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Characteristics of Cancer Patients in Internet Cancer Support Groups

Eun-Ok Im, PhD, MPH, RN, CNS, FAAN [Professor]^{*}, Wonshik Chee, PhD [Assistant Research Professor]^{*}, Yi Liu, MSN, RN [Candidate Doctoral]^{*}, Hyun Ju Lim, MSN, RN [Student Doctoral]^{*}, Enrique Guevara, MSN, RN [Candidate Doctoral]^{*}, Hsiu-Min Tsai, PhD [Associate Dean for Academic Affairs]^{**}, Maresha Clark [Undergraduate Research Assistant]^{*}, Melinda Bender, MSN [Student Doctoral]^{*}, Hyunjeong Shin, PhD, RN [Visiting Post-doctoral Researcher]^{*}, Kyung Suk Kim, PhD, RN [Visiting Post-doctoral Researcher]^{*}, and Young Hee Kim, PhD, RN [Visiting Scholar]^{*}

^{*} School of Nursing, University of Texas at Austin

^{**} Chang Gung Institute of Technology, Taiwan

Abstract

The purpose of this study was to describe characteristics of cancer patients who were attending Internet Cancer Support Groups (ICSGs) and to provide direction for future research. A total of 204 cancer patients were recruited through ICSGs by posting the study announcement on the websites of the ICSGs. The participants were asked to fill out Internet survey questionnaires on sociodemographic characteristics and health/disease status. The data were analyzed using descriptive and inferential statistics including t-tests, ANOVA, and chi-square tests. Findings indicate that cancer patients recruited through the ICSGs tended to be middle-aged, well-educated, female and middle class. The findings also indicate that there were significant differences in some characteristics according to gender and ethnicity. Based on the findings, some implications are suggested for future research using and developing the ICSGs.

Keywords

Internet Cancer Support Groups; Cancer Patients; Sociodemographic Characteristics

Cancer support groups (CSGs) have existed for more than 30 years, and face-to-face groups have traditionally been the primary method of delivery of CSGs¹. Recently, with the increasing number of Internet users, the Internet has been used as a delivery method of CSGs.^{2–4} The advantages of internet cancer support groups (ICSGs) over face-to-face traditional CSGs have been postulated and examined by many researchers, but little is still known about the short- and long-term benefits of them.^{1, 4} Some of the well-known benefits of use of the ICSGs has been patients' increased social support (by reducing social isolation) and increased personal empowerment and self-esteem.^{4–14} Also, participation in ICSGs has been reported to reduce negative moods including depression and cancer-related trauma.^{4, 9, 11, 15}

Despite these positive findings, the ICSGs have been critiqued for their selective membership.^{16, 17} In the study by Klemm and Hardie¹⁷, participants in the face-to-face groups (CSGs) were 100% male, while those in the ICSGs were 56% male and 44% female. Im and her

colleagues¹⁸ reported that ethnic minority cancer patients' voices were rarely audible in the ICSGs and that it was difficult to identify ethnic minority cancer patients through the ICSGs. Furthermore, there have been arguments regarding typical characteristics of the participants of ICSGs. Fawcett and Buhle¹⁹ posited that cancer patients in ICSGs tended to be highly educated, high-income White males who were healthier compared with cancer patients in real settings. Klemm and Hardie¹⁷ reported that ICSGs and CSGs did not differ significantly by income, health insurance status, or days since initial diagnosis, but they did differ significantly on level of depression (the ICSGs had higher depression scores than the CSGs). Im and Chee¹⁶ reported that cancer patients accessed through ICSGs tended to be a select group of patients who were highly educated, high-income Whites, but also seriously ill (most of them were on stage III or stage IV).

These inconsistent findings indicate the need for further studies on characteristics of cancer patients who are attending the ICSGs. The purpose of the study reported in this paper was to describe characteristics of cancer patients who were attending the ICSGs and to provide directions for future research using and developing the ICSGs. In the study reported in this paper, ethnicity was defined as a cultural group's sense of identification associated with the group's common social and cultural heritage²⁰, and was operationalized as self-reported ethnic identity. Based on the World Health Organization²¹ definition, gender in this study meant the socially constructed roles, behaviors, activities, and attributes that a given society considers appropriate for men and women. The hypotheses tested through the study were that: (a) there are ethnic differences in sociodemographic characteristics of cancer patients who attend ICSGs (Hypothesis 1: H1); (b) there are gender differences in sociodemographic characteristics of cancer patients who attend ICSGs (H2); (c) there are ethnic differences in health/disease status of cancer patients who attend ICSGs (H3); and (d) there are gender differences in health/disease status of cancer patients who attend ICSGs (H4). This study is part of a larger study on gender and ethnic differences in cancer pain experience, whose findings can be found elsewhere.²²

A feminist perspective was chosen as the theoretical basis for the study because it uniquely allows a focus on gender and ethnicity as significant factors influencing the health/illness experience, which provides a different perspective on the study topic from other approaches. Indeed, all feminist theory posits gender as a significant characteristic that interacts with other factors such as race, ethnicity, and class, to structure relationships between individuals.²³ Feminists first welcomed the Internet because of its non face-to-face interactions that could mask identifiers such as race, gender, and socioeconomic class, consequently allowing for non-biased interactions on the Internet.^{24–27} However, recent studies have indicated that the Internet has the same normative gender, ethnic and social constraints of the real world, and that conventional gender and racial power relations have been replicated in the Internet.^{24–27} From the feminist perspective, we assumed that the rare usage of ICSGs by a specific group of cancer patients comes from their interactions with their environment and from biases reflecting how they view cancer and ICSGs. For example, when a Chinese man does not use an easily accessible ICSG, he may not be using the ICSG because his culture stigmatizes cancer itself, or because his culture emphasizes being stoic about his needs (especially emotional needs), and because his culture proscribes disclosing his disease to persons outside his family, even through the non-face-to-face interactions on the Internet.²⁸ Thus, in this study, it was assumed that the selective characteristics of the cancer patients attending the ICSGs reflect their interactions with their environments, and that gender and ethnicity are critical factors influencing their interactions. It was also assumed that gender and ethnic differences in characteristics of cancer patients online may reflect health disparities due to the digital divide (disparities in access to the Internet) and low health literacy among ethnic minority cancer patients.

