

## FEATURE

## ARTICLE

# Gender Differences Among Young Adult Cancer Patients

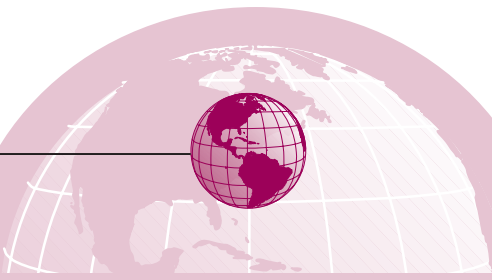
## A Study of Blogs

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Social engagement is crucial in the developmental process of young people. Peer relationships enable young persons to become emotionally independent from their parents and from adults in general, which is an important step in forming identity.<sup>1</sup> When young people live with cancer, their social interactions can become very limited because of lengthy hospital stays and periods of absence from school and friends.<sup>1,2</sup> This inability to participate in social activities can adversely affect young cancer patients' adaptive and social skills, when compared with young people without cancer.<sup>3</sup> However, some studies found that young cancer patients showed greater acceptance and a sense of companionship among one another<sup>4</sup> and a deep appreciation and shared understanding of their cancer experiences.<sup>5</sup> Building social connections among young cancer patients can generate support within the group, thereby enabling them to develop their social skills. Online social media and the use of blogs in particular can provide the means for young people with chronic illnesses such as cancer to connect and engage with each other, regardless of distance and other limitations.<sup>6</sup>

Blogs are personal online spaces where people can share their narratives, thoughts, feelings, and experiences with others.<sup>7</sup> Blogs provide a medium for interaction with other people and offer opportunities to share opinions and information and to respond with comments and exchange support.<sup>7</sup> Thus, in utilizing blogs, youth cancer services can be self-directed while providing an opportunity to engage with other young cancer patients.

While there is great potential in online youth cancer networks, currently only a small number of such services exist for this patient group, and further research is warranted in the design of online youth cancer networks by investigating questions such as how online media can effectively serve different purposes, what can be expected from online cancer



The Internet has increasing relevance and practical use as a tool to support cancer care. For example, health support Web sites are now widely used to connect specific groups of patients who may otherwise have remained isolated, and understanding their health-related online behaviors will help in the development of more effective health support Web sites. This article examined blogs written by young adults affected by cancer and in particular examined the gender differences in these blog entries through content analysis. The results showed there is little difference in blog content between genders. This suggests that the blog environment could lessen the gender-typical behaviors often expected by society and may provide an outlet for young adult cancer patients to more freely share their cancer-related experiences, at the same time providing an opportunity for social connection. This is particularly significant for male patients who are known to inhibit their emotions as well as the expression of their health concerns.

### KEY WORDS

Blogs • Cancer patients • Gender differences •  
Online support • Young adults

networks, what functions are better served online rather than face-to-face, and how we can best tailor online networks to effectively meet patient group variables such as cancer stages, types, and gender.

This research aimed at developing an understanding of the tendencies of young cancer patients' online activities

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and directed particular attention to gender differences in the ways young adult cancer patients wrote blog entries. This is Part 2 of a larger study, where Part 1 analyzed the blog entries of young adults affected by cancer (YAACs). In Part 1, findings showed a rich description of the lived experiences of YAACs while exploring their unique needs and difficulties associated with their transition from adolescence to adulthood.<sup>4</sup> Part 1 also reported that blogs provide an environment where YAACs can express their emotions with fewer inhibitions.<sup>4</sup> This article, Part 2, examines whether there is a gender-based difference influencing the expression of experiences and emotions when blogs are used.

Numerous psychosocial oncology research studies have investigated how gender affects cancer patients' experiences.<sup>8-11</sup> Notably, several studies revealed that male cancer patients have fewer outlets to express their emotions and to share difficulties compared with females, because of the social expectations formed around masculinity.<sup>8,12,13</sup> Some studies have suggested that the online environment may lessen gender-typical behaviors that are normally expected in the offline context.<sup>14,15</sup> Investigating the behaviors of YAACs in blog environments by focusing on gender differences will help develop a better understanding of how this unique space affects their communication. Understanding the influence of gender in blog environments could potentially underpin strategies to assist in building online support networks that consider the communication tendencies of each gender.

