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A Meta-Analysis of Research on Formal Computer-Mediated Support Groups: Examining Group Characteristics and Health Outcomes

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This article reports a meta-analysis of 28 studies examining the health-related outcomes associated with participation in a formal computer-mediated support group (CMSG) intervention. In particular, health outcomes related to social support were assessed and four group-level characteristics of CMSGs were tested as potential moderators of intervention effectiveness. The results show that participating in a CMSG intervention—comprised of educational and group communication components—led to increased social support, decreased depression, increased quality of life, and increased self-efficacy to manage one's health condition. Changes in health outcomes were moderated by group size, the nature of the communication channels available, and the duration of the CMSG intervention.

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The benefits of group interaction have been fairly well recognized among scholars and practitioners of health communication. Group-based health interventions such as support groups, self-help groups, and group psychotherapy allow members to give and receive social support from others who are, or have been, afflicted with a particular health condition (Arntson & Droge, 1987). Group interventions also provide an outlet for members to make social comparisons (Gottlieb, 1988), witness the modeling of behaviors such as coping (Posluszny, Hyman, & Baum, 1998), and demystify their experiences with a health condition (Levy, 1979). The results of at least two meta-analyses indicate that group interventions conducted face-to-face can lead to health improvements for participants (Barlow, Burlingame, Nebeker, & Anderson, 1999; Burlingame, Fuhriman, & Mosier, 2003).

In recent years, the widespread diffusion of personal computers and the Internet has been met with the development of Internet-based group health interventions. Computer-mediated support group (CMSG) programs are delivered by medical

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professionals using the Internet and consist of an educational component and a group communication component. For example, the Comprehensive Health Enhancement Support System (CHESS) is an established computer-based group intervention that can be tailored to specific medical conditions such as breast cancer (Gustafson et al., 1998, 2001), smoking cessation (Meis et al., 2002), and asthma (Wise et al., 2007). CHESS makes it possible to provide group members with access to medical information, decision support, skills training, and an asynchronous discussion forum where they can share information, strategies for coping, and support. CMSG interventions are distinct from the informal and loosely structured self-help groups found on Websites such as WebMD.com and Yahoo.com in that formal CMSGs have both educational and group communication components, closed membership enrollment, fixed duration, and may include some form of expert leadership (Gottlieb, 2000; Helgeson & Gottlieb, 2000).

Group communication is integral to CMSG interventions as a resource for members to exchange social support. Interacting with others who are suffering, or have suffered, from a specific health condition offers a multitude of potential opportunities to give and receive information, emotional, and esteem support. Such support may serve to buffer individuals' experience of stressful events (Cohen & Wills, 1985), manage health-related uncertainty (Albrecth & Goldsmith, 2003), and, ultimately, foster positive health outcomes (Uchino, Cacioppo, & Kiecolt-Glaser, 1996). Further, the computer-mediated nature of CMSGs offers several distinct advantages that may facilitate supportive communication (Walther & Boyd, 2002; Walther, Pingree, Hawkins, & Buller, 2005; Wright & Bell, 2003). Walther and Parks (2002) succinctly summarize the potential of computer-mediated communication using the Internet noting that: "The question for researchers is not whether the Internet is capable of providing social support, but rather why it should be so effective as a support medium" (p. 545).

Despite the growing number of studies examining the health outcomes associated with participation in CMSG programs, the findings from this body of research are inconsistent. To help interpret scholarship on CMSGs, we conducted a meta-analysis focusing on the role of group communication and social support in CMSGs. Meta-analysis is a useful tool to summarize a body of research and reconcile mixed findings (Hedges & Olkin, 1985; Hunter, Schmidt, & Jackson, 1982). The primary goal of the analysis was to assess the influence of participating in a CMSG intervention—in which group communication is a key component—on perceptions of social support, depression, quality of life, and self-efficacy to manage one's health condition. A second goal of this meta-analysis was to evaluate group characteristics that may make CMSG interventions more or less effective at fostering the exchange of social support and positive health outcomes. Drawing from research on characteristics of social networks, we examined group size, communication channels, frequency of contact, and time as moderators of the health benefits associated with CMSG participation.

Literature review

Social support and CMSGs

CMSGs and informal Web-based self-help groups have received a fair amount of attention by researchers in various academic fields. Yet, the theoretical mechanisms that explain their functions and outcomes as they relate to social support are not well understood. As Wright and Bell (2003) explain: "The majority of studies that have examined [computer-mediated support] 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" (p. 49). Thus, we first consider theorizing about the health outcomes associated with social support broadly and then discuss research on CMSGs.

Social support is an umbrella term that describes the association between participation in social relationships and one's well-being (Albrecht & Goldsmith, 2003; Barrera, 1986; Goldsmith, 2004). Communication scholars have defined social support as "verbal and nonverbal communication between recipients and providers that reduces uncertainty about the situation, the self, the other, or the relationship, and functions to enhance a perception of personal control in one's life experience" (Albrecht & Adelman, 1987, p. 19). Two general theoretical models explain the function of supportive communication in the context of health (for a review, see Uchino, 2004). The buffering model (Cohen & Wills, 1985) posits that social support may mitigate a stress response by intervening between a stressful event and an appraisal of that event or by intervening between the stress appraisal and a maladaptive response. The main effect model (Cohen & Wills, 1985) focuses on one's integration in a social network. The support derived from being engaged in a network may improve one's overall well-being and, thus, enable one to avoid or manage deleterious health events. To date, a plethora of research has accumulated demonstrating health benefits of social support (for reviews, see Cohen, Underwood, & Gottlieb, 2000; Uchino et al., 1996).

Through creating a forum to exchange social support, formal support groups can help individuals manage the stressors associated with a health condition. A central rationale for support groups is the idea that individuals facing a similar life event are in a unique position to understand one another in ways that one's friends or family may not (Helgeson & Gottlieb, 2000). With illnesses such as cancer, for example, members of one's communication network may sometimes behave in ways that are unsupportive (e.g., not allowing or dismissing one's expression of distress because he/she believes it is unhealthy) (Helgeson, Cohen, Schulz, & Yasko, 2000). Support group members are better situated to empathize with one another and, as such, may be a valuable source for emotional, information, and esteem support (Shaw, McTavish, Hawkins, Gustafson, & Pingree, 2000; Wright, 2002). Helgeson and Gottlieb (2000, p. 225) note that "[s]haring experiences with other people facing a similar stressor is expected to lead to validation, normalization of the experience, a reduction in emotional isolation, and a sense of belonging."

CMSGs are rooted in the same basic principles as face-to-face support groups, but also attempt to capitalize on the unique features of computer-mediated communication. Chief among the proposed advantages of CMSGs are increased access to support, greater ability to manage interactions, and reduced social cues (Braithwaite, Waldron, & Finn, 1999; Shaw et al., 2000; Walther & Boyd, 2002; Wright & Bell, 2003). CMSG members are not constrained by geography or time and can gain access to support when it is most needed. CMSG members also have a greater control over interactions. Because interaction is typically asynchronous, members can more effectively manage how and what they contribute to discussions than individuals in a commensurate face-to-face group. Reduced social cues, such as the inability to see others in the group, may help members feel comfortable sharing potentially embarrassing information or discussing stigmatized topics. Together, these unique characteristics of CMSGs create an environment that can foster supportive communication.