Methods

The study was a cross-sectional descriptive and comparative study using the Internet as a data collection method. The study was reviewed and approved by the Internal Review Board (IRB) of the institution where the authors were affiliated (the name of the institution will be added later).

Settings and Samples

The settings for this study included general and ethnic-specific Internet Cancer Support Groups. The popularity of the ICSGs has been frequently reported in the literature, and ICSGs have become an important research resource to reach cancer patients in different geographical areas.^{5, 10, 13} To recruit the participants, firstly, the ICSGs were searched through Google.com, MSN.com, ACOR.org, and Yahoo.com. When data collection was initiated, there existed more than 200,000 general ICSGs (not ethnic-specific), 29,500 Hispanic-specific ICSGs, 82,800 African American-specific ICSGs, and 73,200 Asian-specific ICSGs. Yet, not all of those that were retrieved through the Internet search were appropriate for the study reported in this paper. Retrieved ICSGs were visited to determine their eligibility for the study (e.g., they were included only when they had cancer patients involved in their websites through message boards, chat-groups, etc.), and a list of eligible ICSGs was developed in alphabetical order. Then, administrators of the first 100 general ICSGs and the first 75 ethnic-specific ICSGs (25 per ethnic group among three ethnic minority groups) were initially contacted and asked to post an electronic study announcement. The reason for contacting both general and ethnic-specific ICSGs was to enlarge the pool of ethnic minority cancer patients and to strengthen recruitment strategies to attract more ethnic minority cancer patients. Since ethnic imbalance was prominent at the end of the first month, an additional 5 ethnic-specific ICSGs (for the least represented ethnic group) from the earlier assembled list were contacted. This process was reiterated until all the ICSGs available on the list were contacted. Some ICSGs that posted the study announcement are: the Sisters' Network (www.sistersnetworkinc.org), the Cancer Care Network (<http://groups.msn.com/CancerCareNetwork>), Gilda's Club (<http://www.gildasclub.org/>), and the Cancer Survivors Network (www.acscsn.org).

When potential participants visited the project website through a link in the study announcement, they were asked to review an informed consent sheet loaded on the project website and to give consent to participate by clicking a button below the statement, "I agree to participate." At that point, they were checked against inclusion criteria. Also, Internet protocol addresses of participants were monitored to detect multiple submissions by the same person. Then, at the end of the first month of the announcement, an additional 5 ethnic-specific ICSGs for the least represented ethnic group were contacted to recruit more cancer patients identifying as that ethnicity. This process was continued until all the eligible ICSGs that were retrieved through the Internet were contacted.

All study participants were online cancer patients aged at least 18 years who could read and write English and whose self-reported ethnic identity was Hispanic, non-Hispanic (N-H) White, N-H African-American, or N-H Asian. These four groups were chosen because they were the most common ethnic groups in the U.S.²⁹ Because of diversities and complexities even within an ethnic group (more than 70 ethnic groups among Asian Americans), only English was used for the study. Consequently, only those who could read and write English were included.

For the study, 204 research participants were recruited via the Internet by contacting ICSG administrators. To test H1 and H3, with a medium effect size of 0.30 and an alpha of 0.05, 100 participants were required to achieve a power of 0.80 in ANOVA.³⁰ For chi-square tests of H1 and H3, with the same 0.30 effect size and with an alpha of 0.05, 108 to 212 participants

were needed.³⁰ To test H2 and H4, with a conventional effect size of 0.30 and an alpha of 0.05, 47 pairs (47 women and 47 men) were needed to detect a statistically significant difference with a power of 0.68. Thus, the sample size of 204 would be adequate to test H1 through H4, except for some chi-square tests that require a larger number of participants. Yet, the study reported in this paper included a limited number of Asian and African American cancer patients because they were automatically selected through the recruitment process.

Instruments

The instruments used in the study included: (a) sociodemographic questions and (b) questions on self-reported health/disease status.

Sociodemographic characteristics—Questions used in the study reported in this paper asked about age, gender, education, religion, marital status, work, family income, and access to health care. The ethnic identity question required by the NIH's guidelines was used to measure self-reported ethnic identity. Self-reported Health/Disease status. To measure self-reported health/disease status, seven questions were used: (a) one 5-point Likert scale item rating general health; (b) two items about cancer (primary cancer site, and stage of cancer); (c) one item on previous medical treatments (e.g., radiation therapy, chemotherapy, surgery and hormone therapy); (d) one item on pain medication usage; (e) one item on access to health care; and (f) preferred health care service. Cancer stages were categorized according to the National Cancer Institute guidelines (for more information, please visit at <http://www.cancer.gov/cancertopics/factsheet/Detection/staging>): Stage 0=Carcinoma in situ; Stage I, Stage II, and Stage III=higher numbers indicate more extensive disease, greater tumor size, and/or spread of the cancer to nearby lymph nodes and/or organs adjacent to the primary tumor; and Stage IV=the cancer has spread to another organ. The item on pain medication usage was dichotomous (yes or no). Access to health care was measured by asking "Is there a particular place (e.g., doctor's office, clinic, health center) that you usually go if you are sick or need advice about your health?", with two response options (yes or no). Preferred health care service was measured by asking "Where do you go to most often when you are sick or need advice about your health?", with four response options available: (a) clinic or health center (including clinics of private physicians and oncologists); (b) hospital outpatient department; (c) hospital emergency room; and (d) other.

Data Collection Procedures

A project website was developed according to HIPAA standards, SANS/FBI recommendations, and the IRB policy of the institution where the authors were affiliated. The project website included an informed consent sheet and Internet survey questions. As described above, informed consent from the participants was obtained through the Internet: when a potential participant visited the project website, s/he was directed to review the informed consent sheet and give her/his consent by clicking the "I agree to participate" button. Upon obtaining her/his consent, eligibility was checked by asking three screening questions (age, ethnicity, and English literacy). Only when s/he met the inclusion criteria was s/he connected to the Internet survey questionnaire and asked to complete it.

