

Organizations Disseminating Health Messages: The Roles of Organizational Identification and HITs

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Research into the dissemination of health information now includes more focus on how various organizations (e.g., beauty shops, schools, workplaces, and churches) and health information technologies (HITs) reach and affect audiences. One relational feature of organizations is identification—the feeling of belongingness. Our study explores how it influences audiences, especially in combination with HITs such as e-mail, websites, and social media. We use social identity theory to predict how organizational identification and social media might function in health communication. Using a 3×2 experimental design, we find that people's identification with a message source mediates the effect of social media on outcomes. These findings improve our understanding of when organizations might be most helpful for disseminating health information.

Various organizations are now being tapped to disseminate basic health information. They range all the way from beauty shops and churches (Johnson, Ralston, & Jones, 2010; Krueter, Alcaraz, Pfeiffer, & Christopher, 2008) to workplace wellness programs (Farrell & Geist-Martin, 2005; Kirby, 2006; Zoller, 2003, 2004). Thus far, most of the research into these dissemination efforts has focused on the organizations themselves, chiefly because they seemingly have the needed reach, access, and audience appropriateness (Krueter et al., 2008). Curiously, though, studies that compare organizations with respect to their reach have had decidedly mixed results (e.g., Krueter et al., 2008). One recent article, for example, which reviewed how organizations have been used for cancer information dissemination, concluded that most studies provide insufficient detail concerning how organizational factors actually influence dissemination (Rabin, Glasgow, Kerner, Klump, & Brownson, 2010). Understanding why certain organizations are more influential than others when delivering health messages thus remains something of a mystery. Common sense tells us that the answer might lie, at least in part, in the relationship that people have with their organization.

One such theoretical explanation emphasizes the emotional or relational connection known as organizational identification, a communicative bond formed between organizations and their audiences. Few studies have examined the influence of relational variables, like identification, on individuals' understanding and interpretation of health information messages. Prior research, however, does confirm that individuals who feel a strong sense of identification, or attachment, with an organization are more happily involved with it and thus more committed to it, too (for an extensive review, see Ashforth, Harrison, & Corley, 2008). People who feel strongly attached to their organization pay closer attention to its messages because they are more involved with it, thanks to their positive bond. Drawing from this literature, it follows that most people will also interpret health information differently depending on how much they identify with the organization promoting it.

Another factor influencing health message dissemination might well be the very health information technologies (HITs) that these organizations elect to use for distributing their messages. Organizations themselves act like metachannels (Stephens, Rimal, & Flora, 2004) because they typically use a variety of communication technologies—for example, e-mail, websites, and social media—to disseminate information. But therein lies an additional challenge for them: They must decide how to use HITs to reach their audiences without overloading them in the process.

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Furthermore, features of HITs that enhance identifying can also provide a more theoretical understanding of how HITs can best be used to disseminate health information. Organizations using more “socially connecting” HITs—and social media in particular—might be able to connect better with their audience and so achieve more positive results from their information-dissemination efforts. It stands to reason, then, that if health-communication scholars focus more closely on exploring why organizations and HITs might help or hinder dissemination, our future studies might lead to more predictable outcomes.

LITERATURE REVIEW

Identification and Health Information Messages

According to social identity theory (SIT), the self-concept comprises various social categories, with one of them being people’s organizational affiliations (Ashforth & Mael, 1989). When people refer to themselves in terms of an organizational affiliation, be it a work or community group, they are said to “identify with” that organization. The notion of organizational identification is developed from SIT and describes “the perception of oneness with or belongingness to an organization, where the individual defines him[-] or herself in terms of the organization to which he or she is a member” (Mael & Ashforth, 1992, p. 104). Importantly, identification is fundamentally a communicative process, since it is “through communication with others that we express our belongingness (or lack thereof) to various collectives” (Scott, 2007, p. 124). When people identify with an organization or a team, they share its values and decision premises (Cheney & Tompkins, 1987).

Identification is generally viewed as mutually beneficial for both individuals and organizations (for divergent opinions, see Gossett, 2002). A strong sense of identification is positively associated with several things: organizational citizenship behaviors (Dukerich, Golden, & Shortell, 2002), participation in organizational functions (Mael & Ashforth, 1992), greater cooperation and work-related efforts (Bartel, 2001), and member adjustment (Carmeli, Gilat, & Waldman, 2007). Identification with organizations and teams plays a key role in shaping attitudes and behaviors, including affect, involvement, satisfaction, and commitment to the organization (Ashforth et al., 2008).

People form attachments not only at the organizational level but also at the team or group level. In a hospital context, for example, the more closely nurses identify with their organization, the less likely they are to leave it; their attachment with their specific nursing team also affects their intent to leave, but to a lesser degree (Apker et al., 2009). Universities are another context where research suggests that attachments form at multiple levels (Bullis & Bach, 1989, 1991; Mael & Ashforth, 1992; O’Reilly & Chatman, 1986; Tompkins &

Cheney, 1985). Specifically, Bullis and Bach (1991) differentiated between graduate students’ identification with their department versus their identification with their university. Furthermore, O’Reilly and Chatman (1986) uncovered why students form these attachments at different levels. Their research demonstrated that students identify at various levels not because of some instrumental or extrinsic reward, such as a degree, that they expect from their university; rather, it grows from their similarity with the organization and pride in being affiliated with the university and various groups.

