

Health-related Support Groups on the Internet: Linking Empirical Findings to Social Support and Computer-mediated Communication Theory

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Abstract

This literature review of research on health-related computer-mediated support groups links features of these groups to existing theory from the areas of social support and computer-mediated communication research. The article exams computer-mediated support groups as weak tie networks, focuses on how these support groups facilitate participant similarity and empathic support and identifies changes in supportive communication due to characteristics of the medium.

Keywords

computer-mediated communication, on-line support groups, social support

Introduction

IN THE LAST decade, the rapid growth of Internet access and computer-mediated communication (CMC) has created new possibilities for people with health-related concerns to engage in supportive communication with a network of individuals coping with similar problems that would be difficult or impossible to form in the face-to-face world (Walther & Boyd, 2002). While face-to-face support groups continue to be popular among people facing a variety of health issues (Kessler, Mickelson, & Zhao, 1997), there are a number of unique communication characteristics that have been observed within health-related computer-mediated support groups, including: (a) the ability of computer-mediated communication to transcend geographical and temporal constraints (Dublin, Simon, & Orem, 1997; Mickelson, 1997; Weinberg, Schmale, Uken, & Wessel, 1995); (b) the opportunity for people to disclose health information with less risk than in face-to-face contexts (Braithwaite, Waldron, & Finn, 1999; Wright, 2000a); (c) greater access to diverse sources of health information than are typically available in face-to-face contexts (Rice & Katz, 2001); (d) the facilitation of more heterogeneous supportive relationships due to reduced social status cues in the computer-mediated environment (King & Moreggi, 1998); and (e) the therapeutic value of formulating health self-disclosures in written form (Miller & Gergen, 1998).

The popularity of health-related support groups has increased in recent years. Results from a 1999 Harris poll indicate that 60 million people searched for health information on the Web in 1999, and 32 percent of the survey respondents indicated that they used online support groups (UPI, 1999). These groups enable participants to engage in supportive interaction through bulletin boards, chat rooms, listserves and individual e-mail exchanges (Rapaport, 1991). While these groups and their health implications for participants remain a relatively understudied area of research, a number of communication scholars and other social scientists have recently examined them (Braithwaite et al., 1999; Campbell & Wright, in press; Finn & Lavitt, 1994; Preece, 1998; Preece & Ghazati, 2001; Weinberg et al., 1995; Wright, 2000a, 2000b).

Although these studies shed light on this important new source of social support for individuals with health concerns, there have been no attempts to summarize empirical findings, or to link them to the social support and health communication literature or possible health outcomes for participants. This article reviews current published research on computer-mediated support groups, and links unique features of these groups to theory from the areas of social support and computer-mediated communication research. Toward that end, it briefly summarizes research on social support and health outcomes, the nature of computer-mediated communication and it identifies three main themes: (a) computer-mediated support groups as weak tie networks; (b) the facilitation of participant similarity and empathy; and (c) changes in supportive communication due to features of the computer-mediated medium. Finally, the authors suggest possible health implications for participants based upon existing theory and empirical findings.

Social support and health

Decades of social support research have focused on the relationship between social support and health outcomes, and empirical findings indicate benefits to both mental and physical health (Aneshensel & Stone, 1982; Berkman & Syme, 1979; Blazer, 1982; Cohen, 1988; House, Landis, & Umberson, 1988; Krause, 1990; Wills, 1985). In terms of specific health outcomes, studies have found a relationship between social support and perceived stress (Aneshensel & Stone, 1982; Ballieux & Heijen, 1989; Berkman & Syme, 1979; Billings & Moos, 1981; Dean & Lin, 1977). Two models explaining this relationship have emerged from the social support literature: (a) the buffering model suggests that social support shields individuals from the negative effects of stress, such as weakened immunity and depression, over time (Dean & Lin, 1977; LaRocca, House, & French, 1980); and (b) the main effects model asserts that there is a direct, rather than buffering relationship between social support and physical and psychological outcomes (Aneshensel & Stone, 1982; Thoits, 1982).

Researchers have linked both models to positive effects in terms of morbidity and

mortality (Berkman & Syme, 1979; Cohen, 1988; House et al., 1988). The reduction of stress associated with supportive behaviors appears to affect physical health in a variety of ways. For example, prolonged exposure to stress has been found to impair immune response (Ballieux & Heijen, 1989), and create damage to internal organ systems through the maintenance of high levels of epinephrine and norepinephrine in the blood stream. Elevated levels of adrenaline and noradrenaline in urine samples of individuals dealing with daily stressors have been associated with colds and flu, tension and nervousness and elevated systolic blood pressure (Kohn, 1996). In addition, physiological responses to stress may exacerbate concurrent physical problems that a person experiences and lead to other types of negative physical health outcomes.