Data Analysis

The data that participants entered were directly saved in ASCII format. To ensure confidentiality, the researchers assigned only serial ID numbers, and no individual identities were used during the data analysis process. In addition, only research staff members had access to data. The SPSS was used to analyze the data. Sociodemographic characteristics and self-reported health/disease status of participants were described using frequency, percentage, mean, standard deviation, and range statistics. Gender and ethnic differences in the

sociodemographic characteristics and health/disease status were determined using inferential t-tests, Chi-square tests and ANOVA to test the four hypotheses. For the post-hoc tests in the ANOVA, Tukey's HSD was used.

Findings

Sociodemographic characteristics

The 204 participants included 41 Hispanics (20%), 26 Asian-Americans (13%), 6 African-Americans (3%), and 131 Caucasians (63%). When the participants were categorized into subgroups according to gender and ethnicity, the largest subgroup was Caucasian females ($n=102$), and the smallest subgroup was African-American males ($n=2$). The mean age of the participants was 48.05 years ($SD=12.53$) and 163 (80%) of them were female. About half of the participants were unemployed (55%). One hundred ninety six participants (96%) had a particular place (e.g., doctor's office, clinic, health center) that they usually went if they were sick or needed advice about their health. Forty-five percent of the participants were college graduates or had graduate degrees. Fifty-six percent of the participants were Christians (Protestants and Catholics). The majority of participants were born in the U.S. (84%). Sociodemographic characteristics of the participants are summarized by ethnicity in Table 1 and by gender in Table 2.

To test Hypothesis 1 (H1), ethnic differences in the sociodemographic characteristics were explored (see Table 1). There were significant ethnic differences in education level ($X^2=73.95$, $p<0.01$), religion ($X^2=64.15$, $p<0.01$), and the country of birth ($X^2=125.15$, $p<0.01$). While 73% of Asian participants were college graduates or had graduate degrees, only 12% of Hispanic participants were college graduates. While the most popular religion was Protestantism among Asian, African-American, and Caucasian participants, it was Catholicism for Hispanic participants. Eighty eight percent of Asian participants were foreign-born, and 17% of Hispanic participants were foreign-born. However, only 2% of Caucasian and no African American participants were foreign-born. When gender differences in the sociodemographic characteristics were explored to test Hypothesis 2 (Table 2), there was no significant gender difference in any of the sociodemographic characteristics.

Self-reported health/disease status

The participants' self-reported health/disease status is summarized by ethnicity in Table 3 and by gender in Table 4. About 2% of the participants were in stage 0; 16% were in stage I; about 33 % were in stage II; 17% were in stage III; 22% were in stage IV; and 4% were in remission. About half of the participants (51%) perceived themselves as healthy. About one third of the participants (34%) were breast cancer patients. For cancer treatment, about 4% of the participants had radiation therapy only; 15% had chemotherapy only; 10% had surgeries only; and 68% had two or more treatment modalities.

To test Hypothesis 3, ethnic differences in self-reported health/disease status were explored (see Table 3). There were significant ethnic differences in perceived health status ($X^2=28.75$, $p<0.01$), primary cancer site ($X^2=111.56$, $p<0.01$), cancer stages ($X^2=66.84$, $p<0.01$), and preferred health care services ($X^2=51.76$, $p<0.01$). About one third of Asian participants (35%) and Caucasian participants (28%) perceived themselves as unhealthy while more than half of Hispanic (51%) and African-American participants (66%) perceived themselves as unhealthy. The most prevalent primary cancer site across the ethnic groups was the breast, but there were certain ethnic differences in other prevalent primary cancer sites. The second most prevalent primary site among Hispanic participants was the cervix (27%), and among Asian and Caucasian participants it was the lung. About 15% of Caucasian cancer patients had cancer in multiple sites (15%). Although, across the ethnic groups, the health care service that the

participants went to most often when they were sick or needed advice about their health was a clinic or a health center, there was a certain ethnic difference in the second choice: Hispanics (28%) tended to prefer a hospital emergency room while African American participants (33%) preferred a hospital outpatient department.

To test Hypothesis 4, gender differences in self-reported health/disease status were explored (see Table 4). There were significant gender differences in cancer stages ($X^2=31.00$, $p<0.01$), primary cancer site ($X^2=103.12$, $p<0.01$), and preferred health care services ($X^2=12.83$, $p<0.01$). About 18% of women participants were in stage I; 36% were in stage II; 16% were in stage III; and 18% were in stage IV. About 7% of men participants were in stage I; 15% were in stage II; 15% were in stage III; and 37% were in stage IV. In other words, male participants tended to be in later stages of cancer compared with female participants. The most prevalent primary cancer site among men was the gastrointestinal organs while it was the breast among women. The second most prevalent primary cancer site among men was organs around the head and neck, while it was reproductive organs among women. About 72% of female participants preferred to use a clinic or a health center most often when they were sick or needed advice about their health while only 44% of male participants preferred a clinic or a health center. While 6% of female participants preferred to use a hospital emergency room, 10% of male participants preferred to use a hospital emergency room.

Discussion

The findings support that cancer patients recruited through ICSGs would be a selected group. The sociodemographic characteristics of the participants indicated that they tended to be middle-aged, female, well educated, and middle class. These findings are somewhat different from those of previous studies reporting that cancer patients in ICSGs tend to be young, Caucasian males, highly educated, and with high family incomes.^{2, 5, 10, 13, 16, 17, 19, 31–36} A possible reason for the finding of the study reported in this paper could be a drastically changing sociodemographic composition of Internet population and Internet dynamics. Recent studies have indicated that Internet usage among Asian-Americans is greater than that of any other ethnic group, and half of Hispanic Americans and 33% of African Americans are now Internet surfers.^{37, 38} Furthermore, recent statistics reported that women account for 52% of home Internet users.^{38, 40} Despite the fact that Internet users still tend to be young, the number of older users (age 65 or older) is also increasing, and about 57% of people aged 65–70 years in the U.S. are online.³⁸

