check in the main study.

A total of 51 undergraduate students from a large Midwestern university participated in the pretest in exchange for extra credit. Participants were invited through emails to respond to a web-based survey and were told that the purpose of the survey was to find out the extent to which people remember past events that caused intense emotions. They were randomly assigned to either a happiness condition or a sadness condition. In the happiness condition, participants received the following instruction for the self-reflective writing task: Please bring to mind a time you felt very happy. In the space provided below, describe the event that made you happy in as much detail as you can. If you can, please write your description so that someone reading this might even get happy just from learning about the situation. Pretests show that people in general spend about 10 minutes on this task. There is no word limit, so please write as much as you can. In the corresponding sadness condition, a similar instruction was given, except that the word "happy" was replaced with "sad." Immediately after the writing task, participants rated their moods on a scale of 1 (none of this feeling) to 7 (a great deal of this feeling). The target mood items were happy, cheerful, joyful, sad, dreary, and dismal. A number of other mood items were also included (e.g., anger, peacefulness, etc.). All items were adopted from previous research (34) and were presented to the participants in a random manner. An index for happiness was created by averaging happy, cheerful, and joyful (Cronbach's alpha = .90). An index for sadness was created by averaging sad, dreary, and dismal (Cronbach's alpha = .77).

Independent samples t-tests revealed that participants who wrote about a happy event experienced significantly more happiness ($M = 4.71$, $SD = 1.10$) than those who wrote about a sad event ($M = 3.33$, $SD = 1.42$, $t = -3.86$, $p < .001$). Similarly, participants who recalled and described a sad event were significantly sadder ($M = 3.09$, $SD = 1.25$) than those who recalled and described a happy event ($M = 1.96$, $SD = .84$, $t = 3.86$, $p < .001$). These results indicate that the emotion induction method was effective.

MAIN STUDY

Participants and procedure

A total of 152 undergraduate students from the same university participated in the main study in exchange for extra credit. Participants were invited through emails to respond to a web-based survey and were told that the survey was composed of two separate studies. The first study, which allegedly was designed to find out the extent to which people remember past events that caused intense emotions, involved the self-reflective writing task to induce either positive (i.e., happiness) or negative affect (i.e., sadness). In the second study that immediately followed the writing task, participants were presented with a public service announcement (PSA) promoting sun protection behaviors. The PSA was either gain-framed or loss-framed. After message exposure, participants responded to questions designed to probe their beliefs and intentions related to sun protection behaviors. The main study thus involved a 2 (incidental affect: positive vs. negative) x 2 (message framing: gain vs. loss) factorial design. Participants were randomly assigned to the four experimental conditions.

The Psas

Two PSAs were created based on relevant information released online by the Centers for Disease Control and Prevention (CDC). In each PSA, the headline read "When you're in the sun, choose your cover. Use Sunscreen. Seek Shade. Wear Long Sleeve. Wear a Hat." The gain-framed PSA focused on the positive outcomes of adopting protective behaviors in the sun ("Avoiding UV rays can protect your skin in more ways than one. Avoiding sunburns can decrease your risk of getting skin cancer. And, over time, avoiding UV exposure can slow down your skin's ageing process. So do yourself a favor. Protect the skin you're in."). The loss-framed PSA emphasized the negative outcomes of not adopting protective behaviors in the sun ("Exposure to UV rays can hurt your skin in more ways than one. Sunburns can increase your risk of getting skin cancer. And, over time, UV exposure can speed up your skin's ageing process. So do yourself a favor. Protect the skin you're in."). The two PSAs were otherwise identical.

Measures

After exposure to the PSA, participants rated their intentions to adopt recommended sun protection behaviors (use sunscreen, seek shade, wear long sleeve, wear a hat) on 1(extremely unlikely) to 7 (extremely likely) scales. The four intention ratings were averaged to form an index of overall behavioral intention (Cronbach's alpha = .71).

