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Gender Differences in the Use of Engagement and Disengagement Coping Strategies in Oncology Patients Receiving Chemotherapy

by
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of the
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Abstract

Kate Rae Oppegaard

Gender Differences in the Use of Engagement and Disengagement Coping Strategies in Oncology Patients Receiving Chemotherapy

The purpose of this study, in a sample of women (n=277) and men (n=293) undergoing chemotherapy for either gastrointestinal or lung cancer, was to evaluate for gender differences in coping strategies using the Brief COPE. While approximately equal numbers of women and men will be diagnosed with lung and colorectal cancer, women have been underrepresented in both lung and gastrointestinal cancer research. Regardless of cancer site, men have been underrepresented in studies that focus on psychosocial issues associated with a cancer diagnosis and its treatment. This unequal representation of both sexes leaves significant gaps in our knowledge of differences in the way that women and men cope with the diagnosis and treatments associated with lung or GI cancers (i.e., two cancers that have equal occurrence rates in both genders). This analysis is part of a larger study that evaluated the symptom experience of outpatients receiving chemotherapy. Patients were recruited from two Comprehensive Cancer Centers, one Veteran's Affairs hospital, and four community-based oncology programs. Coping data was obtained using the Brief COPE from patients with gastrointestinal (n=412) and lung (n=158) cancer. Gender was identified by self-report. In terms of the use of engagement coping strategies, women reported higher scores for positive reframing, religion, and using instrumental support. Men reported higher scores for humor. In terms of the use of disengagement coping strategies, women reported higher scores for denial, venting and self-distraction. Men reported higher scores for substance use.

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INTRODUCTION

While approximately equal numbers of women and men will be diagnosed with lung and colorectal cancers,[1] women have been under-represented in both lung and gastrointestinal (GI) cancer research.[2] In contrast, regardless of cancer site, men have been underrepresented in studies that focus on psychosocial issues associated with a cancer diagnosis and its treatment.[2] This unequal representation of both sexes leaves significant gaps in our knowledge of differences in the way that women and men cope with the diagnosis and treatments associated with lung or GI cancers (i.e., two cancers that have equal occurrence rates in both genders). Previous research found that the use of specific coping strategies influences the amount of distress oncology patients experience[3] and directly impacts their quality of life (QOL).[4] An evaluation of gender differences in the use of various coping strategies may provide insights that can be used by clinicians to educate patients about more positive coping strategies, as well as develop more tailored interventions, and/or make appropriate referrals to support services.

Both women and men can experience short-term and long-term stress related to cancer and its treatments that necessitates an ongoing need to adapt and cope.[5] According to Lazarus' Cognitive Appraisal Theory,[6] individuals stress when they perceive that they are unable to adequately respond to life's demands. Individuals come to this conclusion through a series of appraisals. Primary appraisal involves making a decision if the stressor poses a threat. Secondary appraisal involves using one's coping behaviors to respond to the threat and reappraisal combines both primary and secondary appraisals to adapt to the stressor. Most coping strategies that are used to respond to stressors can be grouped into engagement and disengagement categories. Engagement coping strategies utilize more direct approaches to deal with or reduce

stress and are typically associated with a more adaptive responses. In contrast, disengagement coping strategies tend to be viewed as more avoidant and maladaptive.[7]

Only four studies were identified that evaluated for gender differences in coping with cancer.[8-11] In a United States study that evaluated 208 women and 125 men with a variety of cancer diagnoses (i.e., breast, testicular, lymphoma, lung) and assessed for differences in their coping styles using the Ways of Coping Checklist,[8] the investigators found that compared to men, women used religion, social support, active coping, and positive focusing more frequently. In contrast, men used avoidance coping more frequently. In the second study of Israeli women (n=153) and men (n=186) with colorectal cancer,[9] the Mental Adjustment to Cancer (MAC) scale was used to asses gender differences in coping styles. Compared to men, women used a fighting spirit style of coping more often. In contrast, men were more likely to use a hopelessness/helplessness style or a fatalistic acceptance style of coping.

