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The Association between Social Support and Chemotherapy-Related Toxicity in Older Patients with Cancer

Armin Shahrokni[1], **Can-Lan Sun**[2], **William P. Tew**[1], **Supriya Gupta Mohile**[3], **Huiyan Ma**[4], **Cynthia Owusu**[5], **Heidi D. Klepin**[6], **Cary Philip Gross**[7], **Stuart M. Lichtman**[1], **Ajeet Gajra**[8], **Vani Katheria**[9], **Harvey Jay Cohen**[10], **Arti Hurria**[9]

[1]-Department of Medicine, Memorial Sloan Kettering Cancer Center, NY, NY, USA

[2]-Department of Supportive Care Medicine, City of Hope, Duarte, CA, USA

[3]-Department of Medicine, University of Rochester Medical Center, Rochester, NY, USA

[4]-Department of Population Sciences, City of Hope, Duarte, CA, USA

[5]-Department of Medicine, Case Western Reserve University, Cleveland, OH, USA

[6]-Department of Internal Medicine, Wake Forest School of Medicine, Winston-Salem, NC, USA

[7]-Department of Internal Medicine, Yale School of Medicine, New Haven, CT, USA

[8]-ICON Clinical Research, North Wales, PA, USA

[9]-Department of Medical Oncology and Therapeutics Research, City of Hope, Duarte, CA

[10]-Center for the Study of Aging & Human Development, Duke University Medical Center, Durham, NC, USA

Abstract

Objectives: The goal of this study was to evaluate the relationship between social support (SS) and grade 3-5 chemotherapy-related toxicities among older adults with cancer.

Methods: This is a secondary analysis of a prospective longitudinal study of patients aged 65+ with solid cancer which led to the development of a predictive model for grade 3-5 chemotherapy-related toxicity (the Cancer and Aging Research Group [CARG] Chemotherapy Toxicity Risk Score). SS was measured by a modified version of Medical-Outcome Study-Social Support Survey and grade 3-5 hematological and non-hematological toxicities were captured and graded using CTCAE version 3.0. Patients were categorized into those with poor (SS score ≤75) and good SS

Corresponding author: Armin Shahrokni, MD, MPH, Geriatrics Service, Department of Medicine, Memorial Sloan Kettering Cancer Center, Box 205, 1275 York Ave., New York, NY 10065, Phone: 646-888-3250, Fax: 646-888-3181, shahroka@mskcc.org.

Authors Contribution

Study concepts:AS, AH, Study design: AS, AH, Data acquisition: AH, Quality control of data and algorithms: AS, CS,HM, AH, Data analysis and interpretation: All authors, Statistical analysis: AS, CS, HM, AH, anuscript preparation: All authors, Manuscript editing: All authors, Manuscript review: All authors

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(score of 76-100). Multivariate polychotomous logistic regression was used to examine the associations between SS and chemotherapy-related toxicity with adjustment for the CARG Toxicity Risk Score.

Results: Compared to patients with good SS, those with poor SS were less likely to have grade 3-5 toxicity, especially for non-hematological toxicity (adjusted OR = 0.52, p = 0.02). Patients who did not have someone to take them to the doctor “most” or “all of the time” were less likely to have grade 3-5 non-hematological toxicity compared to patients who had someone to take them to the doctor most or all of the time (adjusted OR = 0.32, p = 0.02).

Conclusion: Our study showed that patients with poor SS, especially those with less availability of someone to take them to doctors were less likely to have a documented grade 3-5 non-hematological toxicity.

Keywords

Social Support; Older Adults with Cancer; Chemotherapy Toxicity

Introduction

The number of older adults with cancer is increasing. It is estimated that by 2030, approximately 70% of all new cancer diagnoses will occur in adults aged >65 years. (1) The cancer diagnosis and subsequent treatments can induce substantial physical and emotional stress; therefore, adequate social support is necessary to successfully navigate through the process of subsequent treatment.

Social support is defined as any combination of informational, tangible, emotional, and appraisal support.(2) It includes both structured and unstructured, formal and informal, social and professional support. (3) Prior literature has shown that robust social support is associated with favorable cancer outcomes. (4–6) These studies have shown that in general, patients with cancer with more robust social support have improved overall survival compared to those with poorer social support. (4, 5) A systematic review of social support among patients with breast cancer showed that patients with good social support were less likely to experience disease progression (6) Social support enables patients with cancer to attend appointments, undergo diagnostic tests and procedures, and feel emotionally sustained during cancer therapy. Older patients with cancer may rely even more on their social support to overcome challenges during chemotherapy. Few studies to date have focused specifically on the role of social support in older adults with cancer, a population of participants who are likely to have more support needs than their younger counterparts. (7) Among older patients with cancer, given their diminished physical function, cognition, nutrition status, and physiological function, social support may be critical for successful treatment and avoidance of the treatment-related toxicities. However, to the best of our knowledge, no prior study has assessed the relationship between social support and chemotherapy toxicity among older patients with cancer.