The gender differences that were found in this study may come from the fact that women outnumber men in the cancer survivor population,³⁹ and that there exists a greater number of gender-specific Internet cancer support groups for women.¹⁸ Also, gender differences may result from differences in usage of ICSGs. Although ICSG membership tends to have more gender balance than traditional support groups,¹⁷ studies have reported gender differences in the reasons for using ICSGs. Some reported that men were more likely to seek information, while women were more likely to seek encouragement and support.^{2, 1} Others reported that more women (63%) than men (46%) consulted the Internet for health information.³⁸

Although participants were recruited through both general and ethnic-specific ICSGs simultaneously, mainly Caucasians were recruited, which is consistent with the fact that about 89% of cancer survivors in the U.S. are Caucasians.⁴¹ This finding agrees with previous findings on traditional cancer support groups (CSGs). In the existing studies about CSGs, ethnic minorities have been frequently underrepresented.^{42–45} There is a small number of studies on ICSGs, and in the few existing studies ethnic minorities' participation in ICSGs tended to be minimal.^{18, 46, 47} This finding may also come from ethnic minority patients in the U.S., particularly underserved patients of lower socioeconomic status, tending to present with later

stage disease than non-minority patients,^{48, 49} and thus would not have had as much chance to survive and to join ICSGs for support. Yet, findings on cancer patients' attitudes toward ICSGs tend to be inconsistent. Some report that socially deprived people including ethnic minority cancer patients tended to rely more on the Internet than White cancer patients although Whites tended to have more Internet access than African Americans.^{50, 51} However, others report opposite findings on ethnic minority cancer patients' use of the ICSGs: ethnic minorities were less likely to use the ICSGs as a source of support.⁵²

Existing studies have implied that there are ethnic-specific reasons for these ethnic differences. For example, Searight and Gafford⁵³ posited that the U.S. model of health care, which values autonomy in medical decision making, is not easily used by some racial or ethnic groups, and they also posited that cultural factors strongly influence cancer patients' reactions to cancer. Indeed, studies have reported that families in some racial and ethnic groups concealed the diagnosis of cancer from patients because disclosure of serious illness might be viewed as disrespectful, impolite, or even harmful to the patient.^{53–55} In those cultures, cancer patients might not want to disclose illness to others even when they know their diagnosis, and this cultural attitude might inhibit them from participating in the ICSGs.

Another possible reason for the ethnic differences could be contextual factors influencing cancer patients' participation in ICSGs, which might have attracted a selected group of ethnic minority cancer patients to join the ICSGs, or prevented them from joining. Patients who had used the Internet for cancer-related information were significantly younger, better educated, and less satisfied with the amount of treatment-related information given by caregivers than those patients who had not used the Internet to access cancer-related information.⁵⁶ Also, those in higher degrees of religious association may be less likely to join CSGs, including the ICSGs. Indeed, cultural beliefs such as spiritual faith were found to influence stage of diagnosis, and a reliance on God to cure cancer without medical intervention was especially prevalent among African Americans.^{57–59} When people are faced with health problems, those who maintain strong religious affiliation are more likely to turn to spiritual sources for support.^{60, 61}

Conclusions and Implications

The findings of the study presented in this paper support that cancer patients who can be recruited through the ICSGs would be a selected group. The cancer patients recruited through the ICSGs for the study presented in this paper tend to be Caucasian, middle aged, well-educated, middle socioeconomic class women with stage II diagnoses. The findings also support ethnic differences in characteristics of the cancer patients who can be recruited through ICSGs. Yet, since the study was conducted in a specific time period through selective ICSGs, interpretation of the findings needs to be carefully done while considering rapidly changing Internet technologies and dynamics.⁶² Furthermore, there may be potential selection bias due to the sampling process of the study, which uses a convenience sampling only through general and ethnic-specific ICSGs that agreed to announce the study.

The findings reported in this paper indicate some implications for future research using and developing the ICSGs. First, researchers who plan to recruit cancer patients through ICSGs need to consider potential selection bias and use multiple strategies to minimize it. Researchers also need to consider potential gender- and ethnic-specific reasons and factors that might have influenced cancer patients' participation in the ICSGs since these can be also the factors influencing the dependent and independent variables that the researchers are investigating. As discussed above, these gender- and ethnic-specific factors might have attracted a specific group of ethnic minority cancer patients to join the ICSGs or prevent them from joining the ICSGs.

Future development of the ICSGs also needs to consider gender and ethnic differences. Maybe developing gender- and ethnic-specific ICSGs would be one direction for future development of the ICSGs. Or, currently existing general ICSGs could be modified and tailored for a specific gender and ethnic group of cancer patients while considering unique characteristics of the specific group of cancer patients on the Internet.

Finally, more in-depth studies on the use of ICSGs by gender and ethnicity and gender- and ethnic-specific factors that may influence the use of ICSGs are needed for a better understanding of the reasons for the gender and ethnic differences that are reported in this paper. With a more comprehensive understanding of the gender and ethnic differences and the gender- and ethnic-specific factors, ICSGs could be further developed and used to decrease potential health disparities on the Internet, ultimately in the real world.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Biography

Dr. Eun-Ok Im is Professor of The University of Texas at Austin (UT-Austin). Her expertise is international cross-cultural women's health issues including gender and ethnic differences in cancer experience. She has conducted over 10 studies on gender and ethnicity-related issues in health/illness experience and authored over 50 articles in refereed journals. She is the PI of the study presented in this paper. *Dr. Wonshik Chee* is Assistant Research Professor at UT-Austin. His expertise is control algorithm development including fuzzy logic control and Internet web programming, and he has contributed to this study as a co-investigator in charge of the project's website design, development and management. *Ms. Yi Liu* and *Mr. Enrique H. Guevara* are doctoral candidates at UT-Austin, and have contributed to this study as graduate research assistants recruiting participants and collecting data. *Ms. Hyun Ju Lim* and *Ms. Melinda Bender* are doctoral students at UT-Austin, and also contributed to the study's participant recruitment and data collection as graduate research assistants. *Dr. Hsiu-Min Tsai* is Associate Professor and Dean of Academic Affairs at Chang Gung Institute of Technology, Taiwan. While working on her PhD at UT-Austin, she contributed to the study as a graduate research assistant from its preliminary work to its data analysis phase. *Ms. Maresha Clark*, BSN, RN, was an undergraduate research assistant for the study when the data collection was conducted. *Drs. Hyunjeong Shin* and *Kyung Suk Kim* contributed to this study as data analyzers when they were post-doctoral visiting researchers of The University of Texas at Austin. *Dr. Young Hee Kim* also contributed to this study as a data analyzer when she was a visiting scholar at UT-Austin.