Identification and Persuasion

Identification research also suggests that people who identify with an organization respond positively to its messages, including any attempts at persuasion. Miller, Allen, Casey, and Johnson (2000) explored this very theory in a work context and found that “an important by-product of identification is employees’ receptivity to persuasive messages from the organization” (p. 629). When people identify with an organization, they are more responsive to its messages because their interests and the organizations’ interests are one and the same (Cheney, 1982). It follows that people with high levels of identification will respond more positively to organizational messages about health. Such messages, which may include information about nutrition, wellness programs, or illness prevention, are designed to benefit both individuals and organizations if followed as recommended. Community organizations also want their members to engage with health topics, especially when member health is part of their organizational mission (Stephens et al., 2004) or when they want to empower members to address health concerns relevant to their community groups (De Souza, 2011).

HITs and Health-Information Messages

Organizations use a variety of information technologies to communicate information to their members (D’Urso & Pierce, 2009). Health messages are often disseminated through multiple HITs, and few researchers would disagree that the different HIT capabilities—or technology affordances—can influence individuals’ perceptions of, and responses to, information (Flora, Saphir, Schooler, & Rimal, 1997; Hornik, 2002; Rogers & Storey, 1987). Certain technology affordances are particularly salient when organizations disseminate health information to members who feel a sense of identification, because “identification is expressed . . . in various contexts, or locales, of social interaction, usually to those and with those who are co-present” (Scott, Corman, & Cheney, 1998, p. 322). Because co-presence—the sense of sharing the same space—can impact identification, and HITs have varying levels of co-presence, identification might boost or hinder messages delivered through different HITs.

When examining multiple HITs, it is important to distinguish between HITs without limiting one's research to specific HITs because these technology tools are not fixed; they often morph into new forms (Sawhney, 2007). Rains (2007) urges communication scholars interested in examining online health issues to focus on identifying the specific features of health technologies that influence a health seeker's perceptions, attitudes, and behaviors. Despite such recommendations, online health information research has often referred to "the Internet" as if it were a monolithic source. But Hu and Sundar (2010) provide a compelling example of just how problematic it is to determine the source of online health information. When people are asked to identify a source of health information, they might name a specific HIT like a blog, or the Internet in general, or someone like a doctor. In short, people, organizations, and specific technologies can all function as "sources" in the mind of a health information consumer. This creates a complex environment for organizations disseminating health information since health information consumers can easily be confused by message sources. Hu and Sundar's (2010) research demonstrates that treating the Internet as a broad source of health information misses the nuanced functions of how different HITs can influence health information processing.

Thus, in this study, we distinguish between HITs that perform a more social function—that is, social media—and those that function predominantly as information sources—that is, e-mail and websites. HITs that can potentially tap into an individual's feeling of belongingness will likely serve to positively influence their perception of a message. Let us examine these differences more closely.

Social media. Social networking sites are a specific type of social media and are unique as an HIT because they connect people and offer more personalized platforms to share information (Kaplan & Haenlein, 2010). Facebook, in particular, is well understood by many people, since according to Alexa, a company that documents web traffic, as of 2012, Facebook is the second most frequently visited website in the world. Organizations are increasingly using social networking sites for activities like communicating with customers (Kaplan & Haenlein, 2010) and fundraising (Farrow & Yuan, 2011). Recent research on social media and organizational charitable giving finds that people are more apt to donate to organizations where they have a social tie on Facebook (Farrow & Yuan, 2011). In addition, Abrams and Lefebvre (2009) urge researchers to consider social media platforms for information distribution to promote "horizontal (i.e., peer-to-peer and social network) communications of campaign messages as social influence and modeling are important drivers of behavior" (p. 420).

HITs that encourage people to engage and link with others for social support could provide fruitful avenues in research on health information dissemination (Neuhauser & Kreps, 2003). Recent research indicates that heavy users

of Facebook feel more emotionally supported than general Internet users (Hampton, Goulet, Rainie, & Purcell, 2011). Since 73% of adults in the United States have a profile on Facebook (Lenhart, Purcell, Smith, & Zickur, 2010), this social medium is now a viable option for disseminating health information.

Websites. The distinction between "a website" and "a social media site" can sometimes be blurry, because many online media vary in their features; however, as mentioned earlier, there are distinct differences with certain social media like Facebook (Hampton et al., 2011). Many websites are considered content publishing locations rather than social HITs (Kaplan & Haenlein, 2010). Yet these sites are often valuable resources, since over 72% of young adults under 30 years of age now report going online to seek health information (Lenhart et al., 2010).

E-mail. E-mail is quite different from social media and websites, and in an organizational setting, e-mail can function both like an interpersonal HIT (i.e., member-to-member) and also more like a mass medium, since many organizational messages enjoin responding with a "Do Not Reply" tag affixed to them. As one of the most common HITs for information dissemination, e-mail has been routinized in many organizations. Given the ease and economy of sending mass e-mails to all members of an organization, this HIT can be a useful tool for disseminating health information messages.