A number of intervening variables that further complicate the relationship between social support and health outcomes have also been identified in the social support literature. These include differences in individual coping styles and adaptation to stressful situations (Kohn, 1996; Pierce, Sarason, & Sarason, 1996), and perceptions of support providers and recipients in the context which support takes place (Barbee, 1990; Choi, 1996; Edwards & Noller, 1998).

Communication is a key component of social support (Albrecht, Burleson, & Goldsmith, 1994; Goldberg & Cullen, 1985), and it has been found to be important in helping individuals manage psychosocial stressors associated with a variety of illnesses and other health conditions (Spiegel, Bloom, Kraemer, & Gottheil, 1989; Walsh-Burke, 1992). Communication researchers have focused much of their attention on characteristics of supportive messages, perceptions of support providers and recipients and appraisals of supportive behaviors (Albrecht & Adelman, 1987; Barnes & Duck, 1994), including work on online support groups (Sullivan, 1997; Wright, 2000a).

Linking empirical findings to social support and computer-mediated communication theory

Empirical studies of computer-mediated support groups, and to a certain extent research

on face-to-face support groups, point to a variety of issues that may have theoretical implications for the psychological and physical health of computer-mediated support group participants. While computer-mediated groups are a relatively recent phenomenon, their growth and popularity warrant an examination of theoretical issues that may influence how social support is communicated within this environment and possible health outcomes. In the following sections, the authors link a number of unique features of health-related computer-mediated support groups from empirical studies to social support and computer-mediated communication theory.

Computer-mediated support groups as weak tie networks

Many of the findings from empirical studies of computer-mediated support groups can be linked to 'weak tie' network theory in the social support and social network literature (Adelman, Parks, & Albrecht, 1987; Granovetter, 1973, 1982). 'Weak tie' relationships typically take place between individuals who communicate on a daily basis, but are not necessarily close (Granovetter, 1973). Prior to the Internet, weak tie networks for most people consisted of neighbors, service providers and other individuals a person could turn to during times of stress when closer ties (e.g. friends and family members) were unavailable. The Internet has greatly expanded the number of relationships that could potentially become weak tie support networks for people with health concerns.

According to Adelman et al. (1987), weak tie networks may serve several functions, including access to diverse information, and facilitating disclosure of risky topics, or topics perceived to have a negative social stigma. However, these authors also discuss several limitations of weak ties as sources for social support. The ways in which computer-mediated support groups serve these functions and some of their negative aspects as weak tie networks are discussed below.

Diverse information One function of weak tie networks is access to diverse points of view and information that may not be available within more intimate relationships (Adelman et al., 1987). According to Wellman, in the

computer-mediated environment weak tie networks tend to be more heterogeneous than closer networks, and 'weak ties are usually better connected to other, more diverse social circles, and hence are more apt to be sources of new information' (1997, p. 189). Closer ties tend to be more homogenous due to the tendency of people to form relationships with others based upon proximity, demographic background and attitudinal similarity (Adelman et al., 1987). In terms of weak ties on the Internet, Wellman argues, 'the relative lack of social presence on-line fosters relationships with people who have more diverse social characteristics than might normally be encountered in person' (1997, p. 191). Social presence is limited by reduced non-verbal cues in the computer-mediated environment (such as physical and social cues), and 'this allows relationships to develop on the basis of shared interests rather than to be stunted at the onset by differences in social status' (Wellman, 1997, p. 191).

The format of these groups allows each posting to the group to be read by all members, giving participants access to multiple sources of information and diverse viewpoints about issues. Wellman describes computer networks as 'unbounded networks', and relationships within this type of network 'are usually better connected to other, more diverse social circles, and hence apt to be sources of new information' (1997, p. 189).

There is some empirical evidence that health-related online support groups facilitate access to diverse networks of individuals and information. Wright (1999, 2000b) found that participants using the SeniorNet community enjoyed discussing caregiving issues with non-family network members because they were able to find individuals who were interested in caregiving, but who had much different backgrounds and experiences with the issues. This allowed for multiple viewpoints to be expressed by people in online discussions, as well as diverse solutions to caregiving concerns. In addition, Braithwaite et al. reported that:

access to specialized or widely dispersed health information may be more easily obtained through far-reaching electronic networks . . . we see evidence in our data of members distributing such information,

giving advice, and teaching other participants how to cope with disabilities. (1999, p. 144)

Reduced stigma of illness Several researchers have argued that there are social as well as physical implications for individuals facing health conditions. One social implication that has received considerable attention from support researchers, including computer-mediated support group researchers, is the stigma that is often attached to illnesses/conditions (Adelman & Frey, 1997; Cline & Boyd, 1993; Mickelson, 1997; Wolcott, Namir, Fawzy, Gottlieb, & Mitsuyasu, 1986; Wright, 2000b). Stigma refers to the sense of shame, disgrace or taboo associated with a particular illness/condition, usually stemming from fears and prejudices surrounding cultural conceptions of a health issue.