The overall goal of this study is to investigate the association between social support and grade 3-5 chemotherapy toxicity in a cohort of older patients with cancer. Given the prior

studies linking poor social support with adverse outcomes, we hypothesized that older patients with cancer with poor social support would be at higher risk for grade 3-5 chemotherapy-related toxicity compared to those with more robust social support.

Methods

The City of Hope Institutional Board Review has provided approval for the conduct of this study. This is a secondary analysis of a prospective longitudinal study of 500 older adults with a solid tumor malignancy of any stage who were scheduled to begin a new line of chemotherapy. (8) All participating site institutional review boards approved the study. A geriatric assessment which included measures of social support, nutritional status, functional status, comorbidity, psychological state, and cognition was performed before initiating the new regimen. The measures included in the geriatric assessment were previously described and are summarized in Table 1.

Social Support Assessment:

As part of the geriatric assessment, social support was assessed by using a modified version of Medical Outcome Study-Social Support Survey (MOS-SSS).(8) The questionnaire assessed two domains of social support: tangible and emotional/informational support. Tangible support was assessed by four questions: the availability of someone to help the patient if the patient was confined to bed, someone to take the patient to doctor if she/he needed it, someone to prepare meals if the patient was unable to do it, and someone to help with daily chores if the patient was sick. Emotional/informational support was assessed by eight questions: the availability of someone that the patient can count on for listening when the patient needed to talk, to give information so the patient understands a situation, to give good advice about a crisis, to be a confidant, to be able to give advice, to be able to hear the patient's private worries and fears, someone to turn to for suggestions about how to deal with a personal problem, and someone to understand them. For each question, the patient rated the availability of such a person on a 5-point Likert scale ranging from none of the time (score one) to all of the time (score five). The other two domains; Affectionate Support and Positive Social Interaction were not included in the original study and hence not measured for this study as well.

Chemotherapy Toxicity Assessment

Chemotherapy-related toxicity was assessed during each office visit (either scheduled or emergency visit) and the relationship of the toxicity to chemotherapy (rather than disease) was agreed upon by two physicians. (8) Both hematological and non-hematological toxicities were captured. The grading of chemotherapy toxicity was based on the National Cancer Institute Common Toxicity Criteria for Adverse Events, version 3.0(9), and grade 3 (severe), grade 4 (life-threatening), and grade 5 (fatal) toxicities were captured.

Dichotomization of Social Support Variables:

Based on previous studies (10–13) we dichotomized the level of social support to a score of <75 = poor social support, and a social support score of > 75 = good social support. The same cutoff point was used to dichotomize tangible social support score and emotional/

informational support score. Each of the 12 social support availability questions was dichotomized based on whether the specific social support was present (most or all of the time) versus absent (“none,” “a little,” and “some of the time”).

The Cancer and Aging Research Group (CARG) chemotherapy toxicity risk score:

The Cancer and Aging Research Group (CARG) chemotherapy toxicity risk score was developed in the same cohort utilizing the best subset method which identifies the combination of variables that best predicts the risk of chemotherapy toxicity. (8) The CARG chemotherapy toxicity risk score consists of 11 items including patient age, tumor and treatment variables, organ function (hemoglobin, creatinine clearance), and five geriatric assessment questions (need for assistance with taking medications, ability to walk one block, falls in the last six months, decrease in social activity because of either physical or emotional health, and self-reported hearing described as fair or worse). The CARG chemotherapy toxicity risk score ranges from 0 to 19 and has moderate predictive ability (AUC=0.72).

Statistical Analysis:

Descriptive statistics were calculated to summarize patient characteristics overall and by the level of social support. The group differences in frequency distributions between patients with good social support and those with poor social support were assessed using Chi-square tests. The group differences for continuous variables between patients with poor social support and those with good social support were assessed using two-sample t tests.

Univariate polychotomous logistic regression models (14) were used to assess the odd ratios (ORs) and corresponding 95% confidence intervals (CIs) for the associations between social support variables and overall grade 3-5 chemotherapy toxicity and by type of toxicity (hematological or non-hematological). Because CARG chemotherapy toxicity risk score is the main predictor for grade 3-5 chemotherapy-related toxicity, we further examined the social support and toxicity associations after adjustment for CARG score. All statistical tests were two-sided, and p values less than 0.05 were considered statistically significant. Data were analyzed using SAS 9.4 (SAS Institute, Cary, NC).