To measure perceived susceptibility to health risks resulting from sun exposure, the following two questions were asked: 1) "How likely that sunburns will increase your risk of getting skin cancer?" and 2) "How likely that over time UV exposure will speed up the ageing process of your skin?" Participants responded on scales of 1 (extremely unlikely) to 7 (extremely likely). The two items were averaged to form an index for perceived susceptibility to health risks ($r = .61$, $p < .001$).

To measure perceived effectiveness of performing sun protection behaviors, the following two questions were asked: 1) How likely that avoiding sunburns will decrease your risk of getting skin cancer? and 2) How likely that over time avoiding UV exposure will slow down the ageing process of your skin? Participants responded on scales of 1 (extremely unlikely) to 7 (extremely likely). The two items were averaged to form an index for perceived response efficacy ($r = .54$, $p < .001$).

FINDINGS

Research questions 1-3 asked whether incidental affect (positive vs. negative) would interact with message framing (gain vs. loss) to influence intention to perform sun protection behaviors, perceived susceptibility to health risks, and perceived response efficacy, respectively. Three ANCOVAs were conducted to answer the research questions (see Table 1 for means and SDs). In each ANCOVA, incidental affect and message framing served as independent variables, and age and gender were entered as covariates. The dependent variable

was behavioral intention, perceived susceptibility to health risks, and perceived response efficacy, respectively.

Table 1. Means and standard deviations for important dependent variables in each experimental condition.

	Positive Affect		Negative Affect	
	Gain Frame	Loss Frame	Gain Frame	Loss Frame
Behavioral Intention	5.36 (1.68)	5.68 (1.58)	5.56 (1.57)	4.85 (1.76)
Perceived Susceptibility	5.31 (1.09)	5.80 (1.18)	5.83 (1.24)	5.48 (1.14)
Perceived Response Efficacy	4.91 (1.36)	5.35 (1.24)	5.45 (1.32)	5.00 (1.48)

For behavioral intention, the results indicate that both covariates (age and gender) had no significant effects. The analysis revealed no significant main or interactive effects of incidental affect and message framing on behavioral intention. The pattern of means (adjusted for the covariates) appeared to be such that for happy participants, intentions to perform sun protection behaviors were generally higher after exposure to the loss-framed message ($M = 3.80$, $SE = .20$) than the gain-framed message ($M = 3.61$, $SE = .23$), whereas for sad participants, behavioral intentions were higher after exposure to the gain-framed message ($M = 3.58$, $SE = .19$) than the loss-framed message ($M = 3.18$, $SE = .17$).

For perceived susceptibility to health risks, the analysis revealed a significant effect of gender ($F (1, 146) = 40.08$, $p < .001$) such that females perceived greater susceptibility to health risks resulting from sun exposure ($M = 5.95$, $SD = 1.04$) than males ($M = 4.76$, $SD = 1.06$). Age had no impact on perceived susceptibility to health risks. The analysis also revealed a significant interaction between incidental affect and message framing ($F (1, 146) = 4.69$, $p < .05$) (see Figure 1). Neither of the main effects was significant. It appeared that for sad participants, the gain-framed message led to greater perceived susceptibility to health risks ($M = 5.70$, $SE = .16$) than the loss-framed message ($M = 5.46$, $SE = .15$), although the difference was not significant. Happy participants, on the other hand, perceived significantly greater susceptibility to health risks after reading the loss-framed message ($M = 5.91$, $SE = .17$) than the gain-framed message ($M = 5.39$, $SE = .20$, $F (1, 146) = 3.81$, $p = .05$).