Overall, our current project builds on past research arguing for the "Internet" to be treated in a more nuanced manner. A perception of co-presence, often found in social media, in conjunction with a feeling of a positive organization connection could be useful in uncovering how HITs affect message comprehension and interpretation. To understand the impact HITs and identification may have on individual understandings and interpretations of health information messages, we turn next to explaining key message perception and response outcomes.

Outcomes of Organizational Health Information Messages

In predicting outcomes affected by an individual's identification with the organization sending the message and the HITs used for dissemination, we rely on persuasion literature related to cognitive responses (Petty & Cacioppo, 1986) and message learning (Hovland, Janis, & Kelley, 1953). This research suggests that perceptions of messages, including those concerning health, are important precursors to behavior change. In addition, the abilities to learn and recall messages play a key role in behavior change.

Perceptions of health information messages. Given the correlation between message perception and behavioral change, it is important to determine the most favorable ways

to communicate health messages to recipients (Prochaska, DeClemente, & Norcross, 1992). These perceptions, or message attitudes, are defined as the way people feel about a stimulus (McCroskey, 2006). Shown to significantly affect behavioral intentions, *message attitude* is a commonly measured variable in a wide range of persuasion and communication research studies (Chaiken, 1987; Petty & Cacioppo, 1986; Stephens & Rains, 2011).

Information quality, though related to message attitude, is still distinct from it because people can make decisions concerning quality regardless of whether or not they like a message. This distinction is defined as the perceived quality of the message's information. This is also a variable typically included in persuasion-related research (Petty & Cacioppo, 1986; Stephens & Rains, 2011). Information quality is related to, but a bit broader than, message credibility and includes the details and usefulness of the message, in addition to traditional measures of credibility (Petty & Cacioppo, 1986; Prochaska et al., 1992).

Responses to health information messages. In health communication research, another important precursor to behavior change is message knowledge and understanding (Stephens et al., 2004; Thompson et al., 2011). Prior research has found that exposing people to health information messages, specifically ones related to cancer, does not guarantee they will understand and gain knowledge about disease prevention (Thompson et al., 2011). Providing people information about preventing cancer and having them demonstrate their understanding constitutes the outcome of *health knowledge*, another indicator of health message success (Stephens et al., 2004).

Another variable gaining more attention in the health communication, organizational, and information science literature is *perceived overload* (Edmunds & Morris, 2000; Eppler & Mengis, 2004; Stephens & Rains, 2011). "Overload" denotes the point where people feel they have received too much information (Chewning & Harrell, 1990), and with health information, this can result in a turning away from the message. In their experimental study of using websites to present diabetes information, Edwards et al. (2006) found that even after just one exposure to the information, many participants said they experienced information overload. Eppler and Mengis (2004), reviewing the literature on overload, concluded that researchers across disciplines found that while individual performance correlates with the quantity and quality of the information received, it declines when individuals reach overload.

Therefore, overload will likely play a central role in people's willingness to engage with, and understand, a health-information message. The trick is knowing how to provide enough information to educate individuals without risking overloading them. Thus, the present study provides fresh support for a relationship between how people experience

overload and how they identify with the organization sending a health message.

Hypotheses

Using social identity theory and past research on identification, we make the following prediction:

Hypothesis 1: Individuals who receive a message from an organization with which they highly identify will (a) view the message as more effective, (b) have a more positive attitude toward it, (c) take away greater health knowledge, and (d) perceive less overload than individuals who identify less closely with their organization.

Besides the overall role that identification plays in this study, we also need to consider how HITs affect the outcomes of interest. These outcomes include *message perceptions* (information quality and message attitude) as well as *message responses* (overload and health knowledge). Guided by the theoretical arguments of social identity, we predict that delivering health information through a social medium will bolster the desired outcomes more than using a nonsocial HIT like e-mail or a website. Thus, we advance this hypothesis:

Hypothesis 2: Individuals who receive a message through social media from an organization with which they highly identify will (a) view the message as more effective, (b) have a more positive attitude toward it, (c) take away greater health knowledge, and (d) perceive less overload than individuals who identify less closely with their organization.

METHOD

Participants

Participants were recruited from an undergraduate communication studies research pool at a large Southwestern U.S. university. These students, all volunteers, were enrolled at the university and regularly received messages—including health messages—from it. Furthermore, there are more than 1,100 student organizations at this particular university and several of them are health focused. The participants ranged in age from 18 to 32 years ($M = 20.85$, $SD = 1.63$). They were 68.6% female ($N = 120$) and 31.4% male ($N = 55$). The sample consisted of 7.4% ($n = 13$) freshman, 14.8% ($n = 26$) sophomores, 48.3% ($n = 85$) juniors, and 29.5% ($n = 52$) seniors. Demographic variables related to this study were also measured. These students used communication technology frequently, with 89.9% ($n = 158$) of them visiting websites daily, 85.8% ($n = 151$) using Facebook daily, and 97.5% ($n = 172$) using e-mail daily. Some 27.3% ($n = 176$) of them had undergone a skin cancer screening from a

health provider, 1.7% ($n = 3$) had had a member of their immediate family die from skin cancer, and 24.4% ($n = 43$) had had a member of their immediate family diagnosed with skin cancer.