## Purpose of the Study

The purpose of this study was to determine whether blogging can provide an environment where gender norms affect YAACs to a lesser degree than what could be expected in nononline environments.<sup>16</sup> This will help determine if or how blogs can be utilized to support male patients as a vulnerable group, reluctant to share their emotions and concerns. This study will also investigate the characteristics of YAACs in writing their blogs, with particular focus on gender differences more broadly.

## METHODS

In this study, YAACs are defined as young adults aged between 20 and 39 years who currently have cancer or have had cancer. We conducted content analysis<sup>17</sup> of their blog entries, then converted the analyzed data to percentages for each category and compared percentage data for males and females to discern any differences and similarities.

The research method is based on previous studies that used data based on regular online behavior,<sup>14,18-20</sup> that is, behavior that is not influenced by the study as well as data from existing illness blogs<sup>21,22</sup> so as to prevent any potential influence by the researcher. Ginossar<sup>14</sup> argues that using

regular online data supports validity, as it prevents bias in research questioning, and Stone<sup>20</sup> also proposes that participants may advocate for their own issues when interacting with researchers. Thus, data from the blog in the current study provided an opportunity for researchers to observe normally occurring traits in the blog environment. The detailed research processes and rationales are explained as follows.

## Data Collection

The primary researcher searched for blogs written by YAACs, informed by collective methods used in existing illness blog studies.<sup>21,22</sup> Technorati (an online blog search engine based in San Francisco, CA) and two major online search engines, Google (Mountain View, CA) and Yahoo (Sunnyvale, CA), were used to identify eligible Web sites, using the search terms "young adult" and "cancer." Web site selection criteria included the following: the largest number of YAAC blogs, identification of the blogger's gender, clearly identified blog entry dates to limit the period for data collection, publicly accessible, and no Web site registration requirements, as registration requirements may indicate writers' unwillingness to publicly share their blog content.<sup>23</sup>

One Web site met all the criteria, Planet Cancer ([www.planetcancer.org](http://www.planetcancer.org)), and was selected for the study. This Web site was established exclusively for YAACs and contained the largest number of blogs written by young adult cancer patients and survivors. Its blog writers also had a wide range of cancer types.

Inclusion and exclusion criteria were then developed for the final stage of the blog entry selection. Inclusion criteria required authors to be young adults aged between 20 and 39 years, to either have or have previously had cancer, and identify their gender. Types and stages of authors' cancer were not limited, and exclusion criteria included blogs written by family members or friends.

Blogs written during a 1-month period in 2011 were collected. This time parameter was informed by several previous studies involving data collection of regular online activities.<sup>14,18-20</sup> The eligible blog entries were then collected and collated as an electronic text file.

## Ethical Considerations

The included blog entries were open to the public and did not require registration to access them at the time of data collection. At the time of data collection, the writers' names were changed to unidentifiable characters, for example, M1, F1, and any identifiable sources such as pictures or video links were deleted. Direct quotation of the blogs was not used so as to respect the writers' authorship and to ensure that the original data sources could not be traced back by using Internet search engines. Consequently, consents were not individually sought as interventions were in place to secure

both privacy and authorship. At the time of data collection, the writers' blogs were all publicly accessible. Approval to conduct the study was granted by the University of South Australia's Human Research Ethics Committee.

## Content Analysis

Researchers conducted content analysis, which is a method to analyze patterns of written, verbal, or visual communication messages.<sup>17</sup> Gender differences in blog content were examined primarily by percentage comparisons between each gender.

## Data Analysis

A structured matrix was created by adapting coding categories from the study conducted by Klemm et al,<sup>18</sup> which contained a broad range of categories of online content created by cancer patients. These included information seek (IS) and give (IG), encourage/support (ES), personal opinion (PO), personal experience, thanks (T), humor (H), activism (A), prayer (PR), and miscellaneous (M).

In addition, we created a new category when units did not match any of these categories, or when distinct sub-categories were identified within an existing category. As a result, the category of "personal experience" was separated into "cancer-related personal experiences" (CP) and

"non-cancer-related personal experiences" (NCP). Using the same principle, the category of "emotional expression" was created and separated into "emotion that is directly expressed" (EMD) and "emotion that is indirectly expressed" (EMI).