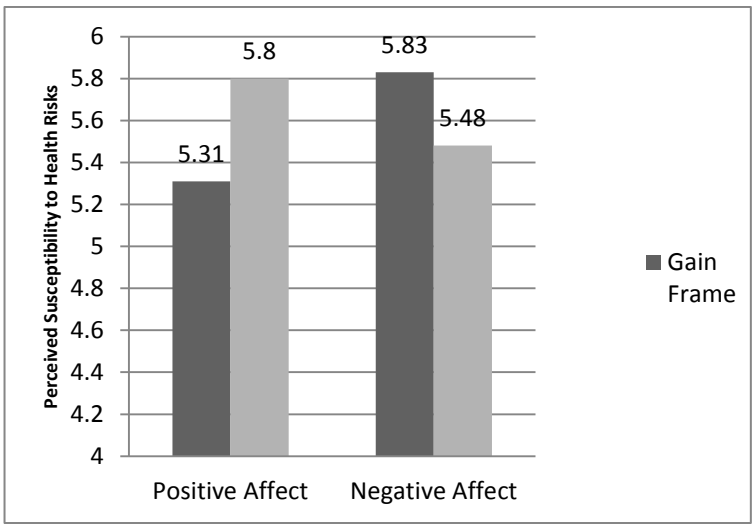

Figure 1. Perceived susceptibility to health risks as a function of incidental affect and message framing.

Finally for perceived response efficacy, the analysis revealed a significant effect of gender ($F(1, 146) = 7.43$, $p < .01$) and age ($F(1, 146) = 6.54$, $p < .05$). Females in general perceived greater response efficacy ($M = 5.35$, $SD = 1.42$) than males ($M = 4.76$, $SD = 1.10$). As age increased, so did perceived response efficacy. The analysis also revealed a significant interaction between incidental affect and message framing ($F(1, 146) = 4.69$, $p < .05$). Neither of the main effects was significant. It appeared that for sad participants, the gain-framed message led to greater perceived response efficacy ($M = 5.38$, $SE = .21$) than the loss-framed message ($M = 4.93$, $SE = .19$). Happy participants, on the other hand, perceived greater response efficacy after reading the loss-framed message ($M = 5.47$, $SE = .22$) than the gain-framed message ($M = 4.95$, $SE = .25$). However, both differences did not reach the conventional level of significance ($p1 = .12$, $p2 = .11$).

Additional analyses

A relatively conclusive finding from the previous analyses was that incidental affect interacted with message framing to influence perceived susceptibility to health risks such that for happy participants the loss-framed message led to greater perceived susceptibility to health risks, whereas for sad participants, message framing did not make a difference. Previous research suggests that perceived susceptibility to health risks positively predicts likelihood of adopting a recommended health behavior (42). As such, even though it was found that message framing had no direct effects on behavioral intentions for happy individuals, it could have an indirect effect on behavioral intentions through perceived susceptibility to health risks.

To explore this possibility, a path analysis was conducted for happy participants, for whom the loss-framed message was found to result in greater perceived susceptibility to health risks than the gain-framed message. A path model was specified, where message framing was the independent variable, perceived susceptibility to health risks was the presumed mediator, and behavioral intention was the dependent variable. Since gender was

found to be a significant predictor of perceived susceptibility to health risks, it was also included in the model with causal links to perceived susceptibility and behavioral intention (see Figure 2). AMOS 7.0 was used to estimate the path model with full information maximum likelihood.

Results of model estimation showed that the path model fit the data extremely well ($\chi 2$ = .024, df = 2, p > .90, GFI = 1.00, AGFI = .99, NFI = .99, RMSEA = .00). As expected, perceived susceptibility to health risks exerted a significant positive effect on behavioral intention (β = .30, p < .05). As demonstrated previously, the causal link from message framing to perceived susceptibility to health risks was also significant (β = -.22, p < .05). Collectively, the results suggest that message framing had an indirect effect on behavioral intention through perceived susceptibility to health risks. On a minor note, perceived susceptibility to health risks also appeared to mediate the influence of gender on behavioral intention.