Message Content

This study was designed as a realistic way to experimentally test our hypotheses, and since it did not examine an existing health campaign, we created the stimulus material. We took care in providing the respondents with a context that was not too personalized but still highly relevant to their demographic group. With skin cancer being the most common form of cancer (American Cancer Society, 2010), our respondents presumably had had some experience with this illness. Message content (i.e., factual information) was taken from the American Cancer Society website's section on skin cancer prevention. Specifically, we designed two e-mail messages, two static website homepages, and two static Facebook pages containing identical health information content. The only message content difference between each pair of e-mails, websites, or Facebook pages was the name of the organization delivering the message (i.e., "Students Against Skin Cancer" or "[University Mascot] Against Skin Cancer"). Copies of each type of message are available from the first author.

Experimental Procedure

To test our hypotheses, we randomly assigned the participants to view one of six self-contained online experimental conditions. The study used a 3 (message delivery medium) \times 2 (organizational identification) between-participants design, which was fully crossed. As previously mentioned, the message-delivery-medium variable included three HIT types—e-mail, website, and social media (Facebook)—to deliver skin cancer prevention messages to participants. This constituted the HIT delivery manipulation. The organizational identification variable included two levels, low (the generic student organization) and high (the university student organization), and these identification assumptions were verified using an identification measurement scale as the manipulation check.

After viewing skin cancer prevention information via one of these six conditions, participants responded to an online questionnaire containing measures of the manipulation check, dependent, and control variables. The study took 10–15 minutes to complete.

Manipulation checks. Measures were included to assess the manipulation of the HIT delivery type (e-mail, website, or Facebook), and organizational identification (high with the university student organization, low with the generic student organization). To evaluate the HIT delivery variable, we used the same format as Hu and Sundar

(2010). Participants in each of the three conditions rated their agreement with three separate items indicating that information was delivered using (a) e-mail, (b) website, or (c) Facebook. Participants also indicated the organizational source of the message, either Students Against Skin Cancer or [University Mascot] Against Skin Cancer. Finally, to verify the assumed identification-level difference between the two organizations, we used a five-item measure adapted from Cheney's (1982) Organizational Identification Questionnaire (OIQ). The complete results of the manipulation checks are presented as preliminary results in this article.

Measures

Unless otherwise noted, all measures were rated on 7-point scales with the anchors *strongly disagree* (1) and *strongly agree* (7). Larger values for a measure indicate a greater amount of the variable.

Message attitude. Attitudes toward skin cancer prevention messages were assessed with a six-item measure adapted from Stephens and Rains (2011) for a health context ($M = 5.84$, $SD = .91$, $\alpha = .89$, $n = 176$). Participants rated the degree to which they felt that skin cancer prevention messages (a) are helpful to individuals, (b) are a valuable resource, (c) are important for health, (d) are a good idea, (e) offer something positive to individuals, and (f) are a waste of time. The final item was reverse scored.

Information quality. A seven-item measure was used to assess participants' perceptions of the quality of the messages about skin cancer prevention and detection ($M = 5.15$, $SD = .90$, $\alpha = .83$, $n = 174$). Participants rated the degree to which they felt the information provided in the message was (a) effective, (b) detailed, (c) useful, (d) of high quality, (e) well supported, (f) weak, and (g) uninformative. The final two items were reverse scored. This scale was adapted to a health context from Stephens and Rains's (2011) scale measuring information quality where the same seven items had a reliability of .86.

Health knowledge. Participants' health knowledge was operationalized using a 10-item quiz constructed for this study, testing how accurately participants recalled the skin cancer prevention information they received. There was no knowledge pretest, so this posttest-only outcome does not represent a gain in health knowledge. The number of correct responses to the health knowledge items made by each respondent was summed and divided by the number of questions. The mean score of correct responses for all study participants was 0.76 ($SD = .18$, $n = 176$). Twenty-seven respondents (15.3%) answered all questions correctly, and only 13 respondents (6.9%) answered four or fewer questions correctly.

Information overload. A six-item measure from Ballard and Seibold (2006) was adapted for this study to

assess participants' perceptions of information overload concerning skin-cancer-prevention messages ($M = 2.49$, $SD = .97$, $\alpha = .84$, $n = 172$). Participants rated their agreement with statements, indicating that the information they received about skin cancer prevention: (a) needed too many explanations to be useful, (b) required them to make too many decisions, (c) had too much information for them to process, (d) had more discussion than they wished, (e) had more information than they needed, and (f) had the right amount of information they needed. The final item was reverse scored. Prior studies have also used this scale (e.g., Stephens & Rains, 2011) with reliabilities reported as .83 for these exact six items.

Control variables. Several control variables were measured and included in the analyses. First, participants were asked to rate the likelihood of getting skin cancer themselves ($M = 2.87$, $SD = .97$, $n = 176$), and this variable was measured on a 5-point scale ranging from *no chance* to *almost certain chance*. Participants could also indicate whether they currently or in the past have had skin cancer; no participants chose this response. Demographics concerning immediate family's skin cancer history, prior history of skin cancer screenings, and frequency of Facebook, website, and e-mail usage were also included as control variables.