References

1. Klemm P, Bunnell D, Cullen M, Soneji R, Gibbons P, Holecek A. Online cancer support groups. *Comput Inform Nurs* 2003;21(3):136–142. [PubMed: 12792194]
2. Klemm P, Hurst M, Dearholt S, Trone S. Cyber solace: Gender differences in Internet cancer support groups. *Comput Nurs* 1999;17(2):65–72. [PubMed: 10194883]
3. Madara E, White BJ. On-line mutual support: The experience of a self-help clearinghouse. *Info Referral: J Alliance Info Referral Syst* 1997;19:91–107.

4. Winzelberg AJ, Classen C, Alpers GW. Evaluation of an Internet support group for women with primary breast cancer. *Cancer* 2003;97:1164–1173. [PubMed: 12599221]
5. Fernsler JJ, Manchester LJ. Evaluation of a computer-based cancer support network. *Cancer Pract* 1997;5(1):46–51. [PubMed: 9128496]
6. Fogel J, Albert SM, Schnabel F, Ditkoff BA, Neugut AI. Racial/ethnic differences and potential psychological benefits in use of the Internet by women with breast cancer. *Psychooncology* 2003;12:107–117. [PubMed: 12619143]
7. Gustafson DH, Hawkins R, Pingree S, McTavish F, Arora N. Effect of computer support on younger women with breast cancer. *J Gen Intern Med* 2001;16:435–455. [PubMed: 11520380]
8. Hoybye MT, Johansen C, Tjornhoj-Thomsen T. Online interaction: Effects of storytelling in an Internet based cancer support group. *Psychooncology* 2005;14(3):211–220. [PubMed: 15386774]
9. Houston TK, Cooper LA, Ford DE. Internet support groups for depression: A 1-year prospective cohort study. *Am J Psychiatry* 2002;159:2062–2068. [PubMed: 12450957]
10. Klemm P, Reppert K, Visich L. A nontraditional cancer support group. *Comput Nurs* 1998;16(1):31–36. [PubMed: 9454992]
11. Lieberman MA, Golant M, Giese-Davis J. Electronic support groups for breast carcinoma. A clinical trial of effectiveness. *Cancer* 2003;97:920–925. [PubMed: 12569591]
12. McTavish FM, Gustafson DH, Owens BH. CHES: An interactive computer system for women with breast cancer piloted with an underserved population. *J Ambulatory Care Manage* 1995;18:35–44. [PubMed: 10143478]
13. Sharf BF. Communicating breast cancer on-line: support and empowerment on the Internet. *Women Health* 1997;26(1):65–84. [PubMed: 9311100]
14. Weinberg N, Schmale J, Uken J, Wessel K. Online help: cancer patients participate in a computer-mediated support group. *Health Soc Work* 1996;21(1):24–29. [PubMed: 8626154]
15. Shaw BR, Hawkins R, McTavish F, Pingree S, Gustafson DH. Effects of insightful disclosure within computer mediated support groups on women with breast cancer. *Health Commun* 2006;19(2):133–142. [PubMed: 16548704]
16. Im EO, Chee W. Issues in Internet survey among cancer patients. *Cancer Nurs* 2004;27(1):34–42. [PubMed: 15108950]
17. Klemm P, Hardie T. Depression in Internet and face-to-face cancer support groups: a pilot study. *Oncol Nurs Forum* 2002;29(4):E45–E51. [PubMed: 12011918]
18. Im EO, Chee W, Tsai H, Lin L, Cheng C. Internet Cancer Support Groups: A Feminist Analysis. *Cancer Nurs* 2005;28(1):1–7. [PubMed: 15681976]
19. Fawcett J, Buhle ELJ. Using the Internet for data collection. An innovative electronic strategy. *Comput Nurs* 1995;13(6):273–279. [PubMed: 8529140]
20. Spector, RE. Cultural diversity in health and illness. 5. Upper Saddle River, NJ: Prentice Hall Health; 2000.
21. World Health Organization. What do we mean by “sex” and “gender”? [Accessed May 3, 2005]. <http://www.who.int/gender/whatisgender/en/>
22. Im EO, Chee W, Guevara E, et al. Gender and Ethnic Differences in Cancer Pain Experience: A Multiethnic Survey in the U.S. Nursing Research. In press
23. Campbell R, Wasco S. Feminist Approaches to Social Science: Epistemological and Methodological Tenets. *Am J Community Psychol* 2000;28(6):773–791. [PubMed: 11109478]
24. Plant, S. On the matrix: Cyberfeminist simulations. In: Bell, D.; Kennedy, M., editors. *The cybercultures reader*. London: Routledge; 2000. p. 325–436.
25. Waskul D, Douglass M, Edgley C. Cybersex: Outercourse and the enselment of the body. *Symbolic Interaction* 2000;23(4):375–398.
26. Bassett, C. Virtually gendered: Life in an on-line world. In: Gelder, K.; Thornton, S., editors. *The subcultures reader*. London: Routledge; 1997. p. 537–550.
27. Kendall L. Meanings and identity in ‘cyberspace’: The performance of gender, class, and race online. *Symbolic Interaction* 1998;21(2):129–154.
28. Lipson, J.; Dibble, S. *Culture and critical care*. San Francisco: UCSF Nursing Press; 2005.