Health outcomes associated with CMSG participation

Through facilitating the exchange of social support, CMSGs may lead participants to achieve various positive health outcomes. In addition to social support, we examine depression, quality of life, and self-efficacy in this study. Each of the preceding health outcomes is a plausible outcome of supportive communication (Uchino, 2004) and has been consistently measured in the body of scholarship on CMSGs.

Studies assessing participants' perceptions of social support have reported somewhat mixed findings. Although some studies show differences in reports of social support from the baseline to program completion between CMSG and control conditions (Gustafson et al., 2005; Harvey-Berino et al., 2002; Hill, Weinert, & Cudney, 2006), others reported no significant effects for support or reported mixed results (Barrera, Glasgow, McKay, Boles, & Feil, 2002; Flatley-Brennan, 1998; Hill, Schillo, & Weinert, 2004). Several studies of depression demonstrate improvement in depression from a pretest to completion of the CMSG program (Carlbring et al., 2005; Gerrits, van der Zanden, Vissher, & Conijn, 2007; Glasgow, Boles, McKay, Feil, & Barrera, 2003; Lieberman et al., 2003; Lieberman & Goldstein, 2005) as well as improvement over time in comparison with a control condition (Brattberg, 2007; Heinicke, Paxton, McLean, & Wertheim, 2007; Paxton, McLean, Gollings, Faulkner, & Wertheim, 2007; Winzelberg et al., 2003). However, other studies found no difference in depression over time between a CMSG group and a control condition (Gollings & Paxton, 2006; Hill et al., 2006; McKay, Seeley, King, Glasgow, & Eakin, 2001; Taylor et al., 2006).

The findings in regard to quality of life—operationalized as measures tapping group members' perceptions of their general physical and/or mental well-being—provide only minimal support for the benefits of CMSG participation. Lorig et al. (2002) reported an increase in participants' quality of life over the course of the 1-year treatment in comparison with a control group; in contrast, a number of studies found no significant differences or mixed findings with regard

to quality of life improvements experienced by CMSG and control group members (Carlbring et al., 2005; Flatley-Brennan, 1998; Gustafson et al., 2005; Hill et al., 2006; Lieberman & Goldstein, 2005; Lorig, Ritter, Laurent, & Plant, 2006; Owen, Klapow, Roth, Shuster, & Bellis, 2005). Finally, the results of studies examining the impact of a CMSG intervention on participants' self-efficacy are mixed. Some studies show increased efficacy perceptions over the course of a CMSG intervention (Chen, Yeh, & Chao, 2006) and in comparison with a control group (Lorig et al., 2002, 2006), but others have failed to find a difference in self-efficacy between CMSG and control conditions over time (Hill et al., 2006; Winzelberg et al., 2003).

Taken as a whole, the preceding findings regarding the health outcomes associated with participation in a CMSG intervention are largely mixed. It is noteworthy that many of the studies focused on comparing a CMSG with some form of control condition such as a wait-listed group, a face-to-face group, or an information-only condition in which individuals did not participate in group interaction. Few studies isolated the effects of a CMSG intervention, over time, on social support, depression, quality of life, or self-efficacy. As such, it is difficult to determine what, if any, impact participating in a CMSG has on these health outcomes. Yet, understanding the health outcomes of CMSG participation is essential for practitioners who are designing and implementing computer-mediated support interventions and scholars developing theories about the effects of health-oriented group communication technologies. Research and theorizing about the stress-buffering effects of social support suggest that, through creating a forum for group members to exchange support, participating in a CMSG should lead to increased self-reports of social support, decreased depression, increased quality of life, and increased self-efficacy to manage one's health condition. Accordingly, we propose the following hypothesis to assess the influence of participation in a CMSG intervention:

H1: From the baseline measurement to completion of a CMSG program, individuals participating in a CMSG intervention will report (a) increased social support, (b) reduced depression, (c) increased quality of life, and (d) increased self-efficacy.

Group characteristics as moderators of CMSG health outcomes

To fully understand the role of support in CMSGs, it is important to consider those factors that may moderate the relationship between CMSG participation and health outcomes. One such group of factors involves the network-related characteristics of the CMSGs. As CMSGs comprise a social network, research conducted on social embeddedness (for a review, see Barrera, 1986) focusing on the features of networks that facilitate or inhibit the exchange and effects of social support provides a useful framework for the analysis. Albrecht and Adelman's (1987) work, in particular, identifies a series of network characteristics that are especially important to groups. Drawing from their work, we discuss four network characteristics relevant to groups that may moderate the relationship between CMSG participation and health

outcomes, including: group size, nature of communication channels, frequency of contact, and the duration of the CMSG intervention.

Size, defined as the number of people in one's network, is a widely studied characteristic of social support networks in general (Brissette, Cohen, & Seeman, 2000) and at the level of groups (Albrecht & Adelman, 1987). Network size has been linked with positive outcomes such as perceptions of self-efficacy to manage a health condition (Franks, Cronan, & Oliver, 2004), quality of life among women with HIV (Gielen, McDonnell, Wu, O'Campo, & Faden, 2001), and the health status of elderly men (Shye, Mullooly, Freeborn, & Pope, 1995)—though some have critiqued network size as a relatively weak predictor of health (Brissette et al., 2000). In the context of CMSGs, size is likely an important moderator because the total number of members in one's group can limit the potential resources available within the group. As membership increases, so should the resources—in the form of potential sources of informational, emotional, and esteem support—available to a group member.[1] Eastin and LaRose (2005), for example, found a positive and significant relationship between group size and perceptions of social support in their cross-sectional study of online self-help group members.

Albrecht and Adelman (1987) identify communication channels—that is, the various technologies available that enable group members to interact with one another—as an important group-level characteristic of support networks.[2] Members of CMSGs may be able to interact through e-mail or private message, instant messaging or chat applications, and/or a discussion forum. The features of these various communication channels are largely responsible for the key advantages of CMSGs such as increased anonymity, reduced social cues, and availability of support (Shaw et al., 2000; Walther & Boyd, 2002; Wright & Bell, 2003). A distinguishing characteristic of the communication channels available in a CMSG is the degree to which they are synchronous or asynchronous. A discussion forum, which is a standard part of most CMSGs (Shaw et al., 2000), is typically asynchronous (allowing a time delay between an initial post and a reply). The degree of synchronicity offered by a channel creates unique opportunities to group members. Asynchronous communication makes it possible for individuals to carefully consider and edit their response prior to sharing it (Braithwaite et al., 1999; Wright & Bell, 2003), whereas synchronous communication offers immediate feedback (Wright, 2002). It seems reasonable to expect that those group members who have access to both synchronous and asynchronous channels are most likely to achieve benefits from CMSG participation. Members of a CMSG with both synchronous and asynchronous channels could use specific channels strategically to best satisfy their needs and, as a result, be more likely to report better health outcomes than members of CMSGs with access to only asynchronous or synchronous channels.

