Rapid Communication

Benefiting from Social Capital in Online Support Groups: An Empirical Study of Cancer Patients

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ABSTRACT

With measures specific to the online cancer environment and data from an online survey of cancer patients, the current study finds support for the following model: asynchronous online communication → social interaction → social support → positive health outcomes in terms of stress, depression, and coping. The findings suggest that the Internet can be a positive cyber venue for cancer patients as they confront illness, undergo treatment, and seek out support.

INTRODUCTION

OF AMERICANS who use the Internet, 28% participate in online support groups related to medical conditions and personal problems.[1] About 58% of patients with cancer use the Internet as a source of cancer information and support.[2] This Internet use leads to increases in social support, community, and coping and decreases in loneliness, depression, and anxiety.[3,4]

Central to understanding the impact of the Internet on cancer patients are the concepts of social capital and social support. Social capital is the actual or potential resources that result from social connections and senses of reciprocity and trust, which, when mobilized, can bring about outcomes at the individual and collective levels.[5] Social support, which involves advice and emotional reinforcement, is a behavioral outcome of social capital.[6] Research has demonstrated two strong linkages: (1) between mass media use and social capital; and (2) between social capital and public health. Per the first linkage, social capital is predicted by news use,[5,7] media campaign exposure,[8–10] and Internet use.[7,11] Per the second linkage, social capital predicts health outcomes,[12,13] including those of cancer patients.[4,14]

These two linkages can be merged to form a three-step model: mass media use → social capital → public health outcomes.[9] This three-step model has been supported in terms of youth health[13] and the stress and depression of supporters of cancer patients.[6] The current study tests a more complex model on cancer patients: Internet use → social capital → social support → health outcomes in terms of coping, stress, and depression. Implicit to this model is that decreases in stress and depression[15] and an increase in coping[16] are potential bridges to cancer recovery.

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METHOD

An online survey was conducted from March 21, 2005, to April 30, 2005. Respondents were recruited from Yahoo! cancer-related discussion groups. Survey responses were collected from 372 current cancer patients.

Household income was measured on a seven-point scale (M = 3.47, SD = 1.78). The mean age was 42.47 years (SD = 12.61). Education was from "no formal education" (0) to "graduate degree" (9) (M = 7.47, SD = 1.42). About 96% of participants were Caucasian, with 31 percent male.

Internet use for cancer purposes involved online-related communication and online information-seeking. Factor analysis (principal components, with orthogonal rotation) indicated three dimensions to the nine items.[3,17] Asynchronous online communication, including e-mail and discussion groups, had five items[6] (eigenvalue = 3.89, variance explained = 31.13%; a = 0.82; M = 15.25 times during last month, SD = 9.58). Offline communication stimulated by online communication had two items6 (eigenvalue = 1.24, variance explained = 19.36%; r = 0.496, p < 0.01; M = 1.29 times during last month, SD = 2.63). Synchronous online communication, including instant messages and chatrooms, had two items6 (eigenvalue = 1.02, variance explained = 17.21%; r = 0.464, p < .01; M = 1.96 times during last month, SD = 3.56).

Online information-seeking for cancer purposes involved Internet use by medium[3] and by information type.[18] Factor analysis (principal components,

with orthogonal rotation) identified two dimensions. Information-seeking by information type, such as prevention, diagnosis, and treatment, had six items[6] (eigenvalue = 5.52, variance explained = 40.03%; a = 0.89). The mean was 3.27 on a five-point scale from "never" to "very often" (SD = 0.94). Information-seeking by medium type, including search engines and weblogs, had four items[6] (eigenvalue = 1.03, variance explained = 25.46%; a = 0.80). The mean was 3.38 days per week (SD = 1.77).

Social capital and social support were specific to the online cancer environment. Social interaction had two items[6] (r = 0.496, p < .01), with a mean of 16.02 people during last month (SD = 12.47). Interpersonal trust had four items[6] (a = 0.88), with a mean of 3.53 on a four-point scale from "strongly disagree" to "strongly agree" (SD = 0.64). Social support had three items from the Interpersonal Support Evaluation List (ISEL) scale[19] (a = 0.88), with a mean of 3.46 on a four-point scale from "strongly disagree" to "strongly agree" (SD = 0.84).