29. US Census Bureau (USCB). Basic Facts: Census 2000. [Accessed May 17, 2003]. <http://factfinder.census.gov/bf/lang=envtname=DEC2000SF3UDP3geoid=01000US.html>
30. Cohen, J. Statistical power analysis for the behavioral sciences. 2. New Jersey: Lawrence erlbaum associates; 1988.
31. Baumann LJ, Gervery R, Kiegel K. Factors associated with cancer patients' participation in support groups. *J Psychosoc Oncol* 1992;10(3):1–20.
32. Fernsler JI, Klemm P, Miller MA. Spiritual well-being and demands of illness in people with colorectal cancer. *Cancer Nurs* 1999;22(2):134–140. [PubMed: 10217029]
33. Gustafson D, Wise M, McTavish F, et al. Development and pilot evaluation of a computer-based support system for women with breast cancer. *J Psychosoc Oncol* 1993;11(4):69–93.
34. Han HR, Belcher AE. Computer-mediated support group use among parents of children with cancer—an exploratory study. *Comput Nurs* 2001;19(1):27–33. [PubMed: 11210451]
35. Smyth KA, Harris PB. Using telecomputing to provide information and support to caregivers of persons with dementia. *Gerodontology* 1993;33(1):123–127.
36. Weinberg N, Uken JS, Schmale J, Adamek M. Therapeutic factors: Their presence in a computer-mediated support group. *Soc Work Group* 1995;18(4):57–69.
37. HispanicBusiness.com. Study: Hispanic Internet use reaches 50 percent. [Accessed February 3, 2007]. Available at: <http://www.hispanicbusiness.com/news/newsbyid.asp?id=6135>
38. Pew Internet and American Life Project. Reports: Demographics. [Accessed May 21, 2007]. <http://www.pewinternet.org/topics.asp?c=2>
39. American Cancer Society. Estimated New Cancer Cases and Deaths by Sex for All Sites, US. [Accessed July, 21, 2006]. Available at: http://www.cancer.org/docroot/MED/content/downloads/MED_1_1x_CFF2006_Estimated_New_Cases_Deaths_by_Sex_U
40. Fallows, D. How women and men use the Internet. [Accessed May 23, 2007]. Available at: <http://www.pewinternet.org>
41. NCI (National Cancer Institute). Cancer stat fact sheets. [Accessed November 19, 2006]. Available at: <http://seer.cancer.gov/statfacts/html/all.html>
42. Classen C, Butler LC, Koopman C, et al. Supportive-expressive group therapy and distress in patients with metastatic breast cancer: A randomized clinical intervention trial. *Arch Gen Psychiatry* 2001;58(5):494–501. [PubMed: 11343530]
43. Hegelson VS, Cohen S, Schulx R, Yasko J. Education and peer discussion group interventions and adjustment to breast cancer. *Arch Gen Psychiatry* 1999;56(4):340–347. [PubMed: 10197829]
44. Magen RH, Glajchen M. Cancer support groups: Client outcome and the context of group process. *Res Soc Work Pract* 1999;9(5):541–554.
45. Michalec B, Willigen MV, Wilson K, et al. The race gap in support group participation by breast cancer survivors. *Eval Rev* 2004;28(2):123–143. [PubMed: 15030616]
46. Fogel J, Albert SM, Schabel F, et al. Internet use and social support in women with breast cancer. *Health Psychol* 2002a;21(4):398–404. [PubMed: 12090683]
47. Fogel J, Albert SM, Schabel F, et al. Use of the Internet by women with breast cancer. *J Med Internet Res* 2002b;4(2):e9. [PubMed: 12554556]
48. Delgado DJ, Lin WY, Coffey M. The role of Hispanic race/ethnicity and poverty in breast cancer survival. *PRHSJ* 1990;14(2):103–116.
49. Eley JW, Hill HA, Chen VW, et al. Racial differences in survival from breast cancer. Results of the National Cancer Institute Black/White Cancer Survival Study. *JAMA* 1994;272(12):947–54. [PubMed: 8084062]
50. Cline RJW, Haynes KM. Consumer health information seeking on the Internet: the state of the art. *Health Educ Res* 2001;16:671–692. [PubMed: 11780707]
51. Mead N, Varnam R, Rogers A, Roland M. What predicts patients' interest in the Internet as a health resource in primary care in England? *J Health Serv Res Policy* 2003;8(1):33–39. [PubMed: 12683432]
52. Henderson PD, Fogel J. Support networks used by African American breast cancer support group participants. *ABNF J* 2003;14(5):95–98. [PubMed: 14664192]

53. Searight HR, Gafford J. Cultural diversity at the end of life: Issues and guidelines for family physicians. *Am Fam Physician* 2005;71(3):515–522. [PubMed: 15712625]
54. Morita T, Akechi T, Ikenaga M, et al. Late referrals to specialized palliative care service in Japan. *J Clin Oncol* 2005;23(12):2637–2644. [PubMed: 15728219]
55. Yeo SS, Meiser B, Barlow-Stewart K, et al. Understanding community beliefs of Chinese-Australians about cancer: Initial insights using an ethnographic approach. *Psychooncology* 2005;14:174–186. [PubMed: 15386778]
56. Pereira JL, Koski S, Hanson J, et al. Internet usage among women with breast cancer: An exploratory study. *Clin Breast Cancer* 2000;1(2):148–153. [PubMed: 11899653]
57. Mitchell J, Lannin DR, Mathews HF, et al. Religious beliefs and breast cancer screening. *J Womens Health Gend Based Med* 2002;11(1):907–915.
58. Lanin DR, Mathews HF, Mitchell J, et al. Impacting cultural attitudes in African-American women to decrease breast cancer mortality. *Am J Surg* 2002;184:418–423. [PubMed: 12433605]
59. Wilson-Ford V. Health protective behaviors of rural black elderly women. *Health Soc Work* 1992;17:28–36. [PubMed: 1537577]
60. Ellison CG, Taylor RJ. Turning to prayer: Social and situational antecedents of religious coping among African Americans. *Rev Relig Res* 1996;38:111–131.
61. Koenig HG, Cohen HJ, Blazer DG, et al. Religious coping and depression among elderly, hospitalized medically ill men. *Am J Psychiatry* 1992;149(12):1693–1700. [PubMed: 1443246]
62. Kollock, P.; Smith, MA. Communities in cyberspace. In: Smith, M.; Peter, K., editors. *Communities in cyberspace*. London: Routledge; 1999.