A third factor that may moderate the influence of CMSG participation on health outcomes related to support is the frequency with which individual members have contact with the group (Albrecht & Adelman, 1987). Individual members must interact with the group to achieve health benefits. For example, Wright (2000a)

found that, among the older adult Americans in his sample, communication via the Internet (used as an indirect measure of support network participation) was negatively associated with perceived life stress. Participation by individual members should also benefit the group as a whole by providing increased potential resources for information and support. Yet, there may be a great deal of variance in the participation by individual members of a CMSG (Davison, Pennebaker, & Dickerson, 2000; Shaw, Hawkins, McTavish, Pingree, & Gustafson, 2006; Winefield, 2006) and across CMSGs as a whole. The availability of CMSGs could be a double-edge sword. Although members of a CMSG can access the group when and where (e.g., there is not specific location to which they must travel) it is most convenient, this flexibility may undermine members' perceptions of accountability to the group. Without having to meet at a specific time and place, some members may be less likely to consistently participate in the group. Those groups who have more frequent participation by members should report greater health benefits associated with support.

Finally, though not specifically identified as a group-level characteristic of social networks by Albrecht and Adelman (1987), it is reasonable that the duration of a CMSG intervention could moderate its effectiveness (Walther & Boyd, 2002; Wright, 2000b). Time is a critical factor to consider in research on interpersonal interaction and computer-mediated communication. Walther's 1992 social information-processing theory is founded on the notion that individuals interacting via computer-mediated channels can achieve the same level of relationship development as individuals interacting face-to-face if given enough time. Walther and his colleagues have found a fair amount of support for the notion that relationships develop more slowly in computer-mediated contexts (Walther, 1994, 1995; Walther & Burgoon, 1992). In the context of CMSGs, social information-processing theory suggests that longer CMSG programs may result in more positive heath outcomes than shorter programs. If CMSG members take longer to develop relationships, it seems possible that they may also take longer to become comfortable enough with one another to share information and emotional support with others' members and, consequently, experience benefits from group participation.

H2: Changes in the four dependent measures from the baseline to the completion of a CMSG program are moderated by the (a) size of the group, (b) nature of the communication channels available (in terms of synchronicity), (c) frequency of contact with the group, and (d) duration of the intervention. Participants will experience more positive outcomes (reduced depression, increased quality of life, etc.) in those CMSGs that have more members, synchronous and asynchronous channels available, greater frequency of contact among members, and a longer duration.

Method

Random- (mixed-)effects meta-analysis was conducted to address the previous hypotheses. Meta-analysis is a technique for aggregating the results from a body of research (Hedges & Olkin, 1985; Hunter et al., 1982). Through computing an

effect size and weight for each of the studies in the sample, meta-analysis makes it possible to determine the weighted mean impact of a variable and identify moderating variables.

Literature search

A literature search was conducted to examine those reports of studies that have tested the outcomes associated with participating in a CMSG. To mitigate the potential influence of publication bias, which is sometimes associated with peer-reviewed research, we attempted to include both published and unpublished works in the sample (Torgerson, 2006). Two approaches were used to locate relevant research reports. First, we searched five databases. We used (a) the EBSCO database and searched Academic Search Complete, Communication and Mass Media Complete, ERIC, Health Business Fulltext Elite, PsycArticles, and PsychInfo; (b) the Medline database, consisting of articles published in medical journals and conference proceedings; (c) the Proquest database, which contains doctoral dissertations and master's theses; (d) the PsychExtra database, which is run by the American Psychological Association and includes the so-called gray literature (such as conference papers and technical reports); and (e) the Association of Computing Machinery database of journal articles and conference proceedings involving research on computer-based communication and information technologies. In each database, we conducted separate searches using each of the following search strings: "online support group," "computer-mediated support group," "Internet support group," "Internet self-help group," and "Internet and group intervention." Second, we examined the reference pages from comprehensive literature reviews of CMSG research to identify additional research reports (Eysenbach, Powell, Englesakis, Rizo, & Stern, 2004; Pull, 2006; van Dem et al., 2005). These two general procedures yielded over 350 research reports related to health and computer-mediated groups.

Each report was reviewed to identify studies that met the following criteria to be included in the sample. First, studies had to include a condition that met our definition of a CMSG. The CMSG condition must include a group that (a) focused on a health condition, (b) involved computer-mediated interaction between members, (c) included an education-related component, (d) had closed membership, and (e) had a fixed start and completion point. Second, to make it possible to compute effect sizes, the means and standard deviations must be reported for at least one of the variables of interest prior to the intervention (i.e., the baseline measure) and upon completion of the CMSG intervention. Several studies were excluded from the analysis because sufficient information could not be obtained to allow the computation of an effect size (e.g., Gustafson et al., 1999; Johnson, Ravert, & Everton, 2001; Southard, Southard, & Nuckolls, 2003). A total of 28 studies were included in the data set for the analyses.[3] Table 1 displays the key characteristics for each of the studies.

Table 1 Description of Key Variables in Each Study Included in the Meta-Analysis

Author(s)	*N*	Retention Rate (%)	DVs (measures)	Health Condition	Group Size	Communication Channel	Participation	Duration (weeks)
Andersson et al. (2006)	117	73	Depression (BDI); Quality of life (QoLI)	Depression	57	Asynchronous	1.26	—
Barrera et al. (2002)	160	77	Social support (diabetes support scale; interpersonal support evaluation list)	Diabetes	40	Asynchronous & synchronous	—	12
Brattberg (2007)	60	92	Depression (hospital anxiety and depression scale)	Chronic pain	30	Asynchronous	—	52
Carlbring et al. (2005)	49	88	Depression (BDI); Quality of life (QoLI)	Panic disorder	25	Asynchronous		10
Celio (2005)[a]	61	95	Depression (depression anxiety and stress scale); Quality of life (pediatric quality of life inventory)	Disordered eating	11	Asynchronous	1.32	16
Chen et al. (2006)	77	—	Self-efficacy (—)	Smoking cessation	38	Asynchronous	—	4
Dew et al. (2004)	44	—	Quality of life (SF-36)	Heart transplant	24	Asynchronous	—	16
Flatley-Brennan (1998)	57	84	Social support (instrumental-expressive social support scale); Quality of life (instrumental activities of daily living schedule)	HIV/AIDS	31	Asynchronous	.26	24

(*continued overleaf*)

Table 1 (*continued*)