For example, the stigma associated with disabilities and diseases such as alcoholism, cancer and AIDS can be linked to societal misconceptions about causes of these diseases, and issues of morality associated with them. One author (Murphy, 1999) describes his experience with society's stigma toward disabilities when he became confined to a wheelchair. He discusses his feelings of shame and demasculinization saying, 'I became almost morbidly sensitive to social position and treatment of the disabled and I began to notice nuances of behavior that would have gone over my head in times past' (1999, p. 62).

Alcoholics have long been stigmatized for their lack of control over drinking. Valverde (1998) provides an in-depth history and analysis of the stigma surrounding alcoholism from the 19th century to the present. She argues that historically, alcoholism has been attributed to a 'weakness of the will'. People who are unable to control their alcohol consumption are viewed as morally weak. Despite alcoholism's medicalization as a 'disease' by E. M. Jellinek in the 1940s, alcoholics are often still considered weak due to their 'dependence' on alcohol. The stigmatization of alcoholism is even more pronounced for female alcoholics.

In fact, Jersild (2001) argues there are distinct differences between the way male and female alcoholics are perceived. She states, 'a drinking woman who gets loud or rude, who slurs her words or forgets to keep her knees together—

well, is she really a *lady*?' (2001, p. 4, original emphasis). She adds, 'all alcoholic women are hurt by the stereotype of the fallen woman, which is summed up in the saying, "A man who drinks is a drunk, but a woman who drinks is a slut"' (2001, p. 4).

The 'fallen woman' metaphor is one example of how stigmas are created due to the metaphors used to describe the condition. Sontag argues that the metaphorical construction of a disease can add to the terror of the victims and to a strange sense of shame and guilt (1990, p. 12). She discusses the metaphors associated with both cancer and AIDS. She argues that the cancer is often perceived as a symptom of a repressed life. The cancer metaphor is frequently mixed with the military metaphor, so that war becomes confused with healing. AIDS is also described in terms of a military invasion or pollution. To contract AIDS is to be revealed as belonging to a 'risk group', a community of pariahs. As with certain forms of cancer, one incurs 'punishment' for living an unhealthy lifestyle. Sontag (1990) also claims that 'plague' is the principal metaphor by which the AIDS epidemic is understood. In this case, it means not so much that the illness kills widely, but that it is 'disgracing, disempowering, and disgusting' (1990, p. 45). These metaphors often become commonplace in everyday communication about health issues. In general, health is a sign of virtue, disease of depravity.

Ability to disclose information about self safely Not only are people stigmatized for having the above conditions, in addition, they are often stigmatized for seeking professional help when it comes to their mental health (Cluck & Cline, 1986). The Internet plays an important role for people who need support from others due to afflictions society stigmatizes. Computer-mediated support groups offer a forum for people who feel stigmatized by their health conditions to disclose personal information with a sense of safety. The sense of safety is due, in part, to the anonymity (or at least pseudonymity) of online communication, which gives people an opportunity to talk about their problems with others dealing with the same issues, without all the complications of face-to-face relationships (Wallace, 1999).

According to Wood and Smith:

participants in online exchanges have been found to disclose more about their conditions, probably because they do not sense being as readily judged by any recipients of their messages, given the lack of nonverbal cues to indicate disapproval or disappointment. (2001, p. 102)

They add, 'fewer status cues also seem to level the playing field for participants who may be from different socioeconomic groups' (p. 102). This may help people who have health conditions that are highly correlated with certain stigmatized social groups to develop relationships that might be inhibited by stigma in face-to-face groups. Wallace adds that people might also want to remain anonymous 'to voice their complaints, test out bizarre ideas and identities, ask questions that might reveal their stupidity, or engage in behavior they prefer others would not know about' (1999, p. 240).

Wright (2000a), in a study of computer-mediated support groups for people dealing with health-related issues (e.g. substance abuse problems, eating disorders, cancer and mental illness), found that the most frequently mentioned advantage of these groups was the perception that there was less stigma attached to one's illness/condition by other online support group members due to the anonymity of the medium than in the face-to-face world. The additional anonymity provided by reduced nonverbal cues (e.g. appearance) in the computer-mediated environment allowed participants to feel more comfortable talking about their conditions and helped them to establish supportive relationships without the fear of being judged by their health status.

While face-to-face support groups certainly provide opportunities to remain relatively anonymous and to engage in interactions with people who are less likely to stigmatize a person because of his or her health condition, computer-mediated support groups offer additional anonymity and presumably more protection from stigmatization. According to Gallagher, Sproull and Kiesler:

Confidentiality regarding the (face-to-face) group's proceedings may be expected, but one's physical presence and the possibility of encountering others in one's community create a risk of unwanted public exposure.

