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Presumed Media Influence in Health and Risk Messaging

Summary and Keywords

Health communication research has often focused on how features of persuasive health messages can directly influence the intended target audience of the messages. However, scholars examining presumed media influence on human behavior have underscored the need to think about how various audience's health behavior can be unexpectedly influenced by their exposure to media messages. Two central theoretical frameworks have been used to guide research examining the unintended effects: the third-person effect and the influence of presumed media influence (IPMI). The theoretical explanations for presumed media influence is built on attribution bias, self-enhancement, perceived exposure, perceived relevance, and self-categorization. Even though both the third-person effect and the IPMI share some theoretical foundations, and are historically related, the IPMI has been argued to be better suited to explaining a broader variety of behavioral consequences. One major way that presumed media influence can affect an individual's health behavior is through the shifting of various types of normative beliefs: descriptive, subjective, injunctive, and personal norms. These beliefs can manifest through normative pressure that is theoretically linked to behavioral intentions. In other words, media have the capability to create the perception that certain behaviors are prevalent, inculcating a normative belief that can lead to the uptake of, or restrain, health behaviors. Scholars examining presumed media influence have since provided empirical support in a number of specific media and behavioral health contexts. Existing findings provide a useful base for health communication practitioners to think about how presumed media influence can be integrated into health campaigns and message design. Despite the proliferation of research in this area, there remains a need for future research to examine these effects in a new media environment, to extend research into a greater number of health outcomes, to incorporate actual behavioral measures, and to ascertain the hypothesized causal chain of events in the model.

Keywords: presumed media influence, third-person effect, unintended effects, health, health behavior, health and risk message design and processing

Introduction

Communication messages in the media have been well studied by scholars. Since Carl Hovland sought to understand the potential of mass communication for influencing society (Delia, 1987; Rogers, 1994), scholars have studied a range of communication phenomena that explain how the media can alter a receiver's attitude or behavior. However, media-effects research has been characterized predominantly by research examining how media content and features directly (*directly* in the sense that the media achieve the intended effects of the messages) influence recipients. For example, Harrington (2016) noted that key theoretical frameworks used in health message design include behavior-change theories, information- processing theories, and message-design theories, all of which are concerned with how a target individual's attitude and behavior can be altered through health message features. As a result, *indirect* effects on people's attitudes and behaviors have received less attention, but these effects are no less interesting. As an example, parents watching *Game of Thrones* might censor or support censorship attempts in a bid to restrict their children's access to a presumably damaging show. Another example is teenagers' concluding that their peers think smoking is cool after being exposed to favorable images of smoking, leading to their potential adoption of smoking.

Communication scholars seeking to examine presumed media influence have suggested that media can indirectly lead to attitudinal, normative, and behavioral outcomes. This is based on the assumption that people think that some forms of media are influential among other individuals (Davison, 1983; Gunther & Storey, 2003). In situations where people assume certain media content is having an influence among other individuals, this assumption can lead to people forming unexpected attitudinal beliefs and social norm beliefs, and even to their performing certain behaviors.

Among scholars, presumed media influence is generally examined under two related theoretical perspectives: the third-person effect and the influence of presumed influence, which have strong implications for health and risk message design in subtle ways. The implications include the need to purposefully consider the unintended effects of health messages. For example, young people's exposure to antismoking messages targeted at them can in turn lead to greater smoking adoption, due to the young audience's perceived prevalence of smoking among their peers. One way to manage these effects would be to understand what sort of subtle cues in the media, other than mere attention or exposure, can lead to unintended effects.

The Third-Person Effect

Research efforts examining unintended media effects have been growing tremendously. According to the original description of the third-person effect, “individuals . . . exposed to a persuasive communication will expect the communication to have a greater effect on others than on themselves . . . and whether or not these individuals are among the ostensible audience for the message, the impact that they expect this communication to have on others may lead them to take some action” (Davison, 1983, p. 3). According to the original description, the third-person effect is relatively simple, with two components—the perceptual and the behavioral hypotheses (Gunther, Perloff, & Tsfati, 2008; Perloff, 2009; Sun, Shen, & Pan, 2008; Xu & Gonzenbach, 2008). First, the perceptual hypothesis postulates that presumed media effects on others tend to be stronger than perceived media effects on oneself. Second, the behavioral component postulates that the presumed media effects on others can lead them to potential behavioral outcomes.

The Perceptual Hypothesis

Since the publication of Davison’s (1983) seminal article, communication scholars have devoted a vast amount of resources to testing both of the hypotheses. Initially, researchers sought to examine whether the perceptual hypothesis was supported, with many studies conducted across various judgment contexts, such as content in television series (Lasorsa, 1989), product advertising (Gunther & Mundy, 1993; Gunther & Thorson, 1992), political promotion (Rucinski & Salmon, 1990), defamatory news content (Cohen, Mutz, Price, & Gunther, 1988; Gunther, 1991), news broadcasts about foreign conflicts (Perloff, 1989; Vallone, Ross, & Lepper, 1985), and idealized body image portrayals (Chia, 2009). Meta-analyses of the perceptual hypothesis offered further support that the perceptual component is a well-supported and distinct communicative phenomenon, albeit with some caveats (Paul, Salwen, & Dupagne, 2000; Sun, Pan, & Shen, 2008).

In the perceptual hypothesis, two key variables—perceived media effects on others (PMEo) and perceived media effects on self (PMEs)—are compared to see if a significant perceptual gap, termed third-person perception, exists between them (see Schmierbach, Boyle, & McLeod, 2008, for a more detailed discussion on how to statistically calculate the third-person perception). To date, several theoretical frameworks have been offered to explain the gap (e.g., Paul et al., 2000; Reid & Hogg, 2005; Tal-Or, Tsfati, & Gunther, 2009).