Table 1

Sociodemographic characteristics by ethnicity (N=204)

Variables	N (%)					Range	F or χ^2
	Hispanics (N=41)	Asian-Americans (N=26)	African-Americans (N=6)	Caucasians (N=131)	Total (N=204)		
Age (years) (Mean (SD))	48.84 (10.68)	48.84 (10.68)	48.83 (12.98)	48.56 (11.48)	48.05 (12.53)	21-83	F=0.55 $\chi^2=2.12$
Gender							
Female	35 (85.3)	22 (84.6)	4 (66.6)	102 (79.8)	163 (81.4)		
Male	6 (14.6)	4 (15.4)	2 (33.3)	29 (20.2)	41 (18.6)		$\chi^2=73.95^*$
Education							
Elementary school	4 (9.8)	-	-	-	4 (2.0)		
Middle school	2 (4.9)	-	-	-	2 (1.0)		
High school	20 (48.8)	3 (11.5)	-	23 (17.6)	46 (22.5)		
College partial	10 (24.4)	4 (15.4)	4 (66.7)	43 (32.8)	61 (29.9)		
College graduate	4 (9.8)	7 (26.9)	2 (33.3)	46 (35.1)	59 (28.9)		
Graduate degree	1 (2.4)	12 (46.2)	-	19 (14.5)	32 (15.7)		$\chi^2=67.15^*$
Religion							
Catholic	24 (58.5)	-	-	36 (27.5)	60 (29.4)		
Protestant	1 (2.4)	8 (30.8)	3 (50.0)	43 (32.8)	55 (27.0)		
Others	3 (7.3)	7 (26.9)	3 (50.0)	33 (25.2)	46 (22.5)		
No religion	13 (31.7)	6 (23.1)	-	16 (12.2)	35 (17.2)		
Buddhist	-	5 (19.2)	-	3 (2.3)	8 (3.9)		$\chi^2=90$
Employment status							
Unemployed	25 (61.0)	13 (50.0)	3 (50.0)	72 (55.0)	113 (55.4)		
Employed	16 (39.0)	13 (50.0)	3 (50.0)	59 (45.0)	91 (44.6)		$\chi^2=10.58$
Income satisfaction							
Totally insufficient	12 (29.3)	4 (15.4)	1 (16.7)	24 (18.3)	41 (20.1)		
Somewhat insufficient	8 (19.5)	6 (23.1)	3 (50.0)	38 (29.0)	55 (27.0)		
Sufficient for essential needs	19 (46.3)	13 (50.0)	2 (33.3)	47 (35.9)	81 (39.7)		
More than sufficient	2 (4.9)	3 (11.5)	-	22 (16.8)	27 (13.2)		$\chi^2=125.15^*$
Born in the U.S.							
Yes	34 (82.9)	3 (11.5)	6 (100.0)	129 (98.5)	172 (84.3)		
No	7 (17.1)	23 (88.5)	-	2 (1.5)	32 (15.7)		

* p<.01

Table 2
Sociodemographic characteristics by gender (N=204)

Variables	Women	Men	Total	F or χ^2
Age (years) (Mean (SD))	46.72 (12.34)	53.32 (12.05)	48.05 (12.53)	F<.01
Education				$\chi^2=2.46$
Elementary school	3 (1.8)	1 (2.4)	4 (2.0)	
Middle school	1 (0.6)	1 (2.4)	2 (1.0)	
High school	36 (22.1)	10 (24.4)	46 (22.5)	
College partial	47 (28.8)	14 (34.1)	61 (29.9)	
College graduate	50 (30.7)	9 (22.0)	59 (28.9)	
Graduate degree	26 (16.0)	6 (14.6)	32 (15.7)	
Religion				$\chi^2=3.28$
Catholic	46 (28.2)	14 (34.1)	60 (29.4)	
Protestant	41 (25.2)	14 (34.1)	55 (27.0)	
Others	40 (24.5)	6 (14.6)	46 (22.5)	
No religion	29 (17.8)	6 (14.6)	35 (17.2)	
Buddhist	7 (4.3)	1 (2.4)	8 (3.9)	
Employment status				$\chi^2=0.21$
Unemployed	89 (54.6)	24 (58.5)	113 (55.4)	
Employed	74 (45.4)	17 (41.5)	91 (44.6)	
Income satisfaction				$\chi^2=1.79$
Totally insufficient	33 (20.2)	8 (19.5)	41 (20.1)	
Somewhat insufficient	45 (27.6)	10 (24.4)	55 (27.0)	
Sufficient for essential needs	66 (40.5)	15 (36.6)	81 (39.7)	
More than sufficient	19 (11.7)	8 (19.5)	27 (13.2)	
Born in the U.S.				$\chi^2=4.53$
Yes	133 (81.6)	39 (95.1)	172 (84.3)	
No	30 (18.4)	2 (4.9)	32 (15.7)	

*
p<.01

Table 3

Self-reported health/disease status by ethnicity (N=204)