RESULTS

Preliminary Analyses

Checks on random assignment. One-way analysis of variance confirmed that the six groups did not differ in their use of Facebook, websites, or e-mail ($p > .05$). They also did not differ in whether they had received a skin cancer screening or not, or in diagnoses of immediate family members with skin cancer ($p > .05$).

Manipulation check: HIT delivery. This manipulation check was modeled after the process used by Hu and Sundar (2010). Participants in the e-mail condition, $F(1, 174) = 177.73$, $p < .001$, $\eta^2 = .67$, acknowledged that they viewed an e-mail ($M = 5.98$, $SD = 1.45$) more than a website ($M = 1.88$, $SD = 1.44$) or Facebook page ($M = 1.29$, $SD = .72$). Participants in the social media condition, $F(1, 172) = 46.08$, $p < .001$, $\eta^2 = .35$, acknowledged that they viewed a Facebook page ($M = 4.15$, $SD = 2.52$) more than a website ($M = 1.47$, $SD = .89$) or e-mail ($M = 1.54$, $SD = 1.30$). Participants in the website condition, $F(1, 174) = 53.29$, $p < .001$, $\eta^2 = .38$, acknowledged that they viewed a website ($M = 6.08$, $SD = 1.49$) more than an e-mail ($M = 2.42$, $SD = 2.06$) or Facebook page ($M = 4.56$, $SD = 2.18$). Thus, participants were aware of which HIT was used to deliver health information.

Manipulation check: Organizational identification. Participants were asked how much they agreed that the information source was their university student organization or a generic student organization. Participants in the university organization condition, $F(1, 177) = 119.97$, $p < .001$, $\eta^2 = .44$, acknowledged the information source was their university student organization ($M = 5.84$, $SD = 2.58$) more than a generic student organization ($M = 2.58$, $SD = 2.14$). Participants in the generic student organization condition, $F(1, 175) = 101.82$, $p < .001$, $\eta^2 = .37$, acknowledged that their message source was a generic student group ($M = 5.44$, $SD = 2.12$) more than their university student organization ($M = 2.31$, $SD = 2.01$). These results indicate that the participants were aware of the organizational source of the health information.

To verify the assumption that the identification was different between the two manipulated groups, a five-item measure was used to assess organizational identification. These measures were adapted from Cheney's (1982) Organizational Identification Questionnaire (OIQ) and have been used in prior identification research (e.g., Scott & Stephens, 2009) with scale reliabilities ranging from .75 to .96. These five items had $M = 4.97$, $SD = 1.14$, $\alpha = .85$, $n = 174$ for the University student organization condition and $M = 3.81$, $SD = 1.01$, $\alpha = .73$, $n = 174$ for the generic student organization condition. An independent sample *t*-test confirmed that identification was significantly different between the two groups, $t(171) = 12.92$, $p < .001$. Therefore, this additional step of verifying the assumptions behind the manipulation confirms a successful manipulation.

Addressing Hypotheses

Prior to analysis, all potential control variables were assessed and determined to have an insignificant effect on any overall models, so they were excluded from the models. In addition, the relevant statistical test assumptions were also verified. A multivariate analysis of variance (MANOVA) was conducted to test the hypotheses concerning the statistically correlated outcomes. To better understand the bivariate relationships between the outcomes of interest, see Table 1 for

TABLE 1
Bivariate Correlations for Key Study Outcome and Control Variables

Variable	1	2	3	4	5	6
1 Overload						
2 Message attitude	-.47**					
3 Information quality	-.27***	.56***				
4 Health knowledge	-.31***	.21**	.13			
5 Prior Screening	-.06	.07	.04	.10		
6 University ident	-.16*	.25***	.27***	.13	.10	
7 Generic student ident	-.12	.18*	.22**	-.05	.07	.41***

Note. $n = 160-176$.

* $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$.

correlations. This analysis was used because the study examined differences between groups and the subjects had been randomly assigned to experimental groups.

The Influence of Identification on Study Outcomes

Hypothesis 1 predicted that individuals who viewed a message from an organization with which they highly identify would (a) view the message as more effective, (b) have a more positive attitude toward the message, (c) have greater health knowledge, and (d) perceive lower amounts of overload than individuals who receive a message from an organization with which they have a lower degree of identification. This hypothesis, predicting a main effect on these outcomes, was not supported, yet interaction effects did occur and are discussed with H2. MANOVA results for identification revealed no main effects for any of the four outcomes, Wilks' $\Lambda = .98$, $F(4, 162) = .88$; $p = .48$, multivariate $\eta^2 = .02$.