Furthermore, these groups often exert social pressure on members to participate actively and to disclose their thoughts and feelings. Small size, local geography, and social pressure make these groups less private, less anonymous, and more conformist than are electronic social support groups. (1998, p. 497)

Negative aspects of weak ties While many of the benefits of computer-mediated support can be explained by weak tie support network theory, there are obviously disadvantages to weak ties. One problem that computer-mediated communication researchers have identified in online groups is the presence of hostile messages due to the lack of social presence (due to fewer non-verbal cues and minimal relational obligations) within this environment (Preece, 1998; Walther, 1996).

Another problem researchers have identified in computer-mediated support groups that can be attributed to characteristics of weak tie networks is the difficulty of forming long-term relationships with people within these groups. Wright (2000a) and Preece and Ghozati (2001) found that participants from over 20 health-related online support groups found it difficult to seek support from people they had previously interacted with in online support groups, and this was perceived by participants to be one of the major disadvantages of using these groups. This can make it difficult for people with health concerns to contact a specific person when seeking support. In addition, studies have not addressed how relationships that are initiated in online health-related groups develop into stronger ties, or how relationships are maintained in this context.

Participant similarity and empathy within computer-mediated support groups

People dealing with health-related issues are also drawn to computer-mediated support groups because they can locate others who might have similar (and specific) health problems or experiences (Braithwaite et al., 1999; Campbell & Wright, in press; Wright, 2000a, 2000b). In some cases, participants may join online support groups due to the sense of community they provide (Preece, 1999; Wright, 2000a). For example, when people are first

diagnosed with a health condition such as cancer, they often feel a sense of isolation from others in their primary relational network since it is unlikely other people in a person's social network have the same condition and can fully understand what it is like to experience the disease (Cline, 1999; Freund & McGuire, 1995). Finding individuals who share similar experiences of illness or addiction online allows people to discuss fears, ask factual questions and discuss common experiences with their peers, and may help to reduce isolation (Wright, 2000b). Computer-mediated support groups provide an alternative source of information to that which is obtained from a professional such as a physician or therapist. 'Physicians can provide the facts, but other patients can tell you what it really feels like and what to expect next, in a way that only someone with personal experience can' (Preece, 1999, p. 63).

While some health providers may participate in some online support groups Preece (1999) found that few healthcare providers participated in the computer-mediated support group she examined. She notes, 'almost all the discussion is between people who are suffering the injury and not from experts' (1999, p. 67). People are not looking for counsel from healthcare providers when they seek out computer-mediated support groups. They go in search of people who will listen to them and who will address everyday issues and fears that healthcare providers may either not realize or have time to address. Granted, some healthcare providers take much time and effort to explain such things as symptoms and side effects. However, the majority are limited not only by time, but also by the fact that they have not necessarily experienced the health condition personally. They therefore cannot provide the same types of insight patients can obtain through support groups.

Face-to-face support groups offer people with health concerns an opportunity to find other people facing similar issues, yet they rarely have the same specificity or singleness of purpose as online support groups when it comes to discussing a particular health topic. According to Walther and Boyd: 'Unlike face-to-face support relationships, most CMC support exchange begins by discussing the topic of concern, immediately and often in very personal terms, rather than leading up to these concerns after

establishing relationships based on other commonalities' (2002, p. 155). This may make online support groups appear to be a more convenient alternative for people who want to obtain support for health concerns without investing time in developing other aspects of relationships. Moreover, Walther and Boyd (2002) contend that online support groups differ from face-to-face support groups in that while people are unlikely to know one another, the messages that are exchanged between participants reflect a certain expertise about issues and common experiences.

To illustrate an example of this phenomenon, Wright (in press) found that people with cancer who used an online cancer community enjoyed the opportunity of finding specialized information and emotional support exchanges about specific types of cancer by participating in tailored discussions within the community. The topic-specific discussions within the cancer community allowed people to avoid more general or irrelevant information about cancer and to obtain support for specific concerns without the expectations associated with long-term relationships.

The relationship between perceptions of similarity and perceptions of support has received some theoretical and empirical attention, yet the relationship between these variables appears to be complex. For example, Wright (2000a) found a positive correlation between perceptions of similarity and both support network size and network support satisfaction among computer-mediated support group participants. However, Wallace (1999) argues that polarization can occur further exaggerating extreme opinions when there is a high degree of similarity in support groups. She explains:

Interacting with a small subset of like-minded others . . . our framework for social comparison could become rather warped. We could quickly acquire an exaggerated perception of the rightness of our views because we found others who not only agreed with us, but who are even further out on the attitudinal limb. (1999, p. 79)

Similarity, empathy and emotional support
According to Preece (1999) people who come from similar backgrounds (i.e. same family or

culture) or who share similar health-related experiences tend to exhibit more empathy toward each other than strangers in health-related online support groups. Levenson and Ruef (1992) claim the term 'empathy' has at least three different meanings. It can mean knowing what another person is feeling, sensing what another person is feeling or responding compassionately to another person's distress (1992, p. 234). Empathy is evident in support groups where people share an interest such as illness, addiction or disability.