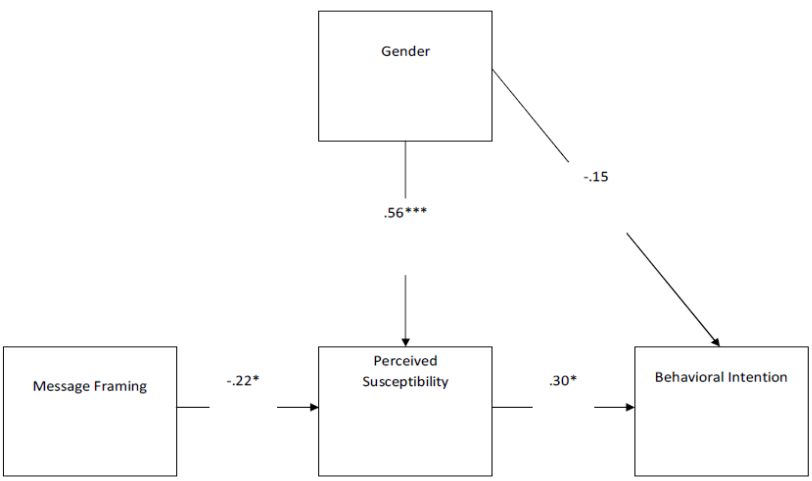

Figure 2. Influence of message framing on behavioral intention for happy participants: the mediating role of perceived susceptibility to health risks.

DISCUSSION

This study sought to understand the interplay of incidental affect and message framing in the promoting of sun protection behaviors. A number of conclusions can be drawn from the results of the experiment. First, incidental affect appears to interact with message framing to influence perceived susceptibility to health risks resulting from sun exposure. In particular, for happy participants, the loss-framed message led to greater perceived susceptibility than the gain-framed message. This finding is consistent with the extended hedonic contingency model (40) which argues that people in a positive mood are more likely to attend to negative

information when stakes are high. In the current experiment, the PSA promoted sun protection behaviors to prevent potentially deadly diseases. Therefore participants might perceive a high personal cost associated with the issue. The experiment also found that for sad participants the gain- and loss-framed messages did not make a difference in perceived susceptibility, although the direction of means appears to suggest that the gain-framed message was more potent than the loss-framed message. This finding may be explained by the mood repair view which suggests that people in a negative mood actively seek to elevate their mood by attending to positive information.

A significant interaction between incidental affect and message framing was also detected for perceived response efficacy. Decomposition of the interaction suggests a pattern similar to that associated with perceived susceptibility. It appears that for happy participants the loss-framed message resulted in greater perceived response efficacy, whereas for sad participants the gain-framed message led to greater perceived response efficacy. However, both mean comparisons did not reach the conventional level of significance.

Incidental affect and message framing appear to have no main or interactive effects on behavioral intention, although examination of means revealed a result pattern similar to that associated with perceived susceptibility and perceived response efficacy. Since prior research has suggested a strong link between perceived susceptibility to health risks and intentions to adopt protective behaviors (42), an effort was made to examine the possible indirect effect of message framing on behavioral intention through perceived susceptibility. Results of a path analysis indicate that although message framing may not exert a direct impact on behavioral intention, it may influence behavioral intention indirectly through perceived susceptibility to health risks. This is especially true for people in a positive mood.

In sum, incidental affect and message framing were found to have an interactive effect on perceived susceptibility, which further predicted behavioral intention. Results for happy participants are more consistent with the extended hedonic contingency model than the original contingency model. Findings for sad participants are suggestive of a mood repair process. The mood congruence model was not supported by the data. Since there was no main effect of incidental affect, mood interference models were not supported either.

A few limitations associated with this research need to be acknowledged here. First, ad exposures that occur in a laboratory setting often do not match what happens in the real world. In this experiment, exposure to the PSA was forced, unlike in a natural setting, where ad exposures are voluntary. In addition, PSA presentation in this study was void of programming context. In a natural setting, PSAs are typically embedded within editorial programs. Another limitation of this study is the use of a single message rather than multiple PSAs. It is not clear whether the same pattern of results will be observed when other PSAs on sun protection behaviors are used as the message stimuli. Third, although the emotion induction method was verified to be successful, alternative methods using more realistic manipulations might render the findings more relevant for practice. Past studies, for example, have used movies or TV programs to induce either positive or negative emotions [13, 38]. However, when using these more realistic manipulations we need to make sure that the selected movies or TV programs will induce intended, but not unintended, emotions. Finally, the relatively small sample size and the use of college students as respondents are likely to produce biases in the findings. Future studies are called for to replicate this research with a more representative sample of a larger size.