Theoretical Explanations of the Third-Person Effect

Attribution Bias and Self-Enhancement

First, scholars sometimes explain the perceptual gap using attribution theory (Gunther, 1991; Rucinski & Salmon, 1990). Attribution theory offers a framework to explain how people form beliefs and understand the causal events around them (Heider, 1958). Specifically,

attribution theory asserts that individuals can exhibit self-serving bias when assigning causality, where success is attributed to personal dispositional factors, while failure is attributed to situational factors (Jones & Nisbett, 1972). The opposite is true of an individual's understanding of others' behavior. In assigning causality to others' behavior, individuals will tend to attribute success to situational factors, and failures to personal dispositional factors.

This bias stems from a need to reinforce and sustain a positive self-image and self-esteem, by perceiving oneself as smarter than the majority of other individuals (Gunther, 1995; Tal-Or et al., 2009). Applied to a media message, an individual might think that he or she has the capacity to understand any underlying persuasive attempts, while others' personal dispositional flaws, such as the lack of guile, make them more susceptible to persuasive attempts (Paul et al., 2000).

Evidence for this position stems from the observed conditions in which the gap between PMEo and PMEs increases or decreases. For example, the gap, called the third-person perception, is usually greater when individuals respond to media content that is negative (Gunther, 1995). However, when media messages are positive, the gap is often diminished (Duck, Terry, & Hogg, 1996). Sometimes, a reverse effect can also occur, a phenomenon called the first-person perception (Duck & Mullin, 1995; Gunther & Ang, 1996; Henriksen & Flora, 1999). Some scholars have suggested a social distance corollary, where the third-person effect increases when the perceived social distance between an individual and various comparison "others" increases (Perloff, 1999). For example, Cohen et al. (1988) found that the perceived media effects of defamatory news articles on "other Stanford students," "other Californians," and the "public opinion at large" increase as the comparison group becomes more general and distal from the respondents. This has been found in other studies as well, where the perceived effects of political attack advertisements are reported to be greater for groups that are socially further from the respondents (Wei & Lo, 2007). These findings are consistent with the theory that the third-person perception arises out of a need to perceive oneself positively, as the self can benefit from enhancing the value of the in-group one belongs to (Tal-Or et al., 2009). There are other ways that researchers have found to support the theory that the third-person perception stems from a motivational source, such as through the interchangeability self-enhancement mechanism, a need to control life events, self-protection, and an impression management tactic (Perloff, 1999, 2002; Tal-Or & Drukman, 2010; Tal-Or et al., 2009).

Perceived Exposure and Relevance

A second theoretical perspective that aims to explain how third-person perception arises is through the assumption that the perceived likelihood of others' being exposed to various media content leads to an individual's equating that likelihood with the impact it will have on said groups (Eveland, Nathanson, Detenber, & McLeod, 1999). This simple "greater exposure leads to greater impact" theory suggests that people might report greater PMEo when they believe that it is likely that others are being exposed to particular media content at a greater rate than themselves. Another related explanation is that people report greater PMEo when the perceived relevance of a particular media content is taken into account (Jensen & Hurley, 2005). From such a perspective, if the subject of a negative media message is perceived to be relevant to an "other" group of people, the group members will be perceived to be less influenced by the message (Tsfati & Cohen, 2004). For example, a negative message about a minority group would be perceived to have less influence on members of the minority group. However, if a group is perceived to be a target of a persuasive media message, the members of the group are perceived to be more influenced by it (McLeod, Eveland, & Nathanson, 1997). In addition, if a group is portrayed positively by a media message, it is also perceived that its members are more influenced by it (Elder, Douglas, & Sutton, 2006). Other related explanations can include perceived audience characteristics (such as education level or in-group and out-group norms), perceived susceptibility of the audience (such as with naïve audiences), stereotypes and pre-existing schemas, and perceptual constraints (see Tal-Or et al., 2009).

Self-Categorization Theory

Finally, self-categorization theory has also been widely used to explain the third-person perception. Essentially, self-categorization theory posits that individuals can view themselves at different levels of abstraction, from the self as an individual to the self as part of various levels of social groups (Turner, Hogg, Oakes, Reicher, & Wetherell, 1987). The theory proceeds to examine when certain identities become salient to the point that they influence social perception and behavior. Whether certain social identities influence social perception or not depends on fit formulation, which is dependent on three determinants (Reid & Hogg, 2005; Turner et al., 1987). First, there must be relative motivational and cognitive accessibility to the social group. Second, there must be sufficient differences between the perceived average similarity of oneself to the in-group, as compared to the perceived average similarity of oneself to the out-group (also called comparative fit). Finally, a normative fit is obtained when the perceived behavior of an individual or group of people conforms to one's expectations of their behavior.

In relation to the third-person perception, self-categorization theory suggests that third-person perception arises when a salient shared social identity is being portrayed by communication messages, followed by people's categorizing themselves and others according to defining attributes of the shared social identity being portrayed (Reid & Hogg, 2005). Specifically, self-categorization theory predicts "that the third-person effect will be accentuated if social identity is salient, the other person is an out-group member, and the media are normative for the out-group" (Reid & Hogg, 2005, p. 131). Studies have found empirical support for such a theoretical perspective (Park & Kim, 2013; Reid, Byrne, Brundidge, Shoham, & Marlow, 2007; Reid & Hogg, 2005; Zhang & Reid, 2013). In one study, men and women were found to have large third- and first-person perceptions when comparing themselves to the opposite gender based on gender norms, a finding consistent with the predictions of self-categorization theory (Reid et al., 2007). Specifically, using out-group norms as the basis of comparison, men perceived that women would be more repulsed and offended by pornography than they themselves would be. Likewise, women perceived men to be more excited and aroused by pornography than they would be. However, when in-group norms were used as the basis of comparison, men perceived themselves to be more excited and aroused by pornography than women were, while women perceived themselves to be more repulsed and offended by pornography than men were.