Several researchers have examined the role of empathy and emotional support in computer-mediated support groups for health concerns (e.g. Preece, 1998, 1999; Preece & Ghazati, 1998, 2001; Rice & Love, 1987). Preece (1998) lists three types of empathic messages: (a) empathizing with another's situation and suggesting ways to cope; (b) empathizing about life-style; and (c) indirectly requesting empathy or telling one's story as a means of inviting others to respond. While Preece (1998) found that hostile messages within online groups can undermine empathy, she notes that some of the most strongly empathic groups are closed or have mechanisms for discouraging aggressive or superfluous posting, such as joining rules and by-laws regarding the form and content of the messages and moderators who check all messages before posting them to the community. Other researchers have found that people are often more open about expressing their emotions in online groups due to the anonymity of the medium (Rheingold, 1993; Turkle, 1995; Wright, 2000b).

Current research suggests that empathy has an important communicative role in online support groups dealing with health concerns. In fact, in their research examining the role and volume of empathic communication on a bulletin board for people discussing concern about torn anterior cruciate ligaments or ACLs, Preece and Ghazati found 'obtaining and giving factual information was important but of secondary importance to empathic communication' (1998, p. 5). In a follow-up study examining 100 online communities, Preece and Ghazati (2001) determined that a community's focus of interest is one factor that influences empathy. They found that empathy was very high in support communities, while low in some

religious, sports, cultural, social and scientific communities. In addition, they found that the ratio of females to males in online health communities seemed to influence empathic communication due to a high number of women using these groups.

Credibility of information shared in computer-mediated groups An issue related to perceptions of similarity is credibility, since support group participants who are facing an illness or condition also make judgments regarding the accuracy of information and the validity of experiences and feelings that are shared by other members. In online support groups, the credibility of other members is evaluated within an environment where limited non-verbal cues may make it difficult to assess the validity of information received by others, and it may also facilitate deception. For example, there is evidence that some people who participate in online discussions deceive others about their backgrounds, and in some cases their identities, whether or not they actually have a disease/condition (Walther, 1996).

While perception of online credibility is a relatively new topic (see Turkle, 1995 for a broader discussion of online credibility), the importance of credibility within computer-mediated support groups has not received extensive empirical attention. However, there is some preliminary evidence that perceptions of credibility may be related to perceptions of social support within health-related groups. Wright (2000a) found a moderate positive correlation between perceptions of source credibility and both support network size and network support satisfaction among online support group participants from over 20 groups dealing with health concerns. In a similar study, Campbell and Wright (in press) found a positive relationship between perceptions of source credibility and perceptions of emotional support among members of health-related computer-mediated support groups. However, future research needs to examine how participants actually form perceptions of credibility within these groups, the ways in which the limitations of the medium affect these perceptions and how judgments of credibility are specifically related to positive and negative appraisals of supportive behaviors.

Changes in supportive communication due to nature of computer-mediated communication

Most research on social support has taken place within face-to-face contexts as opposed to mediated contexts. However, research in the area of computer-mediated communication has identified a variety of ways computer-mediated communication affects interpersonal relationships and perceptions of relational partners in ways that are different than face-to-face interaction (Rice & Love, 1987; Walther, 1992, 1996; Walther, Anderson, & Park, 1994; Walther & Burgoon, 1992). In addition, it appears that these features likely influence the communication of social support within computer-mediated support groups (Walther & Boyd, 2002; Wright, 2000b). While a complete overview of how the computer-mediated environment affects communication is beyond the scope of this article, the following section examines a number of macro-level and micro-level features of the medium that may affect social support processes within health-related computer-mediated support groups.

Hyperpersonal interaction (optimal self-presentation and optimal perceptions of others) While reduced non-verbal cues in the computer-mediated environment often cause problems during the initial stages of relationship development, as the number of messages accumulate between relational partners, people learn to compensate for these limitations through the creative use of text-based communication (Matheson & Zanna, 1988; Walther, 1996; Walther & Burgoon, 1992). Yet, many aspects of computer-mediated communication add to the complexity of relational communication, and these are not very well understood by communication scholars.