Results

Two patients who did not provide information on social support were excluded; thus, 498 patients remained. The mean age of the 498 participants was 73 years (SD=6.2) (Table 1). The most common cancers were lung (29%), followed by gastrointestinal (27%), and gynecological (18%) cancer. Most patients received polychemotherapy (70%) and standard doses (76%). The median social support score was 95 (interquartile range 75-100). Most of the patients (n = 368, 74%) reported having good social support with total social support score of >75. Compared to patients with good social support, those with poor social support (social support score of ≤75) were older, and less likely to be married, to live with a spouse, partner or a child, to walk one block without any limitation, and to remain socially active (all $p \leq 0.03$).

More than half (53%) of patients had at least one documented grade 3-5 chemotherapy toxicity (Table 2). No linear relationship was observed between social support score and

chemotherapy toxicity. Sixty-three patients (48.5%) with poor social support had documented grade 3-5 chemotherapy toxicity whereas 201 patients (54.6%) with good social support had documented grade 3-5 chemotherapy toxicity. Among patients with poor social support, 11.5% had hematological toxicity compared to 9.2% of patients with good social support. On the other hand, among patients with poor social support, 22.3% had non-hematological toxicity compared to 28.5% of patients with good social support. None of these differences in frequency distribution by the level of social support reached statistical significance.

Although not statistically significant, compared to those with good social support, patients with poor social support were slightly more likely to be in the high CARG risk group (24.6% vs. 20.7%, p=0.20) with a higher mean CARG risk core (7.8 vs. 7.2, p=0.06). The multivariate analyses with adjustment for the CARG Toxicity Risk Group demonstrated that patients with poor social support were less likely to have grade 3-5 toxicity compared to those with good social support (adjusted OR = 0.58, p = 0.02, Table 3). Further analysis by type of toxicity showed that the lower risk associated with poor social support was mainly for grade 3-5 non-hematological toxicity alone (adjusted OR = 0.52, p = 0.02), but not for hematological toxicity alone (adjusted OR = 0.94, p = 0.86).

The multivariate analysis for the associations of each social support survey item with grade 3-5 non-hematological chemotherapy toxicity showed that only one social support item, whether the patient has someone to take them to the doctor, was strongly associated with grade 3-5 non-hematological toxicity (Table 4). Patients who did not have someone to take them to the doctor “most” or “all of the time” were less likely to have grade 3-5 non-hematological toxicity compared to patients who had someone to take them to the doctor most or all of the time (adjusted OR = 0.32, p = 0.02).

Moreover, when we added each of the variables listed in Table 1 to the CARG Toxicity Risk Group-adjusted models, the results remained the same. Our findings remained the same after adjustment for duration of treatment, number of chemotherapy agents (mono vs. poly), chemotherapy dose (standard vs. reduced), chemotherapy line (first vs. later), use of granulocyte colony-stimulating factor (G-CSF), and the timing of administering chemotherapy (delayed vs. not delayed).

Discussion

Prior studies have shown that patients with greater social support have improved cancer outcomes. (4–6) However, to the best of our knowledge, no study has reported on the association between social support and chemotherapy-related toxicity in older patients with cancer. Based on prior literature, we hypothesized that good social support should be associated with less chemotherapy toxicity. However, our data did not provide supportive evidence for our hypothesis. On the contrary, our data showed that after adjustment for CARG risk score, patients with poor social support were 48% less likely to have documented grade 3-5 non-hematological toxicity compared to those with good social support. More importantly, our data showed that patients who did not have someone to take them to the doctor “most” or “all of the time” were 68% less likely to have grade 3-5 non-

hematological toxicity compared to patients who had someone to take them to the doctor most or all of the time. These associations were not observed for grade 3-5 hematological toxicity.