Author(s)	*N*	Retention Rate (%)	DVs (measures)	Health Condition	Group Size	Communication Channel	Participation	Duration (weeks)
Gerrits et al. (2007)	189	36	Depression (CES-D)	Depression	6	Synchronous	—	8
Glasgow et al. (2003)	320	—	Depression (CES-D); Social support (diabetes support scale)	Diabetes	—	Asynchronous & synchronous	—	40
Gollings & Paxton (2006)	40	83	Depression (BDI)	Disordered eating	7	Asynchronous & synchronous	—	8
Gustafson et al. (2005)	286	80	Social support (scale created for study); Quality of life (FACT-B); Health self-efficacy (created for study)	Breast Cancer	—	Asynchronous	—	16
Harvey-Berino et al. (2002)	122	74	Social support (frequency of peer contacts initiated by group members)	Weight loss maintenance	40	Asynchronous & synchronous	—	52
Heinicke et al. (2007)	83	75	Depression (BDI)	Disordered eating	6	Asynchronous & synchronous	—	6
Hill et al. (2004)	242		Social support (personal resource questionnaire)	Chronic illness	30	Asynchronous & synchronous	—	20
Hill et al. (2006)	120	83	Depression (CES-D); Quality of life (perceived stress scale; Social support (perceived resource questionnaire): Self-efficacy (self-efficacy scale)	Chronic illness	61	Asynchronous & synchronous	—	12

(*continued overleaf*)

Table 1 (*continued*)

Author(s)	*N*	Retention Rate (%)	DVs (measures)	Health Condition	Group Size	Communication Channel	Participation	Duration (weeks)
Jones et al. (2008)	105	89	Depression (CES-D)	Disordered eating	—	Asynchronous	.33	16
LaCoursiere (2003)[a]	159	61	Social support (perceived social support scale); Quality of life (SF-36 version 2)	Cardio-vascular disease	85	Asynchronous	1.39	6
Lieberman et al. (2003)	32	81	Depression (CES-D)	Breast cancer	8	Asynchronous & synchronous	—	16
Lieberman et al. (2005)	66	48	Depression (CES-D); Quality of life (Parkinson's disease questionnaire)	Parkinson's disease	—	Asynchronous & synchronous	—	20
Lorig et al. (2002)	580	73	Quality of life (Roland-Morris disability scale; illness intrusiveness scale; health distress); Self-efficacy (created for study)	Back pain	296	Asynchronous	.16	52
McKay et al. (2002)	160	83	Depression (CES-D); Quality of life (SF-12)	Diabetes	40	Asynchronous & synchronous	—	12
McKay et al. (2001)	78	87	Depression (CES-D)	Diabetes	38	Asynchronous & synchronous	.14	8
Owen et al. (2005)	62	85	Quality of life (FACT-total; impact of events scale; EuroQol-5D feeling thermometer)	Breast cancer	9	Asynchronous	.79	12

(*continued overleaf*)

Table 1 (*continued*)

Author(s)	*N*	Retention Rate (%)	DVs (measures)	Health Condition	Group Size	Communication Channel	Participation	Duration (weeks)
Paxton et al. (2007)	116	74	Depression (BDI)	Disordered eating	7	Asynchronous & synchronous	—	9
Shaw et al. (2006)	144	—	Quality of life (emotional well-being; physical well-being)	Breast cancer	144	Asynchronous	4.55	20
Taylor et al. (2006)	480	88	Depression (CES-D)	Disordered eating	19	Asynchronous	—	8
Winzelberg et al. (2003)	72	81	Depression (CES-D); Quality of life (perceived stress scale); Self-efficacy (cancer behavior inventory)	Breast cancer	12	Asynchronous	3.00	12

Note: N refers to the total number of participants who were randomized. A dash (i.e., "—") indicates that information regarding a particular variable was not provided or insufficient. Communication channels refer to the channels available to communicate with other members (not the trained facilitator). Participation refers to the mean number of posts to the discussion per participant/per week. BDI = Beck Depression Inventory; CES-D = Center for Epidemiologic Studies Depression Scale; FACT = Functional Assessment of Cancer Therapy; QoLI = Quality of Life Inventory. In instances when multiple measures were included for one variable (such as using the FACT-Total and Impact of Events Scale as measures of quality of life), we computed a mean *r* coefficient using the individual *r* coefficients from each of the measures for the variable.

[a]Indicates a doctoral dissertation.

Computing effect sizes and testing for moderating variables

Separate meta-analyses were conducted to examine the pretest–posttest differences for the four dependent variables and the moderators. The general steps involved in conducting each meta-analysis included (Hedges & Olkin, 1985): (a) computing the individual effects and weights for each study, (b) calculating a weighted mean effect for each set of studies corresponding to the dependent variables of interest, and (c) completing a test for moderator variables.

We used the computer program Comprehensive Meta-Analysis 2.2 (Borenstein, Hedges, Higgins, & Rothstein, 2006) to compute the effect sizes, in the form of *r*, and weights for each study. This program makes it possible to account for the use of a repeated-measure design among studies in the sample when computing effects.[4] We chose to report effects in the form of *r* because it is more intuitive to a broad audience than other effect size estimates. Once the weights and effects for each study were computed, we conducted a random-effects model meta-analysis using the macros provided by Lipsey and Wilson (2001) for SPSS to identify the weighted mean effect estimates for each of the health outcomes and commensurate confidence intervals. Random-effects model meta-analysis (for a review, see Hedges & Vevea, 1998) assumes that effects are randomly sampled from a population of effect estimates and, as such, makes is possible to generalize the results of a meta-analysis beyond the observed studies to the universe of potential studies (from which the sample was derived). A random-effects model accounts for the variance stemming from sampling error within each study and differences between the effects of each study in the sample; in contrast, a fixed-effects model only accounts for variance due to sampling error. In practical terms, the confidence intervals for random-effects models are generally larger than fixed-effects models.

A modified form of weighted least squares regression (Lipsey & Wilson, 2001) was used to test the moderator variables. The analysis represents a mixed-effect model because the variance associated with the moderator variable is considered fixed and the variance associated with between-study differences in effects is treated as random (Overton, 1998). The SPSS macro developed by Lipsey and Wilson (2001) was used to conduct the analysis. The method of moments estimation procedure was used to determine the variance associated with the random effects. The regression analysis produces an unstandardized beta weight (*b*), standard error (*SE*), and *p*-value indicating the relationship between the moderator and changes in the dependent variable from baseline to study completion.