The Behavioral Hypothesis: From Perceived Effects to Consequences

Research examining the perceptual component of the third-person effect has found strong evidence for the gap that exists between PMEo and PMEs. The research has yielded intriguing insights into how and why people hold competing estimations of perceived media effects. However, the real-world implications of how presumed media influence affects behavior are far greater. Research into how presumed media influence leads to

various attitudinal, normative, and behavioral outcomes sheds light specifically on how health and risk message designs can be improved to elicit desirable behavioral outcomes. Even though the promise is great, there is also greater complexity and contentiousness with regard to how presumed media influence affects outcomes.

Most scholars examining presumed media influence agree that the perceptual component of the third-person effect is a well-documented and empirically supported phenomenon. It is about the second component of the third-person effect, where "these individuals . . . take some action" (Davison, 1983, p. 3) that there is some contention. Specifically, because Davison (1983) did not provide a thorough exposition of the consequences of presumed media influence, to better understand the consequences of presumed media influence, Tal-Or et al. (2009) proposed three types of outcomes that can arise from it—prevention, coordination, and normative influence.

First, prevention-focused consequences include an impulse to restrict the dissemination of a detrimental message, such as support for censorship. Second, coordination outcomes relate to using presumed media influence as a form of information to anticipate what others will do, and acting in a way in accordance to that anticipation. For example, coordination outcomes can include voters' switching their vote if they perceive that the media favor certain parties or candidates, thereby influencing the votes of "other" voters (Cohen & Tsfati, 2009). Last, normative influence outcomes refer to an individual's either accepting the norm, or defying it. When perceiving that a media message is promoting a social norm or belief, people face the choice of either complying with the norm, or acting in defiance of the norm. The key difference between normative influence outcomes and coordination outcomes lies in the fact that coordination outcomes refer to temporary changes in behavior to maximize desired results, while normative influence outcomes refer to an acceptance or defiance of more stable norms that drive longer-term responses (Tal-Or et al., 2009).

Norm compliance responses have been found in studies examining the influence of pro- and antismoking messages on perceived peer norms, and subsequently smoking initiation (Gunther, Bolt, Borzekowski, Liebhart, & Dillard, 2006); the influence of body-image portrayal on normative attitudes regarding ideal body image types, leading to certain eating behaviors among young people (Milkie, 1999); the influence of sexual messages in television programs on more permissive sexual attitudes and behavioral intention (Chia, 2006); and the influence of pro- and anti-drinking messages on adolescents' drinking norms and behavioral intentions (Ho, Poorisat, Neo, & Detenber, 2014). Such forms of compliance reactions demonstrate the potential for mass communication messages to generate bandwagon effects, even before a single audience member has adopted an attitude or behavior. In addition, Tal-Or et al. (2009) noted that compliance can also mean withdrawal. For example, in a study of the residents of peripheral Israeli towns, the more residents thought that media messages would lead to others' thinking negatively about their community, the more likely they were to think about relocating (Tsfati & Cohen, 2003). On the other hand, norm defiance responses include resisting the overriding perceived norms. For example, it was found that the more doctors perceived that direct-to-consumer advertising of drugs was negatively influencing their patients, the more likely they were to

refuse to prescribe those drugs (Huh & Langteau, 2007). Another defiant response is an action that an individual feels obliged to take (Gunther et al., 2008): for example, individuals take “corrective” action like engaging in offline and online public debate when they perceive that the media are hostile and are influencing other people (Rojas, 2010).

A Point of Contention: The Role of Third-Person Perception

Although attitudinal, normative, and behavioral consequences of third-person perception have been found, there is still a crucial point of contention in testing the behavioral component of the third-person effect. Specifically, Davison (1983) never conclusively discussed whether it was PMEo, PMEs, or the perceptual gap (third-person perception) that led to the hypothesized consequences of presumed media influence. To address this, the scholars who took up the mantle for furthering research on the third-person effect theorized about the relationship between PMEo, PMEs, the perceptual gap, and various related behavioral outcomes. Early research utilized third-person perception as the core variable in predicting consequences. Specifically, the notion that the third-person perceptual gap is a crucial variable in presumed media influence outcomes was first proposed by Gunther (1995), followed by McLeod et al. (1997).

In utilizing the third-person effect to understand individual support for censorship of pornography, Gunther (1995) posited that, as the gap between PMEs and PMEo grows larger, “people will feel that the social-level effect grows more harmful, and that something should be done about it” (p. 28). Such a perspective invokes the concept of paternalism as a theoretical link between the third-person perception and protective or preventive attitudinal outcomes, such as support for censorship. From a paternalism perspective, it is argued that people are motivated to protect society from the harm caused by detrimental media messages. McLeod et al. (1997) further argued that the third-person perception is a stronger predictor than both PMEs and PMEo, again invoking paternalism as a justification for the hypothesis.

Following the critical studies of Gunther and McLeod et al., a number of studies have supported the hypothesis that the third-person perceptual gap is responsible for the consequences of presumed media influence in a number of contexts, such as support for censorship of political attack advertisements (Salwen, 1998), gambling advertisements (Shah, Faber, & Youn, 1999), and television content with homosexual characters (Gunther & Ang, 1996). Despite this, other studies have found that the third-person perception gap is unrelated to other protective consequences, such as support for restriction on media coverage of the OJ Simpson trial (Salwen & Driscoll, 1997), support for restriction of a Holocaust denial advertisement (Price, Tewksbury, & Huang, 1998), and support for censorship of films with homosexual content (Ho, Detenber, Malik, & Neo, 2012).