The difference in the association between poor social support with non-hematological and hematological toxicities raises the possibility of underreporting the non-hematological toxicity or under-appreciation of the severity of the non-hematological toxicities by the healthcare providers. Thus, if patients lacking someone to accompany them to the doctor, get to the doctor less frequently, or have less support when they are in the clinic, then it is possible that they might report toxicities less frequently. This might be especially true for non-hematological toxicities since, in contrast to hematological toxicity, diagnoses and grading of the non-hematological toxicity relies on patient and healthcare provider interaction. The non-hematological toxicities are a more subjective assessment of one's overall status rather than an objective assessment of hematological toxicities. Moreover, the severity of hematological toxicity is less prone to different interpretations (e.g., white blood cell count of $<1000/mm^3$), while the non-hematological toxicities could be interpreted differently by patients and their healthcare providers. For example, a grade 2 dyspnea refers to dyspnea on exertion, while grade 3 dyspnea implies dysnpea with normal level of activity. What constitutes normal activity and exertion could be subject to interpretation by the patient and healthcare provider. Many investigators have reported differences in interpretation with the grading of non-hematological toxicities. In a study conducted by Basch et al., 435 patients with cancer (median age 66) and their clinicians completed the CTCAE version 3.0 during treatment. (15) The disagreement between patients and clinicians on the severity of physical symptoms ranged from 48% for dyspnea to 4% for vomiting. Another study on 393 patients with lung, prostate, or gynecologic cancer, with a median age 63, showed that correlation between patient and clinician-reported symptoms ranged from 0.46 for vomiting to 0.71 for neuropathy.(16) A review of 36 studies showed that compared to patients, clinicians often underestimate the presence and severity of symptoms. (17) These disagreements in the severity of symptoms between patients and clinicians are associated with poorer overall survival. (18) Unfortunately, we do not have data on numbers of visits nor the patient/supporter/clinician interaction, so these remain issues for future research.

Our study showed that the one item, less availability of having someone to take the patient to the doctor was the main factor in the relationship between poor social support and less likelihood of grade 3-5 non-hematological toxicities. If indeed lower toxicity reporting is at least part of the problem, one remedy for this might be to provide patients with the ability to report their symptoms remotely, which may improve their cancer outcomes. In another study by Basch and colleagues, 766 patients, with the median age of 61, who were receiving chemotherapy, were randomized to report 12 common symptoms via tablet versus usual care. Patients in the tablet group received weekly emails to report their symptoms between clinic visits. The study showed that 63% of the tablet arm patients reported severe symptoms and more participants in the tablet group had an improvement in their quality of life compared to patients in the usual care group (34% vs.18%). (19) In a subsequent study, they showed that electronic reporting of symptoms between office visits was associated with improved overall survival (HR=0.83, p=0.04). (20) Moreover, fewer patients in the intervention arm visited the emergency room compared to usual care (34% vs. 41%) and

were able to receive chemotherapy longer (8.2 vs. 6.3 months). Future studies are needed to assess whether this intervention is feasible among older patients with cancer with poor social support, especially those with less availability of having someone to take them to doctors, and its impact on the reporting of chemotherapy toxicity and other cancer outcomes.

Our study has limitations. We did not assess the social network of patients, which is correlated with cancer outcomes. (5, 21) Also, we lack data on whether patients with non-hematologic toxicities under-reported their symptoms, or there was under-documentation of symptoms. However, the possibility of lower chemotherapy toxicity among patients with poor social support seems less likely because these patients had slightly higher CARG toxicity risk score. We did not have clinic encounter information or information about whether supportive services such as social workers were involved in the care of older adults with cancer who had poor social support. Also, we lacked data on whether the availability of someone to take the patient to doctor is reflective of a transportation issue or the need for someone to speak up on the severity of chemotherapy toxicity that the patient has developed. We adjusted our finding for CARG risk score, and multiple other variables indicative of duration and intensity of the cancer treatment; however, future studies should assess our finding in a more homogenous group of older patients with more comprehensive data on intensity of treatment such as degree of dose reduction or total dose of administered chemotherapy agents. Moreover, our main finding was based on relatively small size cohort of patients, and we did not have sufficient sample sizes to examine the association by type of cancer. Finally, this study was based on a cohort of patients who received chemotherapy from 2006 to 2009. Over the past 10 years, the treatment protocols have changed, and novel treatments have been introduced to adjuvant and neoadjuvant settings. Our understanding of chemotherapy and its toxicities among older adults with cancer has also evolved. Moreover, through geriatric oncology research, more emphasize has been placed on the importance of whole-patient care in this setting. As a result of these changes and given the complex nature of the social support and chemotherapy toxicity association, caution needs to be practiced when interpreting the results. Future studies should assess the relationship between social support and toxicity, not just related to chemotherapy but also biological, targeted agents, as well as immunotherapies. Furthermore, future studies should evaluate this relationship by collecting more robust data on social support and other psychosocial factors that may impact the reporting of toxicities.

Nonetheless, to our knowledge, this is the first longitudinal study to assess the complex relationship between social support and documented chemotherapy toxicity in older adults with cancer. Older patients with cancer with poor social support, especially those with less availability of having someone to take them to doctors, were less likely to have documented grade 3-5 non-hematological toxicity. The possibility of significant underreporting of grade 3-5 non-hematological toxicity needs to be considered. Future studies are needed to understand these findings further and to evaluate the feasibility of remote chemotherapy toxicity monitoring among older patients with cancer with poor social support.