To facilitate the analysis of moderating variables, studies were coded by the authors for group size, the nature of the communication channels available to members, members frequency of contact with their respective group, and the duration of the CMSG intervention. With the exception of channel, the moderators were assessed as continuous variables. Group size was determined by identifying the number of persons who participated in a CMSG intervention concurrently. In instances where there was attrition, we used the group size from the baseline measure. Twenty-four studies reported sufficient information about group size, with groups ranging

from 6 to 296 members. The frequency of contact among members in a CMSG was operationalized as mean number of posts to the discussion board made each week by participants.[5] In the 10 studies that reported this information, the mean number of posts per participant per week was 1.32 ($SD = 1.43$, range .14–4.55). The communication channels to which participants had access (to interact with one another) were identified and recorded. In all but one study (Gerrits et al., 2007), participants had access to an asynchronous communication channel (e.g., discussion board or e-mail listserv). Studies were categorized into those in which participants had access only to asynchronous communication channels ($k = 15$), which were coded 0, and those in which participants had access to asynchronous and synchronous communication channels ($k = 12$), which were coded 1. The duration of the group was determined by coding the number of weeks between the baseline and the completion of the CMSG intervention ($M = 18.04$, $SD = 14.18$, range 4–52).[6] Table 1 displays the moderator variables for each of the studies in the data set in detail.

Results

Sample

The 28 studies in the sample totaled 4,081 participants and focused on 12 different health conditions. A majority of the studies (80%) had an adult, nonstudent sample; those six that recruited students and adolescents as participants focused on eating disorders or depression, both of which are particularly relevant to college students and adolescents. The mean attrition rate for the studies in the sample, computed as the number of individuals per study who were randomized to an experimental condition but failed to complete the posttest, was 22%. Additional details about each of the studies in the sample are available in Table 1.

Pretest–posttest differences within CMSGs

Hypotheses 1a–d predicted that participants in a CMSG program would experience increased social support, decreased depression, greater quality of life, and increased perceptions of self-efficacy from the baseline measure to the completion of the CMSG. Separate random-effects model meta-analyses were conducted to assess the pretest–posttest change for each of the preceding four outcome variables. The results of the analyses are presented in Tables 2–5.

Eight studies ($N = 866$) were included in the meta-analysis of social support. The results of the analysis suggest that CMSG participants perceived greater social support in their lives at the completion of the CMSG intervention than at the baseline measurement period, $r = .16$. The confidence interval did not include zero, ranging from .01 to .31, providing support for Hypothesis 1a. The results of each individual study included in the analysis are presented in Table 2.

Sixteen studies ($N = 1{,}030$) were included in the meta-analysis of depression. One study was excluded from the analysis (Gerrits et al., 2007) because the effect reported in the study ($r = -.60$) exceeded the unweighted mean effect size for remaining

Table 2 Changes in Social Support from Baseline to CMSG Program Completion

Study	*N*	*r*	95% *CI*
Barrera et al. (2002)	61	.27	
Flatley-Brennan (1998)	25	.09	
Glasgow et al. (2003)	320	.44	
Gustafson et al. (1999)	230	.02	
Harvey-Berino et al. (2002)	30	.21	
Hill et al. (2004)	43	.17	
Hill et al. (2006)	75	.07	
LaCoursiere (2003)	82	.01	
Overall	866	.16	.01–.31

Note: N indicates the number of repeated observations at baseline and completion of CMSG. The overall *r* value is the mean-weighted *r* coefficient for the sample computed using a random-effects model.

Table 3 Changes in Depression from Baseline to CMSG Program Completion

Study	*N*	*r*	95% *CI*
Andersson (2006)	85	−.31	
Brattberg (2007)	25	−.23	
Carlbring et al. (2005)	25	−.35	
Celio (2005)	32	−.07	
Glasgow et al. (2003)	320	−.27	
Gollings & Paxton (2006)	19	−.31	
Heinicke et al. (2007)	28	−.39	
Hill et al. (2006)	43	−.13	
Jones et al. (2008)	44	−.25	
Lieberman et al. (2005)	31	−.18	
Lieberman et al. (2003)	26	−.46	
McKay et al. (2002)	63	−.08	
McKay et al. (2001)	38	−.08	
Paxton et al. (2007)	24	−.36	
Taylor et al. (2006)	191	−.02	
Winzelberg et al. (2003)	36	−.30	
Overall	1030	−.23	−.31 to −.16

Note: N indicates the number of repeated observations at baseline and completion of CMSG. The overall *r* value is the mean-weighted *r* coefficient for the sample computed using a random-effects model.

studies in the sample by approximately three standard deviations. Excluding such effects is advocated by Lipsey and Wilson (2001), who contend that a meta-analysis "is not usually served well by the inclusion of extreme effect size values that are notably discrepant from the preponderance of those found in the research of interest and,

Table 4 Changes in Quality of Life from Baseline to CMSG Program Completion

Study	*N*	*r*	95% *CI*
Andersson (2005)	85	.14	
Carlbring et al. (2005)	25	.19	
Celio (2005)	32	.11	
Dew et al. (2004)	20	.02	
Flatley-Brennan (1998)	25	−.12	
Gustafson et al. (2005)	230	.21	
Hill et al. (2006)	43	.15	
Lacoursiere (2003)	82	.02	
Lieberman et al. (2005)	31	−.10	
Lorig et al. (2002)	190	.32	
McKay et al. (2002)	63	.11	
Owen et al. (2005)	26	.24	
Shaw et al. (2006)	66	.30	
Winzelberg et al. (2003)	36	.23	
Overall	954	.14	.07–.21

Note: N indicates the number of repeated observations at baseline and completion of CMSG. The overall *r* value is the mean-weighted *r* coefficient for the sample computed using a random-effects model.

Table 5 Changes in Self-Efficacy from Baseline to CMSG Program Completion

Study	*N*	*r*	95% *CI*
Chen et al. (2006)	38	.38	
Gustafson et al. (2005)	227	.19	
Hill et al. (2006)	43	.02	
Lorig et al. (2002)	190	.14	
Winzelberg et al. (2003)	36	.00	
Overall	534	.15	.05–.25

Note: N indicates the number of repeated observations at baseline and completion of CMSG. The overall *r* value is the mean-weighted *r* coefficient for the sample computed using a random-effects model.

hence, unrepresentative of the results of that research and possibly even spurious" (p. 107). Across the 15 studies in the analysis, the results of the random-effects model indicate that participants experienced less depression at the conclusion of the CMSG program than at the baseline measurement period, $r = -.23$. The 95% confidence interval did not include zero, ranging from −.16 to −.29. Hypothesis 1b was supported. The results for the studies in this meta-analysis are presented in Table 3.

Fourteen studies ($N = 954$) were included in the analysis of quality of life. Consistent with Hypothesis 1c, participants who completed the CMSG program

reported a greater quality of life than at the beginning of the program, $r = .14$. The 95% confidence interval ranged from .07 to .21. Table 4 reports the results of all studies included in this meta-analysis.

Five studies ($N = 534$) were included in the analysis of self-efficacy. The results are consistent with Hypothesis 1d. Participants in the CMSG program experienced significantly more self-efficacy to manage their health condition from the baseline to study completion, $r = .14$, and the confidence interval ranged from .07 to .21. Table 5 displays the results of the studies included in this analysis.