As a result, many scholars have begun questioning the relevance of the third-person perception as a key component of the behavioral hypothesis. In one meta-analytic review of 35 studies utilizing the third-person perception to predict support for censorship, Feng and Guo (2012) noted that the behavioral effect was heterogeneous and weak overall. Moreover, Chung and Moon (2016) reviewed past studies utilizing the third-person perception as a predictor of censorship attitudes and argued that the paternalism argument was a logically weak theoretical justification for the hypothesis. Furthermore,

their analyses of the data from previous studies found that the third-person perception was a weaker predictor of censorship attitudes, as compared to PMEo, suggesting that PMEo is a better construct, both theoretically and empirically, for testing the behavioral component of the third-person effect.

The Influence of Presumed Influence

Utilizing only PMEo as a predictor of the behavioral responses arising from presumed media influence had been mooted and explored a few years after the critical studies by Gunther (1995) and McLeod et al. (1997) that proposed the use of the third-person perception as a key component of the behavioral hypothesis. Salwen (1998) found that PMEo, but not PMEs, was significantly related to support for campaign message restrictions in the 1996 U.S. presidential election. McLeod, Detenber, and Eveland (2001) employed separate regression paths to test the effects of PMEs and PMEo on support for censorship, and found that there were differentiating processes that lead to PMEs and PMEo, and subsequently support for censorship.

Despite these inroads, it was not until Gunther and Storey (2003) published their seminal article that a broader, more inclusive theoretical framework for presumed media influence research started gaining traction. Arguing that the traditional third-person effect model restricted the understanding of the behavioral component of presumed media influence, because it limits the behavioral contexts that it can be applied to, Gunther and Storey (2003) proposed the *influence of presumed media influence* (IPMI) model as a broader theoretical framework for understanding indirect media influence on unintended audiences. They argued that the traditional third-person effect is most suitable for application to less desirable media influence, resulting in the behaviors being examined to be limited to those that are prevention-focused.

The main difference between the IPMI and the traditional third-person effect's behavioral hypothesis is that the IPMI utilizes only PMEo as the key explanatory variable in predicting response outcomes. Compared to the theoretical explanations for traditional third-person effects, the IPMI model is built on the persuasive press inference logic (Gunther & Storey, 2003). According to Gunther and Storey (2003), "the persuasive press inference logic argues that people (a) attend to mass media and form impressions of the extent and slant of media content; (b) assume that this content is representative of content more generally; (c) also assume that this media content has a broad reach; and (d) further assume that media content influences the opinions and attitudes of others" (p. 202). Therefore, the antecedent of PMEo, according to Gunther and Storey (2003), is media exposure or attention. Despite this, it is important to not overlook the rich theoretical insights gleaned from prior third-person effects research. The theoretical explanations for the third-person effect, such as perceived likelihood of exposure, perceived relevance of message, and social categorization, can still provide useful potential insights into other antecedents and potential moderators of PMEo.

The main benefit of the IPMI model is that it provides more room for explaining the impact of presumed media influence on responses outside of prevention-focused consequences. Almost all the studies on the third-person effect prior to the IPMI model focused on the support for censorship or media restrictions. As Gunther and Storey (2003) argued, presumed media influence can lead to a huge range of responses: “Court cases are settled, politicians withdraw from races, investors move their assets, poll results are restricted, scientists abandon controversial technologies, doctors prescribe more pain medications, legislation is enacted or defeated” (Gunther & Storey, 2003, p. 214). In addition, presumed media influence also opens up the possibility of other theoretical processes, other than the paternalism explanation, leading to a range of attitudinal, belief, and behavioral responses. Some scholars find such a theoretical perspective much more acceptable than research that focused on the third-person perception (Chung & Moon, 2016).

Although previous studies (e.g., McLeod et al., 2001; Salwen, 1998) have found support that PMEo alone can explain attitudinal responses, Gunther and Storey (2003) needed to support their assertion that the IPMI model is built on the persuasive press inference logic, and that it can be applied to a context outside of prevention-focused responses. Therefore, they tested the IPMI model by examining the influence of a Nepalese public health radio campaign on reproductive health targeted at Nepalese healthcare workers, who were generally negatively perceived by the population (Gunther & Storey, 2003). The radio program, titled *Service Brings Reward*, was targeted at the healthcare workers to improve their interpersonal communication, counseling skills, and technical knowledge. As the program was aired nationwide, the general population also listened to the program, providing a large group of unintended audience. The IPMI model hypothesized that greater exposure to the program would lead to greater presumed media influence on healthcare workers. Subsequently, this presumed media influence would lead to more positive attitudes toward healthcare workers, resulting in more positive interactions with the healthcare workers during visits. All the hypotheses were supported, giving the IPMI model strong initial empirical support.

Presumed Media Influence in Health Message Design

Although a vast amount of research in presumed media influence has focused on censorship attitudes toward harmful media content, the evolution of the research trajectory has brought the concept into greater prominence in health promotion and message design. The IPMI framework, with its broader applicability and focus on attitudinal and behavior change, makes it very useful in furthering our understanding of how health message design can benefit from research in this area. The seminal IPMI article by Gunther and Storey (2003) set the tone by empirically testing the model in a healthcare workers context. Most importantly, the study highlighted the effects that media content can have on unintended audiences. Previous health communication theoretical frameworks, such as reactance theory (Brehm, 1966), social cognitive theory (Bandura, 1998), theory of planned behavior (Ajzen, 1991), protection motivation theory (Rogers, 1975), and the health belief model (Janz & Becker, 1984), have focused on how health messages can influence a targeted individual. No other theoretical framework puts the focus on unintended audiences, making presumed media influence a unique and important theoretical consideration when designing health messages. As put forth by Gunther and Storey (2003), "given the potential breadth of the indirect effects model, one can speculate that many . . . campaigns may have unlooked for effects that also help realize their goals" (p. 213). Health promotion campaigns should take into account these effects in their design phase, in order to maximize the impact of their health messages.