The Interaction Between Message Delivery HIT and Identification

Hypothesis 2 predicted an interaction in that individuals who receive a message delivered through a social medium from an organization with which they highly identify would (a) view the message as more effective, (b) have a more positive attitude toward the message, (c) have greater health knowledge, and (d) perceive lower amounts of overload than individuals who receive a message from an organization with which they have a lower degree of identification. MANOVA results for the interaction were significant overall, Wilks'

$\Lambda = .90$, $F(8, 324) = 2.19$, $p < .05$, multivariate $\eta^2 = .05$, and three of the four individual predictors were significant. The significant interactions included message attitude, $F(2, 165) = 3.46$, $p < .05$, $\eta^2 = .04$; perceived overload $F(2, 165) = 5.18$, $p < .01$, $\eta^2 = .06$; and health knowledge, $F(2, 165) = 3.10$, $p < .05$, $\eta^2 = .04$. An insignificant interaction resulted for information quality, $F(2, 165) = 2.31$, $p > .05$, $\eta^2 = .03$.

Post hoc tests using SPSS and simple main effect tests revealed that, as predicted, all the interactions occurred in the social media condition. Examination of the means revealed that participants receiving information from their university student organization via Facebook (high identification/social media condition) were (a) much more likely to have a positive attitude toward the message, $F(2, 165) = 5.96$, $p = .02$, and (b) felt less overloaded by the message than participants receiving information from the generic student organization via Facebook (low identification/social media condition), $F(2, 165) = 12.80$, $p = .001$. Figure 1 depicts the overload interaction (the graphical pattern for message attitude is very similar), and Table 2 displays the detailed means for all conditions in the study.

The results for health knowledge followed a different pattern, yet were still consistent with the prediction that social media would operate differently. Participants in the low identification/social media condition demonstrated significantly lower health knowledge $F(2, 165) = 5.68$, $p = .02$ than participants in any of the other five conditions. The means displayed in Table 2 report the interaction findings among all conditions and Figure 2 displays the significant interaction differences found for the outcome of health knowledge.

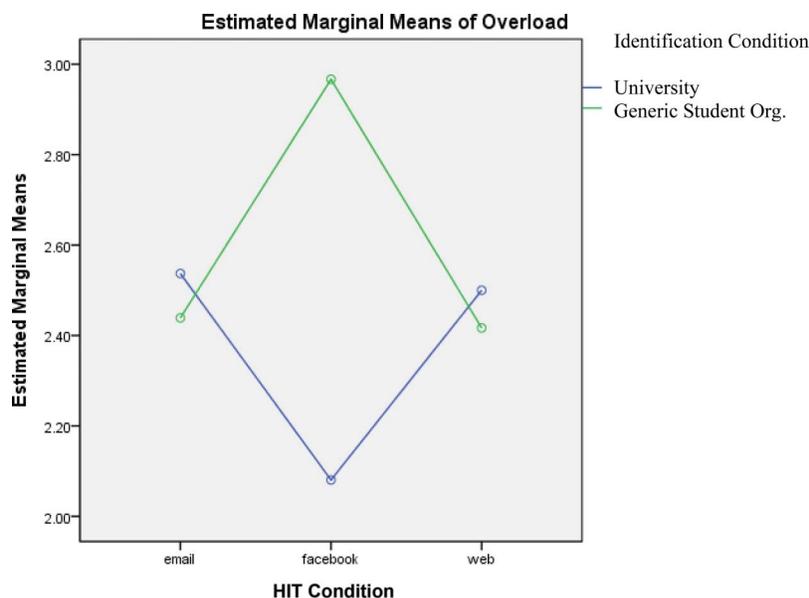


FIGURE 1 Interaction between HIT condition and identification on overload. Note that the graph representing the interaction for message attitude is very similar, so it is not included. See the tables and results for more details concerning both interactions (color figure available online).

TABLE 2
Means and Standard Errors for HIT/Identification Interactions
Across Outcomes

HIT	Identification Type			
	University		Generic Student	
	M	SE	M	SE
Social media (Facebook):				
Message attitude	6.20 ^a	.17	5.62 ^b	.17
Overload	2.08 ^c	.18	2.97 ^d	.17
Health knowledge	0.78 ^e	.03	0.67 ^f	.03
E-mail:				
Message attitude	5.74 ^b	.18	6.06 ^b	.17
Overload	2.56 ^d	.19	2.44 ^d	.17
Health knowledge	0.78 ^e	.03	0.81 ^e	.03
Website:				
Message attitude	5.83 ^b	.17	5.72 ^b	.17
Overload	2.50 ^d	.18	2.42 ^d	.18
Health knowledge	0.74 ^e	.03	0.78 ^e	.03

Note. Superscripted a is significantly different from b for message attitude, c is significantly different from d for overload, and e is significantly different from f for health knowledge.

DISCUSSION

No matter where people go today—the gym, their church, schools—they are exposed to an increasing number of valuable health messages. While communication scholars now realize the power of using organizations to disseminate health messages, we lack a more nuanced understanding of when and how organizations can help create successful

interventions. This study starts us down a path of exploring theoretically grounded reasons to focus specifically on the emotional connection that people have with some organizations. While identification with an organization was not a strong enough predictor in a single message exposure to positively impact people’s perceptions and understandings of health messages, when information was delivered via a social medium, people viewed the message more positively and experienced less overload.