For example, Walther (1996) introduced the idea of 'hyperpersonal interaction', or a phenomenon in which people feel they can better express themselves in computer-mediated environments than in face-to-face contexts. Walther (1996) argues that hyperpersonal interaction can be attributed to the way that computer-mediated channels change the sender, the receiver, the channel and feedback in online

communication. In terms of the sender, computer-mediated communication allows people to prepare their messages more mindfully than in the face-to-face world (e.g. think about and edit messages), yet this can also lead to greater manipulation of self-presentation when computer-mediated messages are produced, and possibly more skepticism about the credibility of the source among recipients of computer-mediated messages.

While it is also possible that people may not prepare messages more mindfully, especially if they are caught up in the conversation or if they are using synchronous communication formats such as chat rooms where conversations move quickly, Wood and Smith (2001) argue that the sender of messages in the computer-mediated environment possesses greater control over self-presentation than in the face-to-face world, particularly since a person can be highly selective in what he or she chooses to reveal to others. In addition, a person is not 'handicapped by many nonverbal characteristics outside one's control' (2001, p. 80), and a person is able to create a more idealized self-image than would be possible in the face-to-face world.

In terms of the receiver, channel limitations and feedback, online group members may develop idealized perceptions of the people with whom they are interacting. Walther (1996) mentions that due to limited information, receivers of messages in online relationships may 'fill in the blanks' when it comes to forming perceptions of others. In other words, receivers often develop unrealistic images of their relational partners by projecting images of the sender based upon schemas developed in other contexts and idealizing their communicative abilities (e.g. perceiving the person to be more supportive than he or she really is, more of an expert on a topic or a better listener to problems, etc.). While people certainly form unrealistic perceptions of others in the face-to-face world, Walther (1996) argues that reduced non-verbal cues, in the computer-mediated environment is more likely to lead to 'an intensification loop' during the feedback stage, where confirming messages of each partner reinforce the behavior of the other, than in face-to-face contexts. Intensification loops appear to occur more frequently in the computer-mediated environment since disconfirming non-verbal cues are not immediately

available (e.g. a person may sound knowledgeable but not appear to be so).

In terms of health-related online support groups, some limited evidence suggests that the phenomenon of hyperpersonal interaction may influence perceptions of online support group participants as well as perceptions of the support offered within these groups. According to Wright (2000b), in a qualitative study of an online community for older adults, a relatively large number of caregivers reported that people in their online support network were perceived as being closer than even members of their own immediate family. Participants mentioned that the people they turned to for online support understood their problems better than non-Internet supporters, despite the fact that they had never met members of their online support network in the face-to-face world.

While these highly idealized perceptions may actually increase relational satisfaction (Walther, 1996), it is unknown whether these perceptions actually influence support appraisals. Future research is needed to assess whether limited non-verbal information in computer-mediated support groups actually influences positive perceptions of those who are providing support and the type of support that is offered. If health-related computer-mediated support group members do have idealized perceptions of the support they receive in this environment, there is a danger that they may perceive this support as more beneficial than other sources of support. If this influences people to reduce their reliance on family members and friends, who could provide better support or support that is difficult to give over in the computer-mediated environment (such as tangible assistance), then this may limit supportive behaviors or information that can potentially help a person ameliorate stress during a time of crisis.

Asynchronous and synchronous formats
Perceptions of support providers may also be affected by the ability of computers to allow for asynchronous (not in real time) and synchronous (real time) communication. Within online support groups, asynchronous communication typically occurs when participants send e-mail messages or use bulletin boards to post messages to others. Synchronous communication is

possible when online support groups have a chat room or instant message format that allows for communication in real time.

Wright (2000a) examined participant perceptions of advantages and disadvantages of asynchronous and synchronous communication formats within health-related online support groups. This study found that while people in these groups tend to dislike the slower feedback time between sending a message and receiving a response, they enjoy the convenience of using asynchronous communication since it is often difficult to find a time to talk to other members in real time due to different schedules and time zones.

A second advantage of asynchronous communication within these groups is the ability for multiple people to respond to a message. When online support group members post a message to the group, everyone who is a member of the group can potentially read and respond to it. While members may not respond to every message posted to the group, it appears they often respond to messages that are relevant to them (Wellman, 1997). This may increase the number of potential supporters a person will receive messages from when they post a question or request for support to the group.

Wright (2000a) found that one of the most frequently reported disadvantages of asynchronous online support groups is the inability to find a particular person online at a specific time, and this may have an adverse effect on the timing of support and the immediacy of communication between support providers and recipients. Campbell and Wright (in press) found a positive relationship between perceptions of immediacy and perceptions of emotional support. While this suggests only limited evidence that immediacy affects perceptions of emotional support, immediacy has been found to be an important variable in relational communication within the face-to-face world (Burgoon, Buller, & Woodall, 1996; Burgoon & Hale, 1987). However, it is also important to note that online support group participants may not expect their interactions with others to be immediate. This may be particularly the case for individuals who have had more experience with using these groups, since they likely have a better understanding of the limitations of the medium than newer users.