Variables	N (%)					Range	F or χ^2
	Hispanics (N=41)	Asian-Americans (N=26)	African-Americans (N=6)	Caucasians (N=131)	Total (N=204)		
Perceived health status							$\chi^2=28.75^*$
Very unhealthy	6 (14.6)	4 (15.4)	-	11 (8.4)	21 (10.3)		
Tend to be unhealthy	15 (36.6)	5 (19.2)	4 (66.7)	26 (19.8)	50 (24.5)		
Do not know	11 (26.8)	5 (19.2)	-	14 (10.7)	30 (14.7)		
Tend to be healthy	8 (19.5)	9 (34.6)	2 (33.3)	69 (52.7)	88 (43.1)		
Very healthy	1 (2.4)	3 (11.5)	-	11 (8.4)	15 (7.4)		
Cancer stage							$\chi^2=66.84^*$
Stage 0	2 (4.9)	2 (7.7)	-	1 (0.8)	6 (3.0)		
Stage 1	6 (14.6)	6 (23.1)	-	21 (16.0)	32 (15.7)		
Stage 2	19 (46.3)	9 (34.6)	3 (50.0)	36 (27.5)	67 (32.9)		
Stage 3	5 (12.2)	3 (11.5)	1 (16.7)	25 (19.1)	34 (16.7)		
Stage 4	5 (12.2)	6 (23.1)	1 (16.7)	33 (25.2)	45 (22.1)		
Not staged	-	-	-	3 (2.3)	3 (1.5)		
Recurrent	-	-	-	8 (6.1)	8 (3.9)		
Do not know	4 (9.8)	-	-	4 (3.1)	5 (2.5)		
Primary cancer site Breast	13 (31.7)	18 (69.2)	1 (16.7)	36 (27.5)	69 (33.8)		$\chi^2=111.56^*$
Reproductive	17 (41.4)	1 (3.8)	2 (33.3)	15 (11.6)	33 (16.2)		
Multiple	2 (4.9)	-	-	20 (15.3)	22 (10.8)		
Lung	4 (9.8)	3 (11.5)	1 (16.7)	11 (8.4)	20 (9.8)		
Head & Neck	-	-	-	16 (12.2)	17 (12.4)		
Gastrointestinal	1 (2.4)	1 (3.8)	-	13 (10.0)	15 (7.4)		
Others	2 (4.8)	1 (3.8)	-	17 (13.0)	11 (9.5)		
Hematologic	2 (4.9)	1 (3.8)	1 (16.7)	2 (1.5)	6 (2.9)		
Genitourinary	-	-	-	1 (0.8)	1 (0.5)		
Cancer treatment Combined	31 (75.6)	19 (73.1)	-	86 (65.6)	139 (68.1)		$\chi^2=10.94$
Chemotherapy only	4 (9.8)	2 (7.7)	3 (50.0)	21 (16.0)	30 (14.7)		
Surgery only	4 (9.8)	2 (7.7)	-	15 (11.5)	21 (10.3)		
Radiation only	1 (2.4)	2 (7.7)	-	5 (3.8)	8 (3.9)		
Others	1 (2.4)	1 (3.8)	3 (50.0)	3 (2.3)	5 (2.5)		
Hormone therapy only	-	-	-	1 (0.8)	1 (0.5)		
Pain Medication							$\chi^2=2.58$
No	21 (51.2)	17 (65.4)	2 (33.3)	69 (52.7)	109 (53.4)		
Yes	20 (48.8)	9 (34.6)	4 (66.7)	62 (47.3)	95 (46.6)		
Access to Health Care							$\chi^2=0.35$
Yes	39 (95.1)	25 (96.2)	6 (100)	126 (96.2)	196 (96.1)		
No	2 (4.9)	1 (3.8)	0 (0)	5 (3.8)	8 (3.9)		
Preferred health care services							$\chi^2=51.76^*$
Clinics or health care centers	24 (58.5)	18 (69.2)	3 (50.0)	84 (64.1)	129 (63.2)		
Others	3 (7.3)	3 (11.5)	1 (16.7)	36 (27.5)	43 (21.1)		
Hospital outpatient department	1 (2.4)	2 (7.7)	2 (33.3)	4 (3.1)	9 (4.4)		
Hospital emergency room	11 (26.8)	2 (7.7)	-	1 (0.8)	14 (6.9)		

* p<.01

Table 4
Sociodemographic characteristics by gender (N=204)

Variables	Women	Men	Total	F or χ^2
Perceived health status				$\chi^2=1.89$
Very unhealthy	17 (10.4)	4 (9.8)	21 (10.3)	
Tend to be unhealthy	43 (26.4)	7 (17.1)	50 (24.5)	
Do not know	23 (14.1)	7 (17.1)	30 (14.7)	
Tend to be healthy	69 (42.3)	19 (46.3)	88 (43.1)	
Very healthy	11 (6.7)	4 (9.8)	15 (7.4)	
Cancer stage Stage 0	3 (1.8)	2 (4.9)	6 (3.0)	$\chi^2=31.0^*$
Stage 1	30 (18.4)	3 (7.3)	32 (15.7)	
Stage 2	60 (36.8)	7 (17.1)	67 (32.9)	
Stage 3	27 (16.6)	7 (17.1)	34 (16.7)	
Stage 4	30 (18.4)	15 (36.6)	45 (22.1)	
Not staged	2 (1.2)	1 (2.4)	3 (1.5)	
Recurrent	5 (3.1)	3 (7.3)	8 (3.9)	
Do not know	6 (3.7)	3 (7.3)	5 (2.5)	
Primary cancer site Breast	68 (41.7)	1 (2.4)	69 (33.8)	$\chi^2=103.12^*$
Reproductive	27 (16.6)	6 (14.6)	33 (16.2)	
Multiple sites	18 (11.0)	4 (9.8)	22 (10.8)	
Lung	15 (9.2)	5 (12.2)	20 (9.8)	
Head & Neck	10 (4.9)	7 (17.0)	17 (12.4)	
Gastrointestinal	7 (4.3)	8 (19.5)	15 (7.4)	
Others	4 (2.5)	7 (17.0)	11 (9.5)	
Genitourinary	-	1 (2.4)	1 (0.5)	
Hematologic	4 (2.5)	2 (4.9)	6 (2.9)	
Cancer treatment				$\chi^2=14.35$
Combined	120 (73.6)	19 (46.3)	139 (68.1)	
Chemotherapy only	19 (11.7)	11 (26.8)	30 (14.7)	
Surgery only	15 (9.2)	6 (14.6)	21 (10.3)	
Radiation only	4 (2.5)	4 (9.8)	8 (3.9)	
Others	4 (2.5)	1 (2.4)	5 (2.5)	
Hormone therapy only	1 (0.6)	-	1 (0.5)	
Pain Medication				$\chi^2=0.10$
No	88 (54.0)	21 (51.2)	109 (53.4)	
Yes	75 (46.0)	20 (48.8)	95 (46.6)	
Access to Health Care				$\chi^2=0.13$
Yes	157 (96.3)	39 (95.1)	196 (96.1)	
No	6 (3.7)	2 (4.9)	8 (3.9)	
Preferred health care services				$\chi^2=12.38^*$
Clinics or health care centers	112 (68.7)	17 (41.5)	129 (63.2)	
Others	27 (16.6)	16 (39.0)	43 (21.1)	
Hospital emergency room	10 (6.1)	4 (9.8)	14 (6.9)	
Hospital outpatient department	7 (4.3)	2 (4.9)	9 (4.4)	

*
p<.01