As such, this study contributes to the growing body of theoretically driven research on organizational uses of HITs to disseminate health information to their audiences. Our results suggest that when organizations deliver health information to their members through social media—Facebook in this study—individuals’ attitudes and overload perceptions of those messages are more positive when they identify highly with the organization sending the message. This finding is important since organizations increasingly use social media to reach their members (Farrow & Yuan, 2011). While this study focused on young adults and their organizational membership with a university-affiliated group, these findings are conceptually applicable to other contexts, especially considering how many young adults use the Internet (broadly defined) as a source of health information (Fox & Purcell, 2010; Koch-Wesler, Bradshaw, Gualtieri, & Gallager, 2010; Lenhart et al., 2010).

Furthermore, these interaction findings demonstrate that different levels of organizational identification change perceptions and responses to health messages communicated through social media. As explained by social identity theory, individuals’ self-concepts are rooted in their social identities, and organizational membership can be an important part of

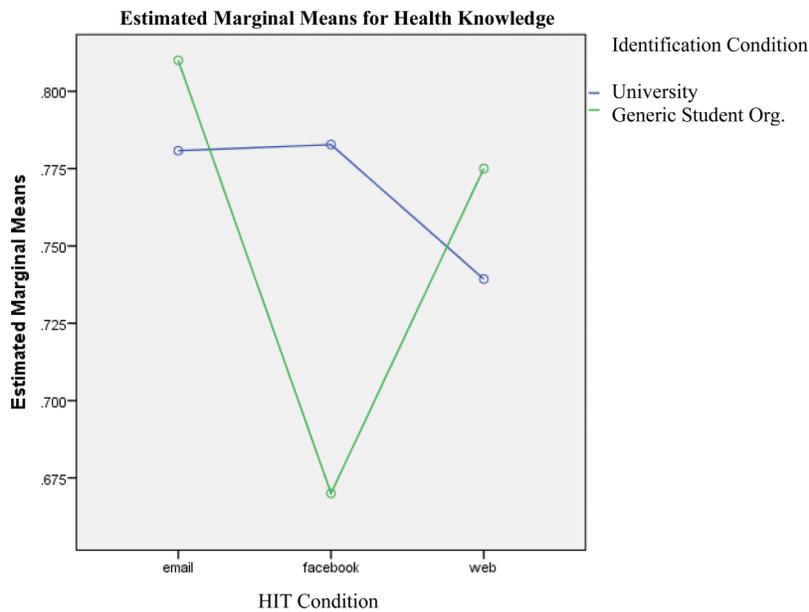


FIGURE 2 Interaction between HIT condition and identification on health knowledge (color figure available online).

that identity formation (Ashforth & Mael, 1989). In social media sites such as Facebook, organizational membership is made salient by several identity cues, including organizational logos and evidence of others' comments and participation. Following a structural perspective of organizational identification (Scott et al., 1998), these opportunities for social interaction can serve as influential structures for individuals to collaborate and express their organizational membership. Therefore, using social media, instead of other HITs, could offer organizations a unique opportunity to capitalize on member identification and effectively communicate health information.

In taking a closer look at the potential benefits for organizations using social media, it is useful to discuss their specific implications in terms of the message perceptions and responses participants in this study reported. Two of the three message perception variables (message attitude and overload) were influenced positively when individuals received health information from the Facebook page of an organization where they have a high degree of identification. Participants with a strong sense of identification may have viewed these messages as more important and did not feel that reading them was a waste of time because of their connection to the organization. Organizational identification suggests a sense of oneness with the organization; thus, if the organization is promoting a health message they believe is important, an identified member will see that information as important, too.

Individuals were also significantly less overloaded when the message was communicated through social media from an organization where they had higher identification. One explanation for this finding may be that identification buffers the overload individuals experience when they consume health information. As Hogg and colleagues have found, individuals identify with an organization more strongly when they are feeling uncertain, and identification can reduce that uncertainty (Hogg, 2003; Hogg & Mullin, 1999). While health information can be overwhelming because it contains medical jargon and often requires individuals to consider uncomfortable situations (Thompson et al., 2011), identification may serve as a barrier to the overloading effects. It is possible that in the high identification/social media condition of this study, organizational identification reduced participants' uncertainty about receiving health messages through this type of social HIT, which decreased perceptions of overload.

The final message perception variable, information quality, was not perceived differently in any of the three HIT conditions or the two identification conditions. This finding might be the result of the information being perceived as highly credible, useful, and detailed since the overall mean for this variable was quite high (5.15 on a 1–7 scale). The messages were designed to be identical in content and cited the American Cancer Society, and individuals could have

perceived this information as credible enough to outweigh how the message was delivered.

Health Knowledge Findings

This study also contributes to understanding how people respond to health messages delivered through social media. In our study, the interaction findings from hypothesis 2 indicated that people who received health information through social media from a generic student organization had lower health knowledge retention than any other condition (including all other HITs). This finding could suggest that individuals pay less attention to messages delivered through social media when they do not have a high degree of identification with the organization sending the message. When individuals pay less attention, they retain less health knowledge. Since health knowledge is a key indicator of health message success (Stephens et al., 2004; Thompson et al., 2011), a lack of this outcome could be considered evidence that a health message was unsuccessful; this only occurred in the low identification/social media condition.