Moderators of the pretest–posttest differences within CMSG programs

Hypotheses 2a–d predicted four factors that could moderate the pretest–posttest differences associated with participation in a CMSG program. Regression was used to conduct the analysis of moderators. Group size, frequency of contact, and duration were treated as continuous variables; channel was a dichotomous variable with CMSGs including an asynchronous channel only coded as 0 and those with asynchronous and synchronous channels coded 1. Note that the beta coefficients (b) for all tests of the moderators are unstandardized.

In cases where a moderator was not statistically significant, we computed the power of the test using the procedures specified by Hedges and Pigott (2004).[7] Our approach can be considered "after-the-fact" power analysis (O'Keefe, 2007, p. 294). We used the observed coefficient for the variance associated with a moderator and a predetermined population value for each unstandardized regression coefficient (representing the moderator in question) to compute the power of the failed test. In all cases we assumed a two-sided test and a p-value of .05.

In establishing the population values for the unstandardized regression coefficients, we considered the scale and possible range of each moderator and identified values that reflect a noteworthy level of practical significance. We established .025 as the population value for the moderator group size. This beta suggests that an increase of one group member is associated with an increase in the effect size (r) for the outcome variable of .025. For frequency of contact, which was measured by the average number of contributions per member/per week, we selected the unstandardized beta of .10 as the population value. Again, this would mean that an increase of one post to the discussion per member/per week would result in a change of .10 in the outcome measure. For time we chose the unstandardized beta of .025. For channel, which reflects the difference in the r value between the two channel conditions, we selected the value of .20.

The first moderator we examined was the size of the CMSG. We predicted that group size would be positively associated with beneficial health outcomes of CMSG participation. Limited support was found for H2a. Consistent with H2a, there was a significant relationship between group size and the increase in participants' quality of life throughout the CMSG intervention, $b = .001$, $SE = .0003$, $p = .03, K = 12$. An increase in group size by one member was associated with a .001 increase in the effect size estimate (i.e., r value) representing improvement in participants'

quality of life. The relationship between group size and social support was also significant, but in the opposite direction of what was predicted, $b = -.004$, $SE = .001$, $p = .01$, $K = 6$. The relationship between group size and changes in depression, $b = .003$, $SE = .003$, $p = .27$, $K = 13$, power = 1.00, and self-efficacy, $b = .00001$, $SE = .0009$, $p = .98$, $K = 4$, power = 1.00, were not significant.

For the second moderator, communication channel, we predicted that members with access to both asynchronous and synchronous channels would report greater gains in positive outcomes over the course of the CMSG program than those members with access only to a synchronous or asynchronous channel. Mixed support was found for H2b. Consistent with H2b, the results of the regression model showed that those in a CMSG intervention with access to both asynchronous and synchronous channels ($r = .29$, $K = 4$) experienced a greater increase in social support than those in a CMSG with only asynchronous channels ($r = .03$, $K = 3$), $b = .26$, $SE = .09$, $p < .01$. The difference in depression changes between those members with access to both synchronous and asynchronous condition ($r = -.24$, $K = 9$) and those individuals in a CMSG with asynchronous channels ($r = -.21$, $K = 7$) was not significant, $b = -.03$, $SE = .07$, $p = .69$, power = .82. Similarly, there was no difference between the changes in quality of life reported by those members of CMSGs with synchronous and asynchronous channels ($r = .06$, $K = 3$) and solely asynchronous channels ($r = .16$, $K = 11$), $b = -.10$, $SE = .08$, $p = .24$, power = .71. Four of the five studies that measured self-efficacy included only asynchronous channels in the CMSG intervention; accordingly, it was not possible to test channel as a moderator for changes in self-efficacy.

The third moderator we examined was the frequency of contact with the group. It was predicted that CMSGs with greater participation would facilitate more positive health outcomes than CMSG with lesser participation. Hypothesis 2c was not supported. Although the point estimates reflecting the relationship between CMSG participation and well-being, $b = .03$, $SE = .04$, $p = .39$, $k = 7$, power = .71, and depression, $b = -.05$, $SE = .05$, $p = .35$, $k = 5$, power = .52, were in the predicted direction, neither were statistically significant. Only two studies that measured social support and two that assessed self-efficacy included indicators of group participation; accordingly, it was not possible to test group participation as a moderator of social support or self-efficacy.

The final moderator we examined was the duration of the CMSG program. We predicted a positive relationship between the duration of a CMSG intervention and health outcomes. Although the relationship between time and social support was in the predicted direction, it was only marginally significant, $b = .006$, $SE = .003$, $p = .06$, $k = 8$, power = 1.00. As such, we can only tenuously report that the longer the CMSG intervention, the greater the reported increase in perceived social support. The point estimate for the relationship between CMSG duration and quality of life, $b = .004$, $SE = .003$, $p = .17$, $k = 13$, power = 1.00, was in the predicted direction, but not statistically significant. The relationship between the duration of the CMSG

intervention and changes in efficacy, $b = -.001$, $SE = .003$, $p = .73$, $k = 5$, power = 1.00, and depression, $b = -.0003$, $SE = .004$, $p = .92$, $k = 15$, power = 1.00, were not significant.

Discussion

The purpose of this study was to examine the function and implications of the group communication component of CMSG interventions. To this end, we explored the theoretical foundation of CMSGs related to social support and conducted a meta-analysis of 28 studies of CMSG interventions. The results of the meta-analysis support Hypotheses 1a–d, but offer only limited support for H2a–d. These findings and their implications will be discussed in the following paragraphs.

A central component of the theoretical foundation grounding CMSG interventions is that, through facilitating the exchange of social support among those who are coping (or have coped) with a specific health condition, CMSGs can foster positive health outcomes among participants (Walther & Boyd, 2002; Wright & Bell, 2003). The results of this meta-analysis show that, from the baseline to program completion, individuals who participated in a CMSG intervention perceived a significant increase in social support. Further, the results showed that CMSG participation led to a significant decrease in depression and significant increases in participants' quality of life and self-efficacy to manage their health condition. These effects were observed across a variety of different health conditions ranging from breast cancer and Parkinson's disease to depression and disordered eating.

It is noteworthy that CMSG interventions contain both educational and group communication components. Although it is not possible to attribute the health outcomes examined in this study solely to group interaction, it is plausible that group communication played a substantial role. Through bringing together individuals who face the same health condition, CMSGs provided a place to gain insights, consolation, and validation regarding one's experience with an illness. Further, the computer-mediated nature of these groups offers several distinct advantages that likely contribute to their utility. Unlike face-to-face groups that require participants to meet at a specific place and time, CMSGs are always available and allow members to participate when it is most convenient and support is most needed. Such advantages are especially critical to individuals living in rural areas (Hill et al., 2004, 2006) or who have impaired mobility. Beyond logistics, the computer-mediated nature of CMSGs may help individuals feel more comfortable disclosing information and exchanging support. The measure of physical anonymity provided by CMSGs may mitigate the stigma participants can feel as a result of their health condition. It is reasonable that these advantages of CMSGs are, at the least, partially responsible for the positive health outcomes shown in this meta-analysis.