To better understand how health message design can benefit from presumed media influence research, it is useful to consider the three types of response outcomes that it elicits—protection, coordination, and normative influence (Tal-Or et al., 2009). First, protection outcomes can occur when presumed media influence contributes to a climate of fear, leading people to presume that the media is driving fear-based health behaviors. For example, it was found that people's fear of severe acute respiratory syndrome (SARS) greatly affected people's access to healthcare (Chang et al., 2004). Likewise, when the first case of locally transmitted Zika virus was confirmed in the island state of Singapore in late August 2016, mosquito repellents were sold out across the country (Abdullah, 2016). If individuals presume that existing media messages lead to these undesired behaviors, they might take action to protect themselves (such as overstocking on mosquito repellents themselves), or protect others (by attempting to censor or counter the dominant fear narrative). Likewise, coordination outcomes can occur when people temporarily change their behavior in response to what they think others are influenced by, in order to generate a net positive outcome. For example, in the Zika virus example, it is possible that people might go to non-brand-name stores, such as traditional convenience stores, to purchase mosquito repellent.

Finally, presumed media influence has the potential to influence normative beliefs and perceived changes in others, which can then lead to people's adapting, rejecting, or adopting various health attitudes, beliefs, and behaviors. This potentially allows the media to create and assert social norms through media content, even if the norms are not actually adopted by society. Bandwagon effects can be initiated by influential media sources, by making it seem as though everyone else thinks a target behavior is important. Such effects, which refer to people's tendency to emulate behaviors that gather a critical mass within one's social environment, can lead to an exponential uptake of behaviors as

people gravitate toward behaviors that are popular (Bass, 1969; Simon, 1954). Specifically, these effects take place because people associate the quantity of various media content with the quality of its appeal (Neuman, 1991; Webster & Phalen, 1997). These norms-based approaches to understanding media influence have been utilized and empirically validated in IPMI research in the context of health as well as other behaviors, such as pro-environmental behavior (Liao, Ho, & Yang, 2016). Although there are a limited number of existing studies utilizing a presumed media influence framework in understanding health promotion, the ones that do use it appear to support these assertions (a summary of the existing research is presented in Table 1).

Table 1. Summary of IPMI Studies in the Context of Health

Study	Findings	Significance to Health Communication
Milkie (1999)	White girls, even though they are critical of the images, thought that others (especially boys) were influenced by the distorted body images. These girls then projected a social norm based on their presumption that the media has an influence on others, feeling the pressure to conform to the unrealistic representations of beauty.	Suggested an IPMI effect.
Gunther et al. (2006)	Exposure to either pro- or anti-smoking media content was strongly correlated to perceived peer exposure to either types of content. Perceived peer exposure to pro-smoking messages was positively correlated with perceived peer smoking prevalence, while perceived peer exposure to anti-smoking messages was negatively correlated with perceived peer smoking prevalence. The perceived peer smoking prevalence was further positively correlated with attitudes towards smoking and one’s susceptibility to smoke.	Supported the IPMI model in the context of smoking.
Chia (2006)	Exposure to sex-related TV programs was positively correlated with perceived peer exposure to the same programs. Perceived peer exposure was positively correlated with perception of media influence on peers, which was positively correlated with perceived peer norms on sex. Perceived peer norms on sex were positively correlated with	Supported the IPMI model in the context of permissive sexual attitudes and intention to engage in sexual activities.

Study	Findings	Significance to Health Communication
	permissive attitudes toward sex, and subsequently positively correlated with intention to engage in sexual activities.	
Park (2005)	Beauty and fashion magazine use was positively correlated with the perceived prevalence of the thin ideal. Perceived prevalence of thin ideal was then positively correlated with presumed media influence on men and other women, which was correlated with perceived influence on self, and subsequently, the desire to be thin.	Supported the IPMI model in the context of women's desire to be thin.
Hoffner and Cohen (2012)	Perceived influence of *Monk* (TV show) on others' attitudes toward OCD was significantly and positively related to both a fan's willingness to disclose mental health treatment and reported self-esteem benefit among fans who have had personal experience with mental illness.	Supported the IPMI model in the context of mental health treatment disclosure, and subsequent beneficial self-esteem effects on the self.
Noguti and Russell (2014)	Manipulating presumed influence can cause purchase intention of alcohol brands regularly found in television series that are watched regularly by the participants. Susceptibility to normative influence, primed conformity, and trait reactance moderate the IPMI effects.	Supported the IPMI model in the context of alcohol brand purchase intention. Also established that susceptibility to normative influence and trait reactance can moderate IPMI effects under certain circumstances.
Ho et al. (2014)	The IPMI effect of pro- and anti-drinking messages differed based on whether the adolescents were drinkers in the first place. Specifically, among nondrinkers, the pro-drinking IPMI effect on drinking attitudes and intention was mediated by all three types of social norms. However, for existing drinkers, only perceived subjective norms and injunctive norms were correlated with presumed media influence.	Extended the IPMI model to include three different facets of social norms. Suggested that IPMI effects can be more potent among those who have less experience with a target problematic health behavior, such as drinking or smoking.