Despite the limitations, this research holds a few implications for designing and delivering health promotion messages. This research suggests the importance of considering the role of incidental affect in evaluating the persuasiveness of health promotion messages. Nowadays, many health promotion messages are placed in the mass media where there is a great deal of editorial content and entertainment programs that can induce a wide range of emotions among the audience. This study shows that incidental affect caused by these programs could have a systematic effect on how health promotion messages that follow such content might be processed. In particular, if a health message appears after a news story that induces a happy mood, then framing the health message in terms of losses is likely to produce a greater persuasive effect than framing it in terms of gains. Overall, the interplay between incidental affect induced by programming context and message framing needs to be taken into consideration when conducting formative research and message pretesting for health media campaigns.

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SECTION TWO: ACKNOWLEDGMENTS

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Chapter 11

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Chapter 12

ABOUT THE LEUVEN SCHOOL FOR MASS COMMUNICATION RESEARCH

The Leuven School for Mass Communication Research of the University of Leuven (Belgium) is a small, but committed group of researchers interested in the empirical study of the uses and effects of the media. The groups' research is rooted in an empirical analytical tradition with producing high quality research in communication as its aim. The School for Mass Communication Research has a strong tradition of multi-disciplinary research, by incorporating views from cognitive psychology, criminology, sociology and public health in media research. Even though the group has done some applied studies for private contractors and the government in the past, the main focus is on academic research.

Within "Leuven Masscom" three foci exist: a) research examining explanations of media use and media exposure; b) research on psychological health and sexual socialization and c) research on the effects of media use on perceptions, attitudes and behaviors regarding issues of health and violence. The group has published sveral studies on the impact of mass media on health perceptions, attitudes and behavior, on the impact of online information seeking on patient empowerment, on the influence of health narratives, on the use of media as a tool for health promotion and on media exposure linked to several health risk behaviors. In these studies both intentional effects (e.g. advertising, health promotion) and unintended effects (e.g., cultivation, social learning) are examined. The group studies mass media such as television, newspapers or the internet, but also the mobile phone, video games or music. Studies look at children and adolescents, but also at adults or senior citizens.

The research of Leuven School for Mass Communication Research has resulted in a large publication output in top ranked journals in media research and public health, in paper presentations and a number of best paper awards at international conferences and workshops. Furthermore the Leuven School for Mass Communication Research has excellent international academic contacts in several fields of research throughout Europe and the United States.

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Chapter 13

ABOUT THE NATIONAL INSTITUTE OF CHILD HEALTH AND HUMAN DEVELOPMENT IN ISRAEL

The National Institute of Child Health and Human Development (NICHD) in Israel was established in 1998 as a virtual institute under the auspices of the Medical Director, Ministry of Social Affairs and Social Services in order to function as the research arm for the Office of the Medical Director. In 1998 the National Council for Child Health and Pediatrics, Ministry of Health and in 1999 the Director General and Deputy Director General of the Ministry of Health endorsed the establishment of the NICHD. In 2011 the NICHD became affiliated with the Division of Pediatrics, Hadassah Hebrew University Medical Centers, Mt Scopus Campus in Jerusalem.

MISSION

The mission of a National Institute for Child Health and Human Development in Israel is to provide an academic focal point for the scholarly interdisciplinary study of child life, health, public health, welfare, disability, rehabilitation, intellectual disability and related aspects of human development. This mission includes research, teaching, clinical work, information and public service activities in the field of child health and human development.

SERVICE AND ACADEMIC ACTIVITIES

Over the years many activities became focused in the south of Israel due to collaboration with various professionals at the Faculty of Health Sciences (FOHS) at the Ben Gurion University of the Negev (BGU). Since 2000 an affiliation with the Zusman Child Development Center at the Pediatric Division of Soroka University Medical Center has resulted in collaboration around the establishment of the Down Syndrome Clinic at that center. In 2002 a full course on "Disability" was established at the Recanati School for Allied Professions in the Community, FOHS, BGU and in 2005 collaboration was started with the Primary Care Unit of the faculty and disability became part of the master of public health course on "Children

and society". In the academic year 2005-2006 a one semester course on "Aging with disability" was started as part of the master of science program in gerontology in our collaboration with the Center for Multidisciplinary Research in Aging. In 2010 collaborations with the Division of Pediatrics, Hadassah Medical Centers, Hebrew University, Jerusalem, Israel.