In the third qualitative study from the United Kingdom,[10] gender differences in the experiences of 14 women and 24 men with colorectal cancer were evaluated. Women were less likely than men to downplay their long-term symptoms or side effects. Of note, some men reported embarrassment or negativity with showing emotions. In the fourth study done in the United States,[11] 47 women and 53 men with lung cancer completed the Coping Effectiveness Scale and the religious coping subscale of the Fetzert/National Institute on Aging Brief Multidimensional Measure of Religiousness/Spirituality. While no differences were found in coping effectiveness, women used religious forms of coping more frequently than men.

While these four studies provide some insights into gender differences in coping with cancer, several limitations warrant consideration. Sample sizes for two of the studies were very small.[10, 11] The methods used to obtain information on biological sex and/or gender were not

reported. Across the four studies,[8-11] the measures used to assess coping were inconsistent and none of the studies used the most commonly used instrument to assess coping in oncology patients, namely the Brief COPE.[12, 13] Given the limited amount of research on gender differences in coping with cancer, the purpose of this study, in a sample of women (n=277) and men (n=293) undergoing chemotherapy (CTX) for either GI or lung cancer, was to evaluate for gender differences in coping strategies using the Brief COPE.[14]

PATIENTS AND METHODS

Patients and Settings

This analysis is part of a larger, longitudinal study, that evaluated the symptom experience of oncology outpatients receiving CTX. Detailed methods for the parent study can be found elsewhere.[15] In brief, eligible patients were ≥18 years of age; had a diagnosis of a GI, breast, gynecological, or lung cancer; had received CTX within the preceding four weeks; were scheduled to receive at least two additional cycles of CTX; were able to read, write, and understand English; and gave written informed consent. Patients were recruited from two Comprehensive Cancer Centers, one Veteran's Affairs hospital, and four community-based oncology programs. Of the 2234 patients approached, 1343 consented to participate (60.1% response rate). The major reason for refusal was being overwhelmed with their cancer treatment. Of the 1343 patients in the parent study, data from 570 patients with GI (n=412) and lung (n=158) cancer were used in this analysis. This sample was selected because GI and lung cancers occur equally among women and men.

Instruments

Patients completed a demographic questionnaire, the Alcohol Use Disorders Identification Test (AUDIT),[16, 17] the Karnofsky Performance Status (KPS) scale,[18] and the Self-Administered Comorbidity Questionnaire (SCQ).[19]

The 28-item Brief COPE scale was designed to assess a broad range of coping responses among adults with a variety of medical conditions.[14] Each item was rated on a four-point Likert scale that ranged from 1 (I haven't been doing this at all) to 4 (I have been doing this a lot). Higher scores indicate greater use of the various coping strategies. In total, 14 strategies are evaluated using this instrument (with their respective Cronbach alphas), namely: self-distraction (0.46), active coping (0.75), denial (0.72), substance use (0.87), use of emotional support (0.77), use of instrumental support (0.77), behavioral disengagement (0.57), venting (0.65), positive reframing (0.79), planning (0.74), humor (0.83), acceptance (0.68), religion (0.92), and self-blame (0.73). Each coping strategy is evaluated using two items. The Brief COPE has well established validity and reliability in oncology patients. [12, 13]

Study Procedures

The study was approved by the Committee on Human Research at the University of California, San Francisco and by the Institutional Review Board at each of the study sites. Eligible patients were approached by a research staff member in the infusion unit during their first or second cycle of CTX to discuss participation in the study. Written informed consent was obtained from all patients. Medical records were reviewed for disease and treatment information.

Data Analysis

Data from the enrollment assessment (i.e., the week prior to the initiation of the patients' second or third cycle of CTX) were analyzed using SPSS version 22 (IBM, Armonk, NY).

Descriptive statistics and frequency distributions were calculated for the demographic and clinical characteristics. Gender differences in the use of various coping strategies were evaluated using Independent sample t-tests, Chi Square analyses, and Mann Whitney U-tests. A p-value of <0.05 was considered statistically significant. Effect size calculations were done (i.e., Cohen's d) to evaluate for clinically meaningful differences in the use of various coping strategies by women and men. Effect sizes of 0.2 to 0.5 are considered small, >0.5 to 0.8 are moderate, and >0.8 are large.[20]

RESULTS

Demographic characteristics

Of the 570 patients, 48.6% were female and 51.4% were male (Table 1). Gender was identified by patient self-report from the options male, female, or transgender. Biological sex was identified through genomic analysis and matched to self-reports of gender for all of the patients. While this study evaluated both biological sex and gender, we will use the term gender to contextualize differences between women and men. Compared to the males, females were significantly younger, were less likely to be employed, and reported a lower annual household income. In addition, females had a lower body mass index (BMI), a higher number of comorbid conditions, a higher SCQ score, a lower functional status score, a lower hemoglobin and hematocrit, a lower AUDIT score, were less likely to exercise on a regular basis, and were more likely to have lung cancer.