The primary researcher generated a detailed rule sheet (Table 1) that defined and explained each coding category. It was necessary to use an inductive process to refine this rule sheet in order to respond to detail contained in the blogs. This was discussed with and agreed by the secondary researcher.

## Units of Analysis

The units of analysis consisted of a sentence in the included blogs. A sentence fitting more than 1 category was broken into separate components, with each component analyzed as a separate unit.

Because blog narratives consisted largely of writers' feelings and thoughts, it was necessary to consider both manifest (clearly identifiable) and latent (hidden or inferred) content as considering only manifest content can ignore intended meaning behind sentences, which would lead to incorrect data analysis.

Data were categorized according to the rule sheet by the primary investigator who was blind to the writers' gender during this process. The categorized data were then grouped into male and female, and the percentages for each category

Table 1	
Coding Instruction Sheet	
Categories	Instruction
Information give/seek (IG/IS)	Any form of giving/seeking information, regardless of whether related to cancer or not. If the information source was not originally written by the blog writer herself/himself (such as articles or poems), it was counted once per source to avoid reflecting other people's characteristic and causing inaccurate data analysis
Non-cancer-related personal experience (NCP)	Narration of personal stories not related to cancer; this also includes narrations about people in the writers' lives
Cancer-related personal experience (CP)	Narration of personal experiences regarding cancer at any stage, including diagnosis, treatment, recovery, palliation, and survivorship.
Emotion, directly expressed (EMD)	Directly expressed emotion, which includes at least one word directly expressing an emotion, such as "angry," "felt," or "happy."
Emotion, indirectly expressed (EMI)	Indirectly expressed emotion, which does not include words directly expressing emotion. An example of this was shown in Gooden and Winefield <sup>27(pp111-112)</sup> : "If this one [PSA] is in the 30s again, I'll get myself a nice bottle of Scotch and find a nice gutter..."
Encourage/support (ES)	Any form of encouragement or support to others regarding making positive actions
Personal opinion (PO)	Personal opinion about cancer or non-cancer-related topics, for instance, when writers expressed thoughts, perspectives, or future plans
Thanks (T)	Expressing thanks to anyone; expressing gratitude for certain situations
Humor (H)	Humorous comments, including sarcasm
Activism (A)	Expression of any willingness to act for political or social change, regardless of whether related to cancer or not
Prayer (PR)	Prayers for writer himself/herself or for others; prayers toward God
Miscellaneous (M)	Content that did not fit any above categories



in each gender were then calculated and compared by using Microsoft Excel (Microsoft, Redmond, WA).

## RESULTS

### Characteristics of Writers

A total of 160 blogs were included for the analysis, composed of 129 blogs written by females and 31 blogs written by males. In total, there were 46 writers, 34 female and 12 male. Of the units evaluated, 84.5% were written by females, and 15.5% were written by males, clearly demonstrating that female YAACs were more actively involved in blog writing than male YAACs. In most of the cases, the researcher was unable to identify the writers' detailed demographic information such as marital status, income, race, and geographic area. Seventeen of the 46 writers identified their age, and 29 did not, and of those who provide their age, the average age was 31 years (range, 23–38 years). The numbers of writers by cancer types were (numbers in bracket) blood cancer (13), head and neck cancer (11), breast cancer (9), ovarian cancer (4), skin cancer (3), sarcoma (2), testicular cancer (2), colon cancer (1), and lung cancer (1).

### Main Purpose of Blog Writing

This study determined the main purpose of writing blogs by categorizing blog content. Table 2 provides an overview of content combining both male and female contributions across categories. "Cancer-related personal experience" comprised the largest proportion of the overall blog content (30.3%), followed by "personal opinion" (23.2%) and "non-cancer-related personal experience" (21.0%). These three categories alone accounted for 74.5% of the blog content. In this sample, the researchers determined that

the main purpose of the blogs was to describe the writers' cancer experiences or their everyday lives and to express their opinions.

### Overall Percentage Comparisons Between Genders

Despite the large differences in total number of analyzed units in each gender (female: 4237, male: 775) and number of writers (female: 34, male: 12), there were marked similarities in percentages of each category (Table 3, Figure 1). The highest four ranking categories in each gender were identical (CP, PO, NCP, IG) and accounted for the majority of the blog content (female: 83.3%, male: 87.4%).