Study	Findings	Significance to Health Communication
Ho et al. (2016)	Presumed media influence's effect on exercise and healthy diet intentions were mediated through attitudes and personal norms.	Supported the IPMI model in the context of exercise and healthy eating. Extended the IPMI model to include attitudes and personal norms.
Wei, Lo, and Lu (2008)	Perceived media effect on self predicted intention to seek avian flu information and intention to seek out Tamiflu. Perceived effect on others weakly correlated with intention to seek avian flu information, and was not correlated with intention to seek out Tamiflu. The third-person perceptual gap had a negative correlation with both responses.	Suggested that a defiant presumed media influence effect can occur with regard to preventive behaviors in health epidemics.
Huh and Langteau (2007)	Presumed harmful influence of direct-to-consumer advertising correlated with doctors' attitude toward direct-to-consumer advertising. Presumed harmful influence correlated with doctors' refusal to prescribe requested direct-to- consumer advertised drugs.	Suggested an IPMI effect among doctors in the context of drug advertising and prescription.

Existing Research

One of the earliest studies documenting the presumed media influence effect on norms, although the author did not use the term, was a qualitative study on how idealized female body images in the media influenced girls' normative beliefs. In interviewing 60 white and minority girls, Milkie (1999) found that white girls, even though they were critical of the images, thought that others (especially boys) were influenced by the distorted body images. These girls then projected a social norm based on their presumption that the media has an influence on others, feeling the pressure to conform to the unrealistic representations of beauty. According to Milkie (1999), "mediated" social comparisons can negatively affect a person's self-concept, attitudes, and behavior.

In a more formalized application of the IPMI model, Gunther et al. (2006) surveyed 818 sixth and seventh graders in the United States and found that exposure to either pro- or anti-smoking media content was strongly related to perceived peer exposure to either type of content. Furthermore, perceived peer exposure to pro-smoking messages was positively correlated with perceived peer smoking prevalence, while perceived peer exposure to anti-smoking messages was negatively correlated with perceived peer smoking prevalence. The perceived peer smoking prevalence was further positively correlated with attitudes toward smoking and one's susceptibility to smoke. Essentially, mere exposure to pro- or anti-smoking media messages has the capacity to alter perceived media effects on peers. This perceived effect on peers then translates into a perceived norm, which can lead to greater smoking susceptibility.

Chia (2006) utilized a similar model to understand how adolescents' presumed influence of sex-related television programs on peers could lead to their sexual permissiveness and their intentions to engage in sexual activities. In a survey of 213 adolescents in the United States, Chia found that exposure to sex-related TV programs was positively correlated with perceived peer exposure to the same programs. Subsequently, perceived peer exposure was positively correlated with perception of media influence on peers, which was positively correlated with perceived peer norms on sex. Perceived peer norms on sex were positively correlated with permissive attitudes toward sex, and subsequently positively correlated with intention to engage in sexual activities.

A study by Park (2005) showed a similar finding in the context of women's desire to be thin. A survey of 553 female college students found that beauty and fashion magazine use was positively correlated with the perceived prevalence of the thin ideal. This perceived prevalence was then positively correlated with presumed media influence on men and other women, which was correlated with perceived influence on self, and subsequently, the desire to be thin. Although the causal pathways that were utilized differ from those used by Chia (2006) and Gunther et al. (2006), and the study did not utilize perceived peer norms as a mediating variable, the findings do offer support for the idea that societal norms and presumed media influence are important mediating variables between media content exposure and a norm compliance response arising from presumed media influence.

Hoffner and Cohen (2012) examined whether perceived media effect on others had an influence on a number of mental health treatment outcomes among fans of the television series *Monk*. *Monk* is a television series that focuses on a brilliant detective, Adrian Monk, who has obsessive-compulsive disorder (OCD). His OCD is a core element of the show and provides many of the show's light-hearted moments. In the study, the researchers wanted to examine if fans, who presumably have a positive regard for the show, would exhibit any behavioral response from an IPMI perspective. Interestingly, the perceived influence of *Monk* on others' attitudes toward OCD was significantly and positively related to both an individual's willingness to disclose mental health treatment and reported self-esteem benefit among fans who had personal experience with mental illness. It is possible that the presumed influence of *Monk* on others' attitudes toward OCD impacted the perceived social norms regarding OCD, resulting in greater willingness to disclose mental health treatment (Hoffner & Cohen, 2012).

Noguti and Russell (2014) conducted a series of three experiments where presumed influence of a television series on others was manipulated by the presentation of fake statistical information about the influence of the series (either *Entourage, The Office, Gossip Girl*, or *Desperate Housewives*, depending on the respondents' familiarity with the show) on others. The researchers wanted to find out if manipulating presumed influence would cause increased purchase intention of two alcohol brands that are regularly found in the television series through product placement, and also, if susceptibility to normative influence, primed conformity, and trait reactance would moderate the IPMI effects. In their first experiment, the results showed that a more positive presumed influence of the television series on one's peers led to greater purchase intention for Budweiser beer and Skyy vodka. In their second experiment, they found that this effect is observed only among participants with high susceptibility to normative influence. This supports the theory that IPMI effects occur due to normative pressure. Only those who are more vulnerable to others' influence are more affected by IPMI. Finally, in their last experiment, the researchers attempted to prime the participants for conformity or nonconformity by making them complete a task that required them to type the words *follow, obey*, and *agree* for those in the primed conformity condition, and the words *deviate, disobey*, and *disagree* for those in the primed nonconformity condition. The findings revealed that conformity priming increased the IPMI effect on the desire to purchase alcohol seen in product placements, but only among those with low trait reactance. On the other hand, nonconformity priming reduced the IPMI effect. In addition, it was found that for those with high trait reactance, positive presumed influence on their peers did not lead to greater desire to purchase alcohol seen in the television series. The implications from this study are that the IPMI effect can be enhanced (a) among those who are more vulnerable to peer norms, and (b) by having conformity-priming elements in the media content targeted at people with low trait reactance.