RESEARCH ACTIVITIES

The affiliated staff have over the years published work from projects and research activities in this national and international collaboration. In the year 2000 the International Journal of Adolescent Medicine and Health and in 2005 the International Journal on Disability and Human development of De Gruyter Publishing House (Berlin and New York), in the year 2003 the TSW-Child Health and Human Development and in 2006 the TSW-Holistic Health and Medicine of the Scientific World Journal (New York and Kirkkonummi, Finland), all peer-reviewed international journals were affiliated with the National Institute of Child Health and Human Development. From 2008 also the International Journal of Child Health and Human Development (Nova Science, New York), the International Journal of Child and Adolescent Health (Nova Science) and the Journal of Pain Management (Nova Science) affiliated and from 2009 the International Public Health Journal (Nova Science) and Journal of Alternative Medicine Research (Nova Science).

NATIONAL COLLABORATIONS

Nationally the NICHD works in collaboration with the Faculty of Health Sciences, Ben Gurion University of the Negev; Department of Physical Therapy, Sackler School of Medicine, Tel Aviv University; Autism Center, Assaf HaRofeh Medical Center; National Rett and PKU Centers at Chaim Sheba Medical Center, Tel HaShomer; Department of Physiotherapy, Haifa University; Department of Education, Bar Ilan University, Ramat Gan, Faculty of Social Sciences and Health Sciences; College of Judea and Samaria in Ariel and in 2011 affiliation with Center for Pediatric Chronic Diseases and Center for Down Syndrome, Department of Pediatrics, Hadassah-Hebrew University Medical Center, Mount Scopus Campus, Jerusalem.

INTERNATIONAL COLLABORATIONS

Internationally with the Department of Disability and Human Development, College of Applied Health Sciences, University of Illinois at Chicago; Strong Center for Developmental Disabilities, Golisano Children's Hospital at Strong, University of Rochester School of Medicine and Dentistry, New York; Centre on Intellectual Disabilities, University of Albany, New York; Centre for Chronic Disease Prevention and Control, Health Canada, Ottawa; Chandler Medical Center and Children's Hospital, Kentucky Children's Hospital, Section of Adolescent Medicine, University of Kentucky, Lexington; Chronic Disease Prevention and

Control Research Center, Baylor College of Medicine, Houston, Texas; Division of Neuroscience, Department of Psychiatry, Columbia University, New York; Institute for the Study of Disadvantage and Disability, Atlanta; Center for Autism and Related Disorders, Department Psychiatry, Children's Hospital Boston, Boston; Department of Paediatrics, Child Health and Adolescent Medicine, Children's Hospital at Westmead, Westmead, Australia; International Centre for the Study of Occupational and Mental Health, Düsseldorf, Germany; Centre for Advanced Studies in Nursing, Department of General Practice and Primary Care, University of Aberdeen, Aberdeen, United Kingdom; Quality of Life Research Center, Copenhagen, Denmark; Nordic School of Public Health, Gottenburg, Sweden, Scandinavian Institute of Quality of Working Life, Oslo, Norway; Centre for Quality of Life of the Hong Kong Institute of Asia-Pacific Studies and School of Social Work, Chinese University, Hong Kong.

TARGETS

Our focus is on research, international collaborations, clinical work, teaching and policy in health, disability and human development and to establish the NICHD as a permanent institute at one of the residential care centers for persons with intellectual disability in Israel in order to conduct model research and together with the four university schools of public health/medicine in Israel establish a national master and doctoral program in disability and human development at the institute to secure the next generation of professionals working in this often non-prestigious/low-status field of work.

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Chapter 14

ABOUT THE BOOK SERIES "HEALTH AND HUMAN DEVELOPMENT"

Health and human development is a book series with publications from a multi-disciplinary group of researchers, practitioners and clinicians for an international professional forum interested in the broad spectrum of health and human development.

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