We also examined several potential moderators of the changes in health outcomes associated with CMSG interventions drawn from research on group-level characteristics of social networks (Albrecht & Adelman, 1987). In evaluating

the results it is important keep in mind that the tests for the moderators are tests of association and not causality. Overall, the findings with regard to the moderators were mixed. The increase in social support reported by CMSG members was associated with both the nature of the communication channels available in the CMSG and the duration of the CMSG intervention. Although the latter finding was only marginally significant, it suggests that those participants in a relatively longer duration CMSG intervention reported greater gains in social support. This outcome is consistent with social information-processing theory (Walther & Burgoon, 1992), which suggests that relationships conducted via computer-mediated channels develop more slowly than relationships conducted face-to-face. The lack of visual and vocal cues, such as gestures and the tone of one's voice, may slow—but not necessarily inhibit—the process of developing a connection with other group members. As a result, group interventions that are longer in duration may allow participants to achieve greater levels of social support.

Participants who had access to synchronous and asynchronous channels reported greater increases in social support than those who simply had access to asynchronous channels such as a discussion board. The ability to communicate with other members using synchronous channels such as instant messaging, in addition to asynchronous channels, likely created the opportunities for different types of interaction that may have facilitated social support. Synchronous channels make it possible for one's concerns to be addressed immediately and, as Shaw et al.'s (2000) research suggests, "more instant gratification [stemming from] real-time chat" (p. 142). It is important to clarify that this finding does not indicate that asynchronous communication is ineffective; to the contrary, asynchronous communication channels are the cornerstone of CMSGs (Shaw et al., 2000). Rather, the findings with regard to this moderator suggest that group members stand to gain the greatest benefits in social support when both asynchronous and synchronous channels are available.

Changes in participants' self-reported quality of life were associated with the number of members in a CMSG. Group size was positively associated with the increase in CMSG members' quality of life reported at the baseline and completion of the intervention. This finding is relatively straightforward as the larger the group of people (who share the same health condition) to which one has access, the greater the potential availability of resources. It should be noted that the benefits associated with increased group size likely has a limit. Increases in group size also raise the potential for information overload or alienating individual members.

In addition to considering the hypotheses that were supported, it is important to consider relationships that were inconsistent with our predictions. First, contrary to our prediction, group size was negatively associated with perceptions of social support. One explanation for this finding is that, as group size increases, so does the potential for individual members to feel isolated. In groups that are too large, individuals may feel a sense of alienation—as if they are lost in the crowd—and have difficultly making connections. It may be that the relationship between group size and social support is curvilinear. Increases in group size may be beneficial in

creating greater resources for support up until the point at which an individual becomes unable to make significant connections with others. Second, none of the moderator variables were associated with changes in self-reported depression during the CMSG intervention. However, the point estimates for the relationships between depression and channel, participation, and time were in the expected direction. One explanation is that the effects of the moderators on depression are smaller than we anticipated and, thus, there was not enough power to detect these relationships. Yet, even if this were the case, the practical significance of the moderators would be minimal. Group-level network characteristics simply may not be as important to participants' depression as other potential moderators such as the nature of the supportive messages exchanged in the group.

A third set of nonsignificant outcomes that warrant consideration is associated with the moderator assessing the frequency of group participation. The lack of a relationship between participation frequency and the outcome variables may stem from the way in which participation was measured. The mean number of contributions made per week by members of a CMSG to the group's discussion (via the discussion board or e-mail listserv) may not effectively reflect participation. It is plausible that group members could receive substantial benefits from simply reading the contributions of other members and not actively posting comments. A more effective measure of participation would assess the number of times participants accessed the CMSG or the total amount of time spent using the CMSG. Unfortunately, information about log-on frequency was not made widely available in the studies included in our sample; thus, the number of contributions by group members provided the most viable indicator of participation.

There are several implications of this meta-analysis for health practitioners that warrant consideration. First, the results demonstrate that CMSG programs can foster positive health outcomes. Given the logistical advantages of CMSGs over face-to-face groups, the findings demonstrating the benefits of CMSGs should provide practitioners with a measure of confidence in choosing to conduct a computer-based support group. We should clarify that the findings from this study do not demonstrate that CMSG interventions are more or less effective than commensurate face-to-face interventions—these results simply provide evidence that CMSG interventions can facilitate health benefits. Second, the tests for moderators suggest some important factors that may enhance the effectiveness of CMSG interventions. In particular, a CMSG should be held for a significant duration of time and include both asynchronous and synchronous communication channels to more effectively facilitate the exchange of social support. Further, practitioners should be wary about the number of members to admit to their CMSG intervention. Groups should be sufficiently large to achieve benefits with regard to participants' perceptions of their quality of life, but not so large as to create the potential for them to feel isolated and mitigate social support. At the least, practitioners developing a CMSG intervention would be well served to carefully consider (and pretest) the duration, size, and communication channels available in the intervention.

There are also a few key limitations of the study that warrant consideration. First, it is possible that the results of this meta-analysis may be influenced by publication bias or the bias in social scientific research to publish those studies with statistically significant findings. A substantial majority of the studies included in our sample were published in peer-reviewed journals. Although we attempted to include unpublished works including dissertations, theses, and conference papers in the sample to mitigate publication bias, we were only able to identify a few unpublished studies that met the inclusion criteria.[8] A second limitation of this study is that, in constraining our definition of CMSGs to those formal interventions with a fixed start and end point and a closed enrollment, the results of this meta-analysis may not translate to informal computer-mediated groups like those on Websites such as Yahoo! or WebMD. Nonetheless, we felt that the substantial differences between formal CMSGs and informal support groups necessitated focusing solely on one type of group or the other to clearly understand the effects of either type of computer-mediated social support group.

Conclusion

Use of the Internet to deliver group-based health interventions has created a number of opportunities and challenges for scholars and practitioners. The meta-analysis reported here showed that participation in a CMSG can result in positive health outcomes for group members. Yet, the findings from this study also raise new questions about structural characteristics of CMSGs that may make them more or less effective. Given the likelihood that CMSG use will continue to increase, future scholarship is essential to fully understand the function of, and outcomes associated with, these computer-based health communication technologies.

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Notes

1 It should be noted that there are limits to the potential benefits of group size. As resources within the group increase, the potential for information overload also increases. However, at a basic level, larger groups should generally result in more positive outcomes than smaller groups.

2 Albrecht and Adelman (1987) use the term ''communication modes'' to refer to communication channels.

3 One dissertation (Shaw, 2000) was later published in a journal (Shaw et al., 2006). The information regarding the outcomes associated with the CMSG intervention is the same in both manuscripts; we elected to report the journal article.