One limitation of computer-mediated support groups that likely affects immediacy is their ability to convey only limited non-verbal information, particularly haptic communication. The inability of the medium to allow people to give and receive touch has been reported to be especially problematic for online support group members dealing with health issues (Braithwaite et al., 1999; Wright, 2000b). This may have negative implications for people with health problems due to the positive effect often associated with appropriate touch in health contexts. However, online support group participants may not have expectations for touch when using these groups, and many individuals attempt to circumvent the lack of haptic communication through the creative use of verbal communication (Wright, 2000b), including what have been termed 'cyberhugs' (e.g. [[[hug]]]).

Other features of computer-mediated communication Another aspect of 'editing' text-based messages in the computer-mediated environment is that participants have the ability to carefully reflect upon the content of messages prior to sending them to others (Walther, 1996). While new innovations in computer-mediated communication have made the Internet an increasingly more multimedia environment, the vast majority of current online support groups are text-based. Binik, Cantor, Ochs and Meana (1997) argue that the act of expressing one's thoughts about one's health condition when composing messages that will be sent to the computer-mediated support group may have therapeutic value. According to these authors, 'the energy and time a person takes in the very act of formulating and expressing his or her distress may provide at least some release from tension and anxiety' (1997, p. 89).

Weinberg et al. (1995) argue that the therapeutic value of writing down problems in text-based computer-mediated support groups may allow for more distance from others and reflection without worrying about the immediate responses from others. Diamond claims that writing things down seems to create some distance between people and their dilemmas '(and "externalizing problems" in this fashion) helps people connect with the larger culture. It brings them from silent isolation into language and community restoring—and restoring—their

faith in themselves and their future' (2000, p. xx).

In addition, Braithewaite et al. (1999), in a study of online support groups for people with disabilities, mention that the lack of pressure for an immediate response creates opportunities for more thoughtful comments, and that 'this feature may be an especially salient advantage for those with communication-related disabilities who find the computer liberates them from the difficulties they encounter with oral speech' (p. 143).

According to Walther and Boyd (2002), online support group users need not maintain any other expressive system than writing (i.e. they need not monitor their gestures, facial expressions, voice or physical appearance), and they can devote greater cognitive resources to the articulation of their desired message. This along with the fact that CMC use typically occurs in solitude, have been found to heighten users' self-awareness. These advantages may enhance requests for support and the provision of support. Future research would benefit from exploring the therapeutic value of written communication within online support groups and related health outcomes for participants.

Theoretical implications and future research

The study of computer-mediated support groups is a relatively new phenomenon, yet social support and computer-mediated communication theory can help shed light on this important new vehicle for aiding mental and physical health for individuals facing a variety of health-related concerns. The majority of studies that have examined these groups over the past several years have been descriptive in nature, and they have not linked findings to a broader theoretical framework, despite a vast amount of theory in both the areas of social support and computer-mediated communication.

In terms of health benefits for participants, computer-mediated social support groups may provide people with a network of individuals to whom they can turn to for support when needs are not being met by traditional providers of support. Sharf (1997) contends that people within these groups often discuss and deal with problems that are outside the expertise of health

professionals. Family members, friends and healthcare providers may not be able to offer all of the information a person needs when facing certain types of illnesses, such as cancer or HIV. Even if these traditional sources of support can provide a substantial amount of information about these types of health concerns, few people understand the feelings associated with them, unless they have actually faced these illnesses themselves. In addition, due to greater similarity, it is possible that people in computer-mediated support groups are better than other sources at conveying empathy, and they are ultimately better able to provide emotional support. Emotional support has been found to be important in reducing stress and helping people to cope with problems (Lin & Peek, 1999; Wills, 1985).

Weak tie network theory helps to explain some of the different functions of computer support networks. For individuals with health-related problems, the ability to gain access to diverse types of information may be useful for fostering a sense of control over one's health situation. While not all of the information may be valid or appropriate for a person, computer-mediated support groups allow access to a variety of different experiences of specific types of diseases and conditions, and the ability to focus on messages that are the most appropriate to their particular circumstances.

These groups also increase the likelihood of meeting someone who has similar health concerns and who is using similar treatment options or coping styles. In other cases, people may be attracted to these groups because they help to foster a greater sense of community with similar others. This sense of community may be important in helping people dealing with health concerns to feel less isolated. Future research should focus on how the sense of community that these groups offer people may be related to positive health outcomes.