This finding also speaks to the work on various levels of identifications, including ambivalent identification (Pratt, 2000) and disidentification (Eslbach & Bhattacharya, 2001). Just as health scholarship has established that different types of online communication should not be lumped together as "the Internet," outcomes of low identification in this study and previous research (e.g., Eslbach & Bhattacharya, 2001) are not the exact inverse of high identification. These findings suggest that different levels of identification should be examined for their respective implications.

Identification Alone Is Not Enough

We also predicted, in hypothesis 1, that regardless of HIT, messages from an organization with which individuals had a high degree of identification would be more successful on all the outcomes than messages from an organization with which individuals had a low level of identification. This was not supported on any outcome. This suggests that identification alone is not powerful enough to affect an individual's perception of, or response to, a health information message, especially with singular exposure. In this study, the overall organizational identification level of all the participants was well above the midpoint of the scale. While past research has demonstrated many beneficial impacts of strong levels of organizational identification (e.g., cooperation and reduced turnover; see Ashforth et al., 2008; Bartel, 2001; Dukerich et al., 2002; Mael & Ashforth, 1992), those findings do not necessarily translate to outcomes related to health messages sent by organizations. It is important to note that the bivariate correlations between identification and the outcomes of interest were often significant. Yet

when comparing these two organizations, one was not necessarily better at achieving the desired outcomes across all HITs.

Key Implications for Choosing Organizations for Health Information Dissemination

These findings suggest that social media is a valuable technology for organizations delivering health information, especially if the organization contains young adult members. Organizations with audiences who express a high degree of identification can expect them to respond to social media with more positive message attitudes and decreased overload perceptions than the less social HITs examined in this study. The caveat is that if individuals are not identified with the organizational source of health messages, using social media results in significantly lower health knowledge retention than using e-mails or websites. When the goal is knowledge retention, the current study supports the claim that organizational identification and HITs could affect the attention that organizational members give to messages conveyed through social media. Even in this study, individuals without a very high level of identification did not pay close attention to the message delivered through social media and their health knowledge suffered.

Limitations

This study has several limitations that should be considered when interpreting the findings. Certain user characteristics of young adults, and college students in particular, could influence their perceptions of social media messages and sources. For example, college students are more highly educated than other populations often studied in health contexts. College students also use social media more heavily than others (Ellison et al., 2007). Indeed, 86% of participants in this study reported daily use of the HIT, which could have contributed to some findings. While this could limit the applicability of findings for some organizations and health campaigns, we deliberately focused on a population that has adopted social media so we could examine the HIT's effects. Furthermore, the conceptual applicability of these findings likely extends well beyond young adults since 61% of all adults go online to get health information and 60% report that this information influences their decisions about illness management (Fox & Purcell, 2010).

In addition, some degree of artificiality could be associated with an experiment of this type, we did not measure a gain in health knowledge, and the effect sizes were small. The HITs were presented to the participants in static form without opportunities for active participation. Allowing participants to interact with the HITs could potentially strengthen these findings. Because individuals were randomly assigned to receive messages from a particular HIT and organization, their personal choice did not play a role

in these findings. Messages delivered from an organization that people chose to connect with via social media may have greater impacts on message attitudes, overload, and health knowledge. We also measured health knowledge at one point in time, after the manipulation. With repeated exposures and measurement, it is possible that larger effect sizes would be observed.

DIRECTIONS FOR FUTURE RESEARCH

The findings from this study suggest that there is viability in exploring specific organizational factors—including those that are more relational—to help us better understand health information dissemination. In addition to further examining identification, other related organizational variables like frequency of interaction, interactivity in the HIT, goodwill perceptions, and appropriateness for delivering health messages likely impact the attention that members give to organizational messages. Organizations create bonds with their members much like the way interpersonal relationships develop; therefore, including some of the interpersonal variables used in other health information dissemination studies could also be useful when applied to organizational dissemination.

The social media-specific findings provide support for continued study of the roles of identification and social media when organizations use a mix of HITs to communicate messages. Health campaign advice often recommends sending health information through a mixture of mass media and interpersonal channels (Baker & Rogers, 1993; Rogers & Storey, 1987). Yet it is difficult to classify social media in the traditional medium categories (Hu & Sundar, 2010; Kaplan & Haenlein, 2010). Recent research on interpersonal persuasion and HIT combinations finds that using HITs with different modalities in sequences reduces overload, improves information effectiveness, and improves behavioral intentions (Stephens & Rains, 2011). The next step is to include social media in these studies and examine mixed HIT effects.

Furthermore, researchers should also carefully conceptualize new outcome measures relevant for highly social HITs. In addition to health knowledge, an individual's intentions to share information with others could be a behavioral indicator. Information-sharing intentions might also demonstrate the power of social media in communicating health information because sharing information with a social network is often the goal of this type of medium (boyd & Ellison, 2007; Kaplan & Haenlein, 2010). However, to date, very little research has examined the role social media may play in affecting behavioral intentions. Creating a measure that quantifies one's intention, or actual behavior, of information sharing can provide considerable insight into how individuals respond to messages communicated through social media. In some situations, encouraging people to share information through social media might be the most ideal

outcome to assess the reach of a health communication campaign.

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