As mentioned earlier, the percentages in each category showed notable similarities between genders. The largest difference in percentage between male and female was 2.6% (IG). The smallest difference in percentage, except IS category, which had 0% in both genders, was 0.1% (T, ES), and the average percentage difference in each category between genders was 1.04% (mean, 1.05%).

### Comparing Information Exchange and Emotional Expression Categories

To see if either gender focused more on information exchange or emotional expression, the percentages of EMD and EMI categories were summed and compared with the IG category in both genders. Males ranked 2.6% higher in the IG category and females 2.9% higher in the emotional expression categories. Both genders had no content coded with IS. Considering the small differences in percentages among the three categories (EMD, EMI, IS), this study concludes that no major differences exist between genders in either frequency of information exchange or emotional expression in the blog environment.

### Comparing Categories of Cancer-Related Experience and Non-Cancer-Related Experience

Both genders described their cancer-related experiences more than their non-cancer-related experiences. Females described their non-cancer-related experiences more than did males, and males described their cancer-related experiences more than did females, but both in only small degrees (1.7% and 2.3%, respectively).

### Comparing Ways to Express Emotions

Males expressed their emotions directly by 0.8% more than they did indirectly. Conversely, females expressed

**Table 2**  
Percentages of Each Category



	Male + Female
CP	30.30% (1518)
PO	23.20% (1161)
NCP	21.00% (1054)
IG	9.50% (477)
EMD	3.50% (174)
EMI	3.40% (171)
M	2.70% (136)
T	2.70% (136)
H	2.60% (131)
ES	0.60% (28)
PR	0.50% (24)
A	0.10% (3)
IS	0.00% (0)

**Table 3****Percentages of Each Category by Gender**

	Male	Female
CP	31.7% (246)	30.0% (1272)
PO	24.9% (193)	22.8% (968)
NCP	19.1% (148)	21.4% (906)
IG	11.7% (91)	9.1% (386)
EMD	2.6% (20)	3.6% (154)
EMI	1.8% (14)	3.7% (157)
M	2.3% (18)	2.8% (118)
T	2.8% (22)	2.7% (114)
H	1.9% (15)	2.7% (116)
ES	0.6% (5)	0.5% (23)
PR	0.3% (2)	0.5% (22)
A	0.3% (2)	0.0% (1)
IS	0.0% (0)	0.0% (0)

their emotions indirectly by 0.1% more than they did directly. We then compared the categories of EMD (expressing emotions directly) and EMI (expressing emotions indirectly) by genders to see if males and females showed any differences in the ways they expressed their emotions in the blogs. The percentage of EMD was 1.9% higher for males than that for females. The percentage of EMI was higher for females than that for males by 1.0%. As these small percentage differences indicate, neither gender expresses emotion more directly or indirectly than the other.

## DISCUSSION

The major purpose of blog use among YAACs appears to be sharing their cancer experiences or everyday life experiences and expressing opinions. Information provision and emotional expression also composed a sizeable portion of the blog content, but did not seem to be a major purpose behind writing the blogs. However, other studies that examined Internet cancer support groups found that the main purpose of such groups was an exchange of information.<sup>18,19,24</sup> Thus, this demonstrates how the various types of Internet cancer media such as blogs and discussion groups are used by cancer patients for different purposes.

The majority of blog writers in this study were female, which is consistent with previous studies.<sup>14,20,25</sup> Despite a large difference in analyzed unit sizes between genders in this study, the percentages of each category in male and female showed notable similarity. In other words, the writers in this study showed no apparent gender differences in the ways they wrote their blogs.

A literature review conducted by Mo et al<sup>15</sup> noted that fewer gender differences were found in studies conducted among mixed-gender groups than in studies conducted among a single-gender group. The current study is considered a mixed-gender environment because the blogs were available

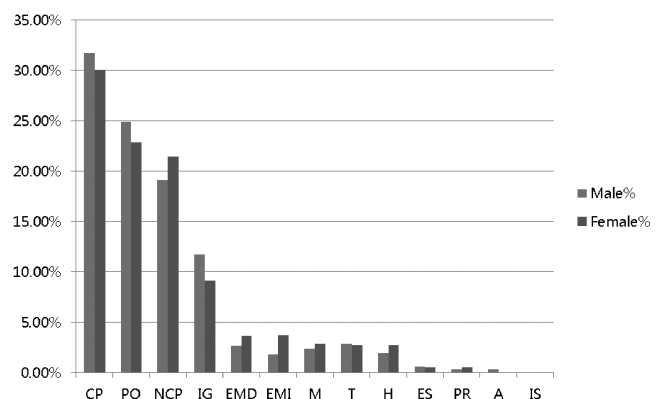
to be read by both male and female readers, and the writers presumably knew that their content could and would be read by the other gender. This mixed-gender environment may have made gender differences less apparent than if they were in a single-gender environment.