4 To compute the *r* value for each study, comprehensive meta-analysis computes the *d* value for each study and then converts it to *r* using the following formulae:

$$d = \frac{M_{\text{post}} - M_{\text{pre}}}{\left(\frac{\sqrt{(SD_{\text{pre}}^2 + SD_{\text{post}}^2) - (2 \times \sigma)(SD_{\text{pre}} \times SD_{\text{post}})}}{\sqrt{2 \times (1 - \sigma)}} \right)}$$

σ = pretest–posttest correlation for the variable

$$r = \frac{d}{\sqrt{(d^2 + 4)}}$$

It is noteworthy that the formula for *d* requires the pretest–posttest correlation for the dependent measure. Because the pretest–posttest correlation, or the requisite information necessary for it to be computed, was not included in any of the studies in our sample, we contacted the corresponding author for each study in our sample. Approximately one-third of the authors responded to our inquiry and provided us with the pretest–posttest correlations for their research. We used the information provided by authors to conduct meta-analyses following the procedures specified by Hedges and Olkin (1985) to identify a mean pretest–posttest correlation for the four dependent measures.

5 It would have been ideal to assess the mean number of times per week participants logged on to the intervention. However, this information was provided only in seven studies.

6 In one instance (Hill et al., 2006), the data reported for the study were part of an ongoing CMSG intervention. As such, we treated the final data collection point as the completion of the study for this meta-analysis.

7 The formula for computing the power of a beta coefficient (representing a moderator) in mixed-effects meta-analysis is detailed on page 443 of Hedges and Pigott's (2004) manuscript.

8 The relative paucity of dissertations and theses, in particular, examining CMSGs is reasonable given the difficulty associated with conducting studies of CMSG programs (e.g., including identifying adults suffering from a potentially severe health condition and convincing them to participate in a study lasting as much as 6 months or more, financing and overseeing a longitudinal health intervention, etc.). It should be noted that our search for conference papers and procedures was largely unsuccessful. Although we identified approximately 50 different unpublished studies (that were not theses or dissertations) that dealt in some manner with health groups and technology, each of these either failed to meet our inclusion criteria or was already included by virtue of having subsequently appeared in a peer-reviewed publication.

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* Indicates a study included in the meta-analysis.

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计算机辅助正式支持群体元分析：
检验群体特征和健康结果

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摘要

本文稿报告了有关 28 个研究的文献分析结果，检验以计算机辅助的正式支持群体（CMSG）干预产生的健康结果。我们专门评估了和社会支持相关的健康结果，并将 CMSG 四个群体层面的特征作为干预效果的潜在中介因素加以测试。结果显示：参与 CMSG 干预导致更多的社会支持、更少的压抑、更好的生活质量和更多的管理自身健康的自我效能感。健康结果的变化受到群体规模、可接触的传播渠道的性质以及 CMSG 干预的持久度等因素的影响。

Eine Meta-Analyse über die Forschung zu computervermittelten Selbsthilfegruppen: Eine Untersuchung der Gruppeneigenschaften und Folgen für die Gesundheit

Dieser Artikel dokumentiert eine Metaanalyse von 28 Studien, die sich mit gesundheitsbezogenen Folgen im Zusammenhang mit der Teilnahme an Interventionen im Rahmen computervermittelter Selbsthilfegruppen beschäftigen. Insbesondere wurden die gesundheitsbezogene Folgen mit Bezug auf die soziale Unterstützung untersucht. Vier Charakteristika dieser Interventionen im Rahmen von Selbsthilfegruppen wurden auf Gruppenebene als mögliche Moderatoren der Interventionseffektivität getestet. Die Ergebnisse zeigen, dass die Teilnahme an computervermittelten Selbsthilfegruppen – bestehend aus bildungsbezogenen Komponenten und Gruppenkommunikationskomponenten – zu einem Zuwachs an sozialer Unterstützung geführt haben, Depressionen verringerten, die Lebensqualität erhöhten und die Selbstwirksamkeit bezüglich der Auseinandersetzung mit dem eigenen Gesundheitszustand erhöhten. Die Veränderungen der gesundheitsbezogenen Folgen wurden durch die Gruppengröße, die Art vorhandener Kommunikationskanäle und der Dauer der Intervention moderiert.

Une méta-analyse de la recherche sur les groupes de soutien formels par ordinateur : Un examen des caractéristiques de groupes et des résultats pour la santé

Résumé

Cet article rend compte d'une méta-analyse de 28 études examinant les résultats pour la santé associés à la participation à une intervention d'un groupe de soutien par ordinateur (GSO) formel. En particulier, les résultats liés à du soutien social furent évalués et quatre caractéristiques de groupe des GSO furent examinées comme modérateurs possibles de l'efficacité d'une intervention. Les résultats montrent que la participation à une intervention GSO (qui comprend des éléments éducatifs et de communication de groupe) menait à un soutien social plus fort, une dépression réduite, une meilleure qualité de vie et une plus grande auto-efficacité à gérer son propre état de santé. Les changements dans les résultats pour la santé étaient modérés par la taille du groupe, la nature des canaux de communication disponibles ainsi que par la durée de l'intervention GSO.

A Meta-Analysis of Research on Formal Computer-Mediated Support Groups: Examining Group Characteristics and Health Outcomes

공식적 컴퓨터 매개 지지 집단에 대한 연구의 메타분석: 집단 성격들과 보건 결과들에 관한 연구

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요약

본 논문은 공식적 컴퓨터 매개 지지 집단 (CMSG)에서의 참여와 연계되어 있는 건강 관련 결과들을 연구한 28 개 연구의 메타분석에 관한 것이다. 특히, 사회적 지원과 연계되어 있는 보건 결과들이 평가되었으며, CMSG 의 4 가지 집단 수준의 성격들이 관여 효과성의 잠재적 중재자로서 평가되었다. 결과들은 CMSG 관여에 참여하는 것은 사회적 지원을 증가시키며, 의기소침을 줄이며, 삶의 질을 증가시키며, 그리고 사람들의 건강상태를 관리하는 자기 효능성을 증가시키는 것으로 나타났다. 보건 결과들에서의 변화는 집단크기, 커뮤니케이션 채널의 본질, 그리고 CMSG 관여의 기간등에 의해 중재되었다.

Un Meta-Análisis de las Investigaciones de los Grupos de Apoyo Formales Mediados por la Computadora:

Examinando las Características del Grupo y los Resultados de Salud

Resumen

Este manuscrito reporta un meta-análisis de 28 estudios, examinando los resultados relacionados con la salud asociados con la participación en una intervención de un grupo de apoyo formal mediado por la computadora (CMSG). En particular, los resultados de la salud relacionados con el apoyo social fueron evaluados y cuatro características de nivel grupal de los CMSG fueron puestas a prueba como potenciales moderadores de la efectividad de la intervención. Los resultados muestran que la participación en la intervención de CMSG—comprende componentes educacionales y comunicación grupal—dirigido a incrementar el apoyo social, decreció la depresión, incrementó la calidad de vida, e incrementó la auto-eficacia para manejar la condición de salud propia. Los cambios de los resultados de salud fueron moderados por el tamaño del grupo, la naturaleza de los canales de comunicación disponibles, y la duración de la intervención del CMSG.