Ho et al. (2014) sought to extend the IPMI model by including three different types of norms in mediating the IPMI effect on adolescents' drinking attitudes and intentions. The perceived social norms utilized were descriptive, subjective, and injunctive norms, as proposed in the theory of planned behavior (Ajzen, 1991). Descriptive norms are a person's beliefs about how prevalent the behavior in question is among referent others, indicating

belief about how common a behavior is among other people. Subjective norms refer to a person's perception regarding the degree to which important referent groups, such as family and friends, would expect them to perform a target behavior. Injunctive norms refer to the degree that people believe society would disapprove of the target behavior. Examining the IPMI effect among 1,028 Thai adolescents from a rural area in Thailand, the researchers found that the IPMI effect of pro- and anti-drinking messages differed based on whether the adolescents were drinkers in the first place. Specifically, among nondrinkers, the pro-drinking IPMI effect on drinking attitudes and intention was mediated by all three types of social norms. However, for existing drinkers, only perceived subjective norms and injunctive norms were correlated with presumed media influence. The researchers contended that the reason nondrinkers' descriptive norms are influenced by presumed media influence is that they lack the personal experience to establish their own descriptive norms. On the other hand, drinkers have a lot of their own drinking experiences to draw from, resulting in a different interpretive frame in assessing pro-drinking messages. In addition, it was found that all three norms mediated the relationship between presumed media influence and drinking attitudes/intention among nondrinkers, but only perceived subjective norms mediated the effect among drinkers. This might imply that, for those intending to start drinking, normative beliefs of all kinds are influential. However, for those sustaining a behavior, only normative pressure from important referent groups is likely to have a greater influence. The results from these study suggest that IPMI effects can be more potent among those who have less experience with a target problematic health behavior, such as drinking or smoking.

A norms-based approach was also utilized in another study that looked at how the IPMI predicts people's exercise and healthy diet intentions (Ho, Lee, Ng, Leong, & Tham, 2016). In a cross-sectional sample of 1,055 Singaporean adults, the researchers found that presumed media influence's effect on exercise and healthy diet intentions was mediated through attitudes and personal norms. However, unlike previous studies, this study included personal norms as a mediator and the researchers found that it has the most significant mediating effect between presumed media influence and both exercise and healthy diet intentions, as compared to injunctive norms. Defined as an internal moral compulsion to act in a certain manner, personal norms are an individual's beliefs about a behavior's intrinsic value (Schwartz, 1977; Stern, Dietz, Abel, Guagnano, & Kalof, 1999). These beliefs stem from an internalized understanding of the consequences of a behavior, and are especially relevant to behaviors with a moral facet, such as health behaviors. In other words, people have a moral responsibility to maintain a healthy lifestyle. The findings from the study suggest that the media can unintentionally shift personal norms, in addition to the more superficial descriptive, subjective, and injunctive norms. Specifically, presumed media influence can heighten awareness of people's responsibility for their health behaviors. This in turn can potentially motivate their intentions to take part in various healthy behaviors.

In addition to how presumed influence can lead to perceived social norms, and subsequently, behavior, research has also highlighted important situations where presumed influence on others can prevent appropriate health behaviors from being taken. In testing the third-person effect in the context of avian flu information-seeking and intention to seek out Tamiflu (a vaccine to counter the H5N1 avian flu), Wei, Lo, and Lu (2008) found that it was perceived media effect on self that predicted intention to seek avian flu information and intention to seek out Tamiflu. Perceived effect on others was weakly correlated with intention to seek avian flu information, and not correlated with intention to seek out Tamiflu. Interestingly, the third-person perceptual gap had a negative correlation with both responses. This meant that, the more people presumed that avian flu news would influence others, the more likely they were *not* to seek out avian flu information and Tamiflu. One possible reason for this effect might be due to optimistic bias, which has been found to prevent people from taking protective action for themselves (Wei et al., 2008). In this line of reasoning, people with greater third-person perception are driven largely by optimistic bias. Therefore, the same optimistic bias might lead to people to think that they won't be a victim of avian flu, and thus, there is no need to take any preventive action. "Other" people are more susceptible. One limitation of Wei et al.'s (2008) study was that they did not test the optimistic bias hypothesis, which would have provided empirical support for the explanation. Nonetheless, the researchers argued that, due to optimistic bias, effective health campaigns should be designed in ways that remove the third-person perception.

Instead of examining how IPMI can influence responses through a norms-based process, other studies have sought to examine the IPMI using different theoretical lenses. These lenses are not different from those used to explain the third-person effect, such as attribution theory and paternalistic motivation. For example, a study by Huh and Langteau (2007) sought to understand what behavioral responses doctors would have with regard to presumed influence of direct-to-consumer drug advertising. In a survey of 404 doctors, the researchers found that presumed harmful influence of direct-to-consumer advertising correlated with doctors' attitude toward direct-to-consumer advertising. In addition, presumed harmful influence was correlated with doctors' refusal to prescribe requested direct-to-consumer advertised drugs. The researchers theorize that this could have been due to attribution bias, where doctors judged that naïve patients were being inappropriately persuaded by direct-to-consumer advertising. Alternatively, it could be that presumed influence led to attitudinal changes, which influenced the doctors' behavior in line with the theory of reasoned action (Fishbein & Ajzen, 1975).