This study found little percentage difference between information provision and the emotional expression categories in both genders. This result contradicts some other studies that argued that females are more focused on expressing emotion, whereas males engage more with information exchange in online cancer support groups.<sup>24,25</sup> It is unclear as to what factors encourage participants to express emotions or exchange information with each other. Understanding these factors will be useful when designing online cancer support, which ought to serve specific aims, and thus, further study is warranted in this area.

There was little difference between percentages of males and females in the emotional expression categories (EMD, EMI). In other words, no single gender expressed emotion more directly or indirectly compared with the other gender. This finding opposes the assumption that male YAACs will feel reluctant to express their emotion directly in order to comply with male gender norms, and there are several possible explanations for this result. The anonymity of online space may have allowed male writers to express emotion more freely with fewer gender norms affecting them. In addition, male writers who narrated their cancer experience on the Internet might possess different traits than those that exist in the general male population.

While further research may help ascertain whether writing blogs can provide an effective mechanism for male YAACs to express their emotion, there were more female writers than male, which suggests that females may be more willing to engage in online illness-related communication. The results of this study suggest the need to further explore social media as a vehicle for supporting men's health.

There were several limitations in the data used in this study. In the first instance, it is difficult to be certain about participants' personal written information when using online data.<sup>15</sup> Only blogs written during a 1-month period were included



**FIGURE 1.** Percentages of each category in males and females.

for this study, and when the data collection is limited by a time period, results within the same online data set may be different at other times.<sup>15</sup> Future studies will need to evaluate a variety of approaches to online-based research methods.

This study included blogs irrespective of the writer's types and stages of cancer. Salander and Hamberg<sup>8</sup> pointed out that a lack of control factors may compromise the accuracy of the gender comparisons. In effort to overcome this limitation, Ullrich et al<sup>26</sup> conducted an online gender comparison study by comparing paired sets of breast and prostate cancer patients based on their cancer stages and treatments. Nonetheless, they argue that this research carried limitations due to a difference in the nature of each cancer type, suggesting instead gender studies on non-gender-specific cancers with similar stages and treatments. Further discussion is needed in deciding rigorous ways to conduct gender studies in the cancer field.

Because the blog writers in this study were limited to the English-speaking population who had access to the Internet and were capable of navigating Web sites, they were not representative of the entire young adult cancer population. This limitation also appears in several other studies<sup>18,20,27</sup> and requires further international research collaboration in nursing informatics. Nonetheless, this study's results should be viewed as identifying gender differences limited to the blog environment, rather than being generalized to the wider population.

The study also focused on a single Web site that best met the inclusion criteria, and as a consequence, it could be argued that it may have contained a skewed data set. The major purpose and demographics of the Web site may also have indirectly affected the ways YAACs wrote their stories.

## CONCLUSION

The aim of this study was to compare the activities of male and female YAACs in the blog environment. The study results suggest that male and female YAACs writers showed similarities in the way they wrote narratives, supporting the proposition of earlier gender studies that the anonymity of the online environment lessens gender-typical behaviors. Although further research is required, this study suggests that the blog environment may provide male YAACs with the opportunity to express their experiences and emotions more freely than in a face-to-face environment, potentially alleviating psychological issues experienced during this difficult time. Furthermore, this study and a number of previous studies revealed that females are the predominant users of online cancer support, and future studies could investigate how to make Internet cancer support services more easily accessible to male cancer patients. This research also determined that the main purpose of blog activities for YAACs was to narrate their experiences and express their

opinions. Increased understanding of both blogging and Internet use by YAACs will help both healthcare providers and YAACs to further develop interactive online support strategies and build supportive online communities to address the gender-specific and general needs of YAACs.

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