Gender differences in the use of coping strategies

As shown in Table 2, compared to males, females reported significantly greater use of six of the 14 coping strategies assessed by the Brief COPE, i.e., positive reframing ($p = 0.020$), religion ($p < 0.001$), instrumental support ($p = 0.007$), self-distraction ($p = 0.006$), denial ($p =$

0.001), and venting ($p < 0.001$). In contrast, males reported higher use of humor ($p = 0.032$), and substance use ($p < 0.001$). In contrast, no significant gender differences were found in self-reported use of active coping, planning, acceptance, emotional support, behavioral disengagement, and self-blame. For the subscale scores of the Brief COPE that demonstrated significant differences, effect sizes ranged from 0.18 (i.e., humor) to 0.35 (i.e., venting).

DISCUSSION

This study is the first to evaluate for gender differences in the use of coping strategies in a large sample of patients receiving CTX for GI or lung cancer using the Brief COPE. Of note, compared to other studies of patients with cancer that used the Brief COPE,[12, 21, 22] our patients' scores for use of each of the strategies were similar. In terms of the engagement coping strategies that demonstrated gender differences, females had higher scores for positive reframing, religion, and using instrumental support, while males had higher scores for humor. In terms of disengagement coping strategies that demonstrated gender differences, females had higher scores for self-distraction, denial and venting, while males had higher scores for substance use.

Consistent with a previous report,[8] women in our study were more likely than men to use positive reframing ($d= 0.20$). Positive reframing has been shown to decrease feelings of depression and allow for stressful situations to be redefined as less stressful.[23] Of note, in one study of men with prostate cancer,[24] positive reframing was a coping characteristic associated with the development of positive feelings. In another study of patients with breast cancer,[25] women reported that positive reframing served as a beneficial coping strategy.

Again, consistent with previous studies,[8, 11] women in our study reported more frequent use of religious coping ($d= 0.31$). Previous research has identified religion as a positive coping mechanism for females with breast cancer[26] and males with prostate cancer.[24, 27, 28] Religious

coping during cancer is dynamic and is used by individuals differently (e.g., to facilitate closeness with a god, for spiritual connection with others, for comfort, to make meaning of the cancer experience).[29]

Consistent with previous research,[8] the women in our study reported higher use of instrumental support (d= 0.23). The Brief Cope assesses instrumental support by asking patients to rate how often they are "getting help or advice from other people".[14] Most patients with cancer, regardless of gender, will need some amount of instrumental support, as treatment plans are often lengthy and complex.[30] With that in mind, traditional views of masculinity as it relates to help-seeking could account for the gender differences in the scores for the use of this strategy.[31]

The only engagement coping strategy that had higher scores in males was the use of humor (d= -0.18). A concept analysis of the use of humor in the context of adults with cancer found that humor helped patients positively cope with their situations, as well as facilitated closeness between the patient and nurse.[32]

While females in our study reported higher scores for the use of self-distraction, these results were not identified, previously. Self-distraction is a form of disengagement coping that has been associated with decreased self-esteem, fewer functional relationships, and decreased meaning in life in both women and men with cancer.[33] However, similar to other forms of disengagement coping, self-distraction may have some adaptive utility.[34]

While in our study, females reported higher scores for denial (d= 0.29), previous research that evaluated for associations between gender and the use of denial as a coping strategy in oncology patients yielded inconclusive findings.[35] Denial can be viewed as either a maladaptive or adaptive response depending on how it is used and its utility in dealing with illness is debated

in the literature.[35] However, evidence suggests that denial can lead to worse outcomes (e.g., delay in seeking care and in getting treatment) and decreases in oncology patients' survival.[36]