Translating Research into Practice

There are several key lessons for health message design that can be drawn from existing IPMI and third-person effect research. The first, and perhaps most important, lesson is that presumed media influence research has clearly shown that unintended effects on attitudes, normative beliefs, and behavior responses can occur, and often occur, among both the intended and unintended audiences of health campaigns. This means that it is critical to consider presumed media influence when crafting any health message, mapping out any potential unintended effects it can cause, and finding ways to augment potential positive effects and to inhibit potential negative effects. One potential question is to ask whether groups of people outside one's target audience will be exposed to the communication message one is sending out. Take, for example, Park's (2005) study, which found that perceived prevalence of the thin ideal, as derived from beauty and fashion magazine use, can lead to an unhealthy desire to be thin. Even though children and adolescents are not the intended audience for the advertisements in the magazines, the messages have the potential to propagate a normative belief, which then drives the behavior of the young people. In a review of the third-person effect, Conners (2005) also noted that it is perhaps more important to explore how the IPMI affects the behavior of policymakers and key decision makers, as their behavioral responses can have greater societal impact.

Because health communication messages can lead to both intended and unintended effects, on both the target group as well as those outside of their target, one way for health communication professionals to develop better messages is to consider the IPMI in their precampaign assessment framework. This will allow health communication professionals to gauge and predict potential outcomes from multiple angles, ideally resulting in the construction of public health messages that minimize undesired outcomes.

One interesting finding consistent across a handful of studies is that messages about "pro-harmful behaviors" (e.g., drinking alcohol or smoking) appear to have a stronger relationship with normative beliefs and norm compliance responses than those about "anti-harmful behaviors." Two studies examining alcohol consumption and smoking intentions found stronger IPMI effects on normative beliefs and subsequent behavioral intentions (Gunther et al., 2006; Ho et al., 2014). This suggests that the IPMI effect is stronger in the context of the *uptake* of behaviors, rather than in discouraging existing behavior. This is supported by the finding that the IPMI effect is less potent among existing drinkers than among nondrinkers (Ho et al., 2014). In addition, Hoffner and Cohen (2012) found that presumed influence of the television series *Monk* brought about a greater willingness to disclose mental health treatment, a behavior similarly taken up by individuals. These findings seem to suggest that health campaigns aimed at promoting the uptake of behaviors might benefit from considering potential IPMI effects.

Traditional forms of IPMI research have focused on media exposure as the main driver of presumed influence. However, Noguti and Russell's (2014) research suggested that priming information can encourage purchase behaviors. This has important implications for health campaigns, as an integrated campaign can include collateral messages that aim to manipulate presumed media influence or primed conformity, thereby bolstering the effects of the core health message. Previously unintended audiences can be targeted through guerrilla marketing tactics that aim to prime these effects to take place. Despite this, it is important to note that trait reactance can moderate the priming effects. Therefore, it is crucial to understand the audience before designing a health campaign that seeks to exploit the priming effects. Rebellious teenagers, for example, might defy the normative pressure created by priming tactics.

Future Directions

Existing presumed media influence research has sharpened the understanding of media messages on unintended audiences. Previously unexamined effects that are often overlooked by communication and health professionals have been brought to light. However, a number of questions need addressing.

First, almost all the studies examining presumed media influence were conducted in the context of traditional mass media, such as newspapers, film, television, and magazines. New media technologies, such as the Internet, smartphones, and social media, have drastically changed the global media landscape. In this case, it is important to revisit the core assumptions of IPMI research, namely the persuasive press inference logic. Do people still assume media content they read online is representative of content in general? Do the assumptions still hold in the media landscape today? Certain core human experiences do not change. People will still make inferences based on media content they receive. But what they infer from the new forms of information about *other* people, such as comments on news sites or blog posts, as well as personalized recommendation systems (e.g., "other people interested in this book also purchased *this item*"), needs to be studied in order to better understand how presumed media influence operates in the new media landscape. The greater interactivity and connection with others enabled by new media technologies might have a significant impact on the perception of others, a core concept in IPMI.

Second, most research on presumed media influence has examined the effect in the context of protective reactions, such as censorship attitudes. Even though the research is growing, there are still an insufficient number of researchers examining the effect in the context of other responses, such as health outcomes. More research needs to be conducted to empirically test the IPMI model across different contexts.

Along the same line of thought, research examining IPMI effects needs to incorporate actual behavior to provide insight as to whether the behavioral hypothesis applies. Current

research has examined how presumed influence affects self-reported attitudes, normative beliefs, and intentions. The lack of actual behavioral data means that the IPMI's effect on behavior is still a theoretical assertion, unsupported empirically.

A final area that merits further research attention is the IPMI's hypothesized causal chain of events. Many of the studies that have tested the IPMI model are based on cross-sectional samples, making it difficult to claim causality. This limitation of existing research is not new. Other scholars have previously called for greater causal evidence for the IPMI model (Tal-Or et al., 2009; Xu & Gonzenbach, 2008). Despite this, only two studies so far have answered the call to causally test the IPMI model (Noguti & Russell, 2014; Tal-Or, Cohen, Tsfati, & Gunther, 2010).

Presumed media influence studies have proliferated since Davison's (1983) seminal article. Among the many studies that have been conducted, there are important contributions that have led to our understanding of the phenomena today. The challenge for future researchers is to help provide a better understanding of how presumed media influence plays out in the new media landscape, to examine the phenomena across a broader array of domains, to provide causal evidence, and to ascertain whether actual behavioral responses occur because of presumed media influence. Taking on this challenge will greatly enhance understanding of this unique communicative phenomenon, something other grand theories in communication have sometimes overlooked.

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