Coping had 10 items from the Brief COPE scale[16] (a = 0.66), with a mean of 3.49 on a four-point scale from "strongly disagree" to "strongly agree" (SD = 0.48). Stress had eight items from the perceived stress scale[20] (a = 0.85). The mean was 3.37 on a five-point scale from "never" to "very often" (SD = 0.62). Depression was measured with eight items from the Center for Epidemiologic Studies Depression (CES-D) scale[21] (a = 0.90). The mean was 3.60 on a five-point scale from "never" to "very often" (SD = 0.72). Some items were reversed, with higher levels indicating more positive health status.
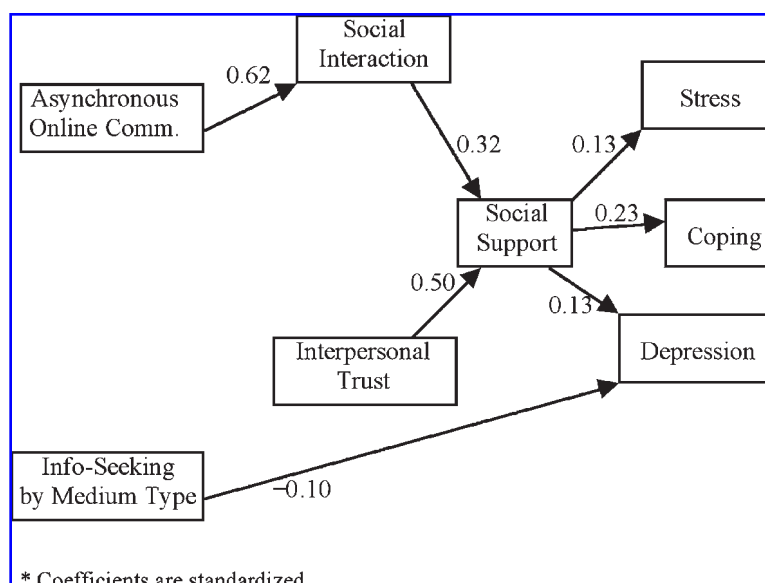

FIG. 1. Final structural equation model.

Structural equation modeling (SEM) was implemented, with maximum likelihood method of estimation. Excellent model fit is indicated by a comparative fit index (CFI) of 0.95 or higher, a nonsignificant χ^2, and a root-mean-squared error of approximation (RMSEA) of close to 0.06 or less.[22] Paths were drawn from Internet use measures to social capital, from social capital to social support, and from social support to health outcomes. Demographics were used as control variables. Nonsignificant paths were pruned, with paths added per modification indices. Where SEM indicated mediation, another round of SEM was conducted to assess whether the addition of a direct path, bypassing the mediating variable, led to a significant model improvement.[23]

RESULTS

The theorized model was first run (χ^2 [27, 372] = 36.05, $p = 0.114$; CFI = 0.99; RMSEA = 0.03). After pruning and adding paths, a second model was run (χ^2 [37, 372] = 37.54, $p = 0.444$; CFI = 0.99; RMSEA = 0.01). Endogenous variables without ties to one another were pruned, rendering a parsimonious final model (χ^2 [19, 372] = 23.11, $p = 0.232$; CFI = 0.99; RMSEA = 0.02). This final model (see Figure 1) accounted for the following variance: social support, 28%; social interaction, 43%; interpersonal trust, 1%; stress, 15%; depression, 12%; and coping, 7%.

The posited four-step model receives support. Asynchronous online communication predicts social interaction ($\beta = 0.62$). Social support is predicted by social interaction ($\beta = 0.32$) and interpersonal trust ($\beta = 0.50$). Social support predicts stress ($\beta = 0.13$), coping ($\beta = 0.23$), and depression ($\beta = 0.13$), with these positive coefficients signifying positive health outcomes.

Figure 1 offers initial support for social interaction's mediation of the effect of asynchronous online communication on social support. In an additional step, a path was drawn directly from asynchronous online communication to social support.[23] Because this new model did not represent a significant improvement over the previous model (χ^2 [18, 372] = 21.26, $p = 0.267$; CFI = 0.99; RMSEA = 0.02), there is support for mediation. There is also support for the mediation role of social support. In the additional step, direct paths were drawn from social capital to the three health outcomes. The new model did not represent a significant improvement over the previous model (χ^2 [13, 372] = 16.17, $p = 0.240$; CFI = 0.99; RMSEA = 0.03).

DISCUSSION

SEM offered support for the following four-step model: asynchronous online communication → social interaction → social support → positive health outcomes in terms of depression, coping, and stress. Synchronous online communication falls out of the model, perhaps because of the lack of a consistent mass and continuity in terms of chatroom and instant-messaging participants.

The model has two blemishes that should be noted. First, the negative effect from information-seeking by medium type to depression relates to previous research indicating that, while the Internet can empower and inform cancer patients, it can also be intimidating, confusing, and frightening.[24] Second, the lack of significant paths from Internet use to interpersonal trust suggests a complexity to media effects on social trust. Previous research has demonstrated that Internet use does not predict interpersonal trust[11] or that such effects can be indirect and vary by content type.[5]

Three limitations should be noted. First, generalization of the findings is limited by this study's focus on only users of Yahoo! cancer groups. Second, to avoid overburdening cancer patients, certain decisions were made to limit the number of items used in measurement scales. Third, although SEM posits a direction of influence, it does not demonstrate causality to the degree that experimental research can do.

This study has implications for health practitioners and researchers. We hope health practitioners will understand the benefits that online communication can have in regards to the development of social capital, social support, and subsequent positive health outcomes. In addition, we hope that researchers will continue to model the manner by which the mass media can influence public health outcomes via the mediation of social capital and social support.

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