Reduced stigma and the ability to disclose information to others with less interpersonal risk are also important functions of weak tie networks. Since many diseases/conditions have social implications associated with them, computer networks provide individuals dealing with health issues access to people who are less likely to stigmatize behaviors associated with diseases/conditions due to fewer social cues. This may be a particularly important function for

people dealing with diseases that have a strong negative social stigma, and conditions that can be recognized by appearance cues (e.g. disabilities). Sometimes people who are closest to an individual may be more likely to judge the person for behaviors associated with contracting a virus like HIV, particularly if unsafe sex or intravenous drug use was the source of infection. Family members and friends, although more interpersonally close to us, are sometimes the first people to judge our behaviors, despite their best intentions.

One reason for this is because family members and friends have stronger role obligations, and may listen to a loved one's problems not because they particularly want to, but because they feel obligated to do so. In addition, their status as closer ties may cause people to be more judgmental about the information they hear (Albrecht & Adelman, 1987), and this may lead to unwanted advice about a problem or unwanted social control efforts to deal with a problem (e.g. hiding a bottle from an alcoholic). These types of behaviors are known as over-support, which are often perceived negatively by support recipients (Goldsmith, 1994; Rook, 1995; Wright, 2000b).

Online weak ties may provide members of computer-mediated support groups with an opportunity to talk to other participants about detailed or potentially offensive aspects of diseases or conditions that would be difficult to reveal to closer ties. For example, for people with AIDS, participants could talk in greater detail about opportunistic infections and their effects (a subject that would probably be perceived as inappropriate among closer ties). The ability to talk about these types of problems may help foster a greater sense of control over the problem, or it can help people relieve anxiety associated with these types of issues by talking about them and receiving feedback from others in a non-judgmental manner.

Moreover, Shinn, Lehmann and Wong (1984) found that people who are socially stigmatized, as is the case with many health-related support group members, may be less likely to receive adequate emotional support. People who do not understand the nature of a condition that a stigmatized individual faces, or who can not identify with what he or she is going through, are unlikely to communicate emotional support in a way that

is perceived as satisfying by the individual facing the problem.

Finally, the nature of computer-mediated communication itself may both enhance supportive communication and cause problems for people using computer-mediated support groups. The ability for people to engage in optimal self-presentation may skew perceptions of support providers within this environment. In some cases, these idealized perceptions may positively affect support appraisals, while in other situations the limited non-verbal information may increase the likelihood that false or deceptive information will be disseminated to participants. The ability of the medium to allow for both asynchronous and synchronous communication may serve a convenience function for participants.

Limitations of current empirical work

While the study of social support is a relatively established area of communication research, the study of computer-mediated communication is in its relative infancy. Clearly, much more research needs to be conducted in the area of computer-mediated communication so that scholars can gain a thorough understanding of how the medium affects interpersonal communication, including the communication of social support. The study of computer-mediated support groups represents a nexus of both areas of research, and empirical studies need to draw upon theory from both of these areas. Most empirical work on these groups to date tends to be somewhat variable analytic rather than driven by theory.

This article was an attempt to provide a link to theory. However, the themes that the authors identified in the social support and computer-mediated communication literature are not necessarily mutually exclusive. For example, there is conceptual overlap among theories of weak ties, similarity and social stigma. In addition, some of the theoretical work on computer-mediated communication overlaps with weak tie network theory.

Future studies of computer-mediated support groups should attempt to draw upon social support and computer-mediated communication theory when designing studies. This area

of research would benefit from more research that links supportive communication within these groups to actual psychological and physical health outcomes. Moreover, in terms of health-related support groups, research would benefit from comparisons of different types of groups for specific health conditions. Most studies of these groups have tended to focus on several different types of groups rather than groups dealing with specific concerns. One theoretical perspective that could be applied to the examination of different types of groups would be the narrative paradigm (Fisher, 1987), since this approach focuses on how participant worldviews are constructed through the use of personal narrative. In addition, since initial studies have found the act of telling one's stories in written form may have therapeutic benefits, the narrative paradigm may serve as a useful tool for examining this phenomenon.

Finally, computer-mediated support groups have many limitations in terms of providing adequate support for people coping with health conditions. More research needs to address the limitations of these groups, problems that may negatively affect health outcomes, and how people integrate the support from these groups with support from more traditional sources. Another issue that has received scant attention in the online support group literature, and would be interesting to explore in future research, is the privacy issue within computer-mediated support groups for people with health concerns. While the medium allows for some degree of anonymity (or pseudonymity), participants may be concerned about their ability to safely disclose information about themselves. Most online health communities require participants to complete an online registration form before using support groups (these often ask people for demographic and health-related information), and this information may be recalled every time a person revisits the community. Another concern is the recent trend of 'data mining', in which third parties (marketing companies, researchers, etc.) may use the Internet to find out information from conversations that online participants would like to keep private. Future research would benefit from assessing whether or how privacy concerns impact the support process for people using these groups.

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