Given that previous reports found that men are less likely to express emotions through venting,[10, 37] it is not surprising that females in our study reported higher scores for this coping strategy (d= 0.35). While in one study,[38] the use of venting was shown to perpetuate negative emotions, in other studies it provided an avenue to enlist needed social support.[39, 40]

While no studies were found on gender differences in substance use as a coping strategy in patients with cancer, in our study, males reported higher scores for this subscale (d= -0.27). In a recent systematic review,[41] substance use was present in 2% to 35% of oncology patients and these rates have remained relatively stable from 1995 to 2018. Substance use can lead to less desirable outcomes because of its negative effects on physical and emotional health; its potential to create barriers to treatment adherence; and its potential to impact pain tolerance.[42] Furthermore, in a meta-analysis of coping strategies used by men with prostate cancer, men who coped in ways that did not allow them to face their cancer "head on" experienced more physical and emotional pain.[43]

While coping with cancer has been studied extensively,[43, 44] much of the literature provides information on sex-specific cancers.[2] In our large sample of patients with GI and lung cancers, the use of a number of coping strategies did, in fact, differ between women and men. It is worth noting that compared to males, females had higher scores for three types of disengagement coping (i.e., denial, venting, self-distraction), all of which have been correlated with higher levels of distress in patients with cancer.[45] Males reported a higher score for the disengagement coping strategy of substance use, which suggests not only that men are more likely to utilize substances to cope, but that they may be more vulnerable to their negative

consequences. Clinicians can use these findings to assess patients' use of various coping strategies, as well as reinforce more positive ones and intervene on more negative ones through appropriate referrals.

Gender is constructed by a variety of cultural, political, and social norms[46] and has an influence on the way that people cope with various stressors, as well as on their health outcomes.[47] Gender-based stereotypes of emotional expression may impact how women and men express themselves and the ways in which support is offered to them by others.[37] These nuances could account for some of the differences in our patients' scores. With these findings in mind, clinicians should be more aware of their own preconceived notions about sex and gender and reflect on how these stereotypes may influence the psychosocial care they provide to oncology patients.

Several limitations should be noted. First, the major reason for refusal to participate in this study was being overwhelmed with cancer treatment, which suggests a missed opportunity to measure coping strategies in patients who may be experiencing higher levels of stress. In addition, coping was assessed at only one point in the treatment trajectory. Future research needs to evaluate whether gender differences in the use of various coping strategies change throughout the course of cancer treatment and into survivorship.

Table 1 – Gender Differences in Demographic and Clinical Characteristics

Characteristic	Females 48.6% (n=277)	Males 51.4% (n=293)	Statistics
	Mean (SD)	Mean (SD)	
Age (years)	58.5 (12.2)	61.1 (11.5)	t = -2.61, p = .009
Education (years)	15.9 (3.2)	16.2 (3.1)	t = -0.87, p = .381
Body mass index (kg/m2)	24.9 (5.5)	26.3 (4.5)	t = -3.19, p = .002
Karnofsky Performance Status score	78.0 (13.1)	82.3 (12.3)	t = -3.98, p < .001
Number of comorbid conditions	2.8 (1.6)	2.4 (1.4)	t = 3.31, p = .001
Self-administered Comorbidity Questionnaire score	6.4 (3.4)	5.6 (3.2)	t = 2.87, p = .004
AUDIT score	2.4 (2.1)	3.8 (3.0)	t = -5.08, p < .001
Time since diagnosis (years)	1.4 (3.2)	1.4 (2.6)	U, p = .463
Time since diagnosis (median; years)	0.41	0.30	
Number of prior cancer treatments	1.5 (1.3)	1.3 (1.4)	t = 1.57, p = .118
Number of metastatic sites including lymph node involvement (out of 9)	1.4 (1.1)	1.4 (1.1)	t = 0.22, p = .827
Number of metastatic sites excluding lymph node involvement	1.0 (1.0)	0.9 (1.0)	t = 0.72, p = .469
Hemoglobin	11.4 (1.3)	12.2 (1.7)	t = -5.95, p < .001
Hematocrit	34.5 (3.7)	36.5 (4.6)	t = -5.63, p < .001
	% (n)	% (n)	
Self-reported ethnicity			
White	65.8 (179)	71.4 (207)	
Asian or Pacific Islander	12.1 (33)	12.1 (35)	X_2 = 2.92, p = .405
Black	10.7 (29)	7.6 (22)	
Hispanic, Mixed, or Other	11.4 (31)	9.0 (26)	
Married or partnered (% yes)	63.5 (176)	69.7 (202)	FE, p= .130
Lives alone (% yes)	20.2 (56)	20.8 (60)	FE, p= .917
Currently employed (% yes)	26.3 (72)	35.6 (103)	FE, p= .018
Annual household income			
Less than $30,000	24.2 (60)	20.0 (53)	
$30,000 to $70,000	25.4 (63)	17.7 (47)	U, p = .015
$70,000 to $100,000	15.3 (38)	17.4 (46)	
Greater than $100,000	35.1 (87)	44.9 (119)	
Childcare responsibilities (% yes)	21.5 (58)	16.4 (47)	FE, p= .130
Elder care responsibilities (% yes)	7.2 (18)	7.8 (21)	FE, p= .868
Current or past history of smoking (% yes)	39.7 (108)	44.7 (127)	FE, p = .264
Exercise on a regular basis (% yes)	62.4 (169)	71.1 (207)	FE, p= .031
Cancer diagnosis			
Gastrointestinal cancer	67.9 (188)	76.5 (224)	FE, p = .025
Lung cancer	32.1 (89)	23.5 (69)	
Prior cancer treatment			
No prior treatment	27.6 (74)	35.5 (99)	
Only surgery, CTX, or RT	38.8 (104)	34.8 (97)	X_2 = 3.93, p = .270
Surgery and CTX, or surgery and RT, or CTX and RT	21.3 (57)	19.0 (53)	
Surgery and CTX and RT	12.3 (33)	10.8 (30)	
Metastatic sites			
No metastasis	19.4 (53)	20.4 (59)	
Only lymph node metastasis	20.1 (55)	18.7 (54)	X_2 = 2.68, p = .443
Only metastatic disease in other sites	32.6 (89)	27.7 (80)	
Metastatic disease in lymph nodes and other sites	27.8 (76)	33.2 (96)	
Cycle length			
14-day cycle	56.9 (165)	62.0 (181)	X_2 = 0.38, p = .827
21-day cycle	35.0 (97)	33.2 (97)	
28-day cycle	5.4 (15)	4.8 (14)	

Abbreviations: AUDIT = Alcohol Use Disorders Identification Test, CTX = chemotherapy, FE = Fisher's Exact test, kg = kilograms, m2 = meters squared, RT = radiation therapy, SD = standard deviation, U = Mann Whitney U test

Table 2 – Gender Differences in the Brief COPE Subscale Scores

Brief COPE Subscales	Females 48.6% (n=277)	Males 51.4% (n=293)	Statistics	Cohen's d
	Mean (SD)	Mean (SD)		
Active coping	6.0 (1.7)	5.9 (1.7)	t = 0.82, p = .414	
Planning	5.2 (1.8)	5.1 (1.9)	t = 1.20, p = .231	
Positive reframing	5.4 (2.0)	5.0 (2.0)	t = 2.34, p = .020	0.20
Acceptance	6.6 (1.5)	6.7 (1.4)	t = -0.81, p = .418	
Humor	4.0 (2.0)	4.3 (2.0)	t = -2.15, p = .032	-0.18
Religion	5.1 (2.4)	4.4 (2.3)	t = 3.63 p < .001	0.31
Using emotional support	6.4 (1.6)	6.2 (1.8)	t = 1.77, p = .077	
Using instrumental support	5.4 (1.8)	5.0 (1.8)	t = 2.71, p = .007	0.23
Self-distraction	5.5 (1.7)	5.1 (1.8)	t = 2.75, p = .006	0.23
Denial	2.7 (1.3)	2.4 (1.0)	t = 3.39, p = .001	0.29
Venting	4.0 (1.6)	3.5 (1.5)	t = 4.07, p < .001	0.35
Substance use	2.1 (0.6)	2.4 (0.9)	t = -3.24, p < .001	-0.27
Behavioral disengagement	2.3 (0.8)	2.2 (0.7)	t = 1.63, p = .104	
Self-blame	2.8 (1.3)	2.7 (1.1)	t = 1.85, p = .065	

Abbreviations: SD = standard deviation

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