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Conflict of Interest and Financial Disclosure:

Dr. Cary Gross reports receiving funding from Pfizer, Johnson and Johnson, and Flatiron. The rest of authors report no conflict of interest.

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Table 1.

Patient socio-demographic and Cancer and Aging Research Group chemotherapy toxicity characteristics; overall and by the level of social support

Characteristics	Overall (N=498)	By the level of social support		
		Poor (≤ 75, N=130)	Good (> 75, N=368)	P value*
Age (years)				0.02†
Mean (SD)	73.1 (6.2)	74.2 (6.4)	72.7 (6.1)	
Median (range)	72.0 (65–91)	73.5 (65–91)	72.0 (65–89)	
% for >72 years	54.0	63.1	50.8	
Sex, %				0.55
Female	56.2	58.5	55.4	
Male	43.8	41.5	44.6	
Race/ethnicity, %				0.05
White	85.1	83.9	85.6	
Black	8.4	13.1	6.8	
Asian	5.2	2.3	6.3	
Other	1.2	0.8	1.4	
Education level, %				0.41
Less than high school	3.4	4.6	3.0	
High school graduate	35.1	30.0	37.0	
Associate/bachelor's degree	40.4	44.6	38.9	
Advanced degree	20.9	20.8	20.9	
Missing‡	0.2	0	0.3	
Marital status, %				<0.001
Married	61.2	46.2	66.6	
Widowed	22.5	30.8	19.6	
Single	3.2	3.1	3.3	
Separated, divorced	13.1	20.0	10.6	
Employment status, %				0.05
Full or part time	16.7	11.5	18.5	
Retired, homemaker, unemployed	78.9	81.5	78.0	
Disable, medical leave	4.2	6.9	3.3	
Missing‡	0.2	0.0	0.3	
Household composition				<0.001
Lives alone	21.1	32.3	17.1	
Lives with spouse, partner, or child	78.3	66.2	82.6	
Missing‡	0.6	1.5	0.3	

Characteristics	Overall (N=498)	By the level of social support		
		Poor (≤ 75, N=130)	Good (> 75, N=368)	P value*
BMI§, kg/m²				0.24†
Mean (SD)	26.0 (4.6)	25.6 (4.8)	26.1 (4.5)	
Median (range)	24.8 (16.7–51.6)	23.7 (16.9–51.6)	25.2 (16.7–49.4)	
Cancer type, %				0.67
Breast	11.5	11.5	11.4	
Lung	28.7	32.3	27.5	
Gastrointestinal	26.7	25.4	27.2	
Gynecological	17.5	19.2	16.9	
Genitourinary	10.0	7.7	10.9	
Other	5.6	3.9	6.3	
Cancer Stage, %				0.79
I	4.6	3.1	5.2	
II	11.7	12.3	11.4	
III	21.9	23.1	21.5	
Limited	0.4	0.8	0.3	
IV/extensive	61.5	60.8	61.7	
Number of Comorbidity				0.63†
Mean (SD)	2.4 (1.7)	2.5 (1.6)	2.4 (1.7)	
Median (range)	2.0 (0–9)	2 (0–7)	2 (0–9)	
No. of Chemotherapy Agents, %				0.94
Monochemotherapy	29.7	30.0	29.6	
Polychemotherapy	70.3	70.0	70.4	
Standard dose, %				0.11
Reduced	24.1	29.2	22.3	
Standard	75.9	70.8	77.7	
Hemoglobin (g/dl), %				0.42
≥10 (female), ≥11 (male)	85.9	86.2	85.9	
<10 (female), <11 (male)	12.3	10.0	13.0	
Missing‡	1.8	3.9	1.1	
Creatinine clearance (ml/min), %				0.54
≥34	88.0	85.4	88.9	
<34	8.8	10.0	8.4	
Missing‡	3.2	4.6	2.7	
Hearing, %				0.73
Excellent/good	74.1	72.3	74.7	
Fair/poor/deaf	24.5	25.4	24.2	

Characteristics	Overall (N=498)	By the level of social support		
		Poor (≤ 75, N=130)	Good (> 75, N=368)	P value*
Missing‡	1.4	2.3	1.1	
No. of falls in last 6 months, %				0.15
0	81.5	77.7	82.9	
≥1	18.1	22.3	16.6	
Missing‡	0.4	0	0.5	
Taking medicine with some help/unable, %				0.28
No	92.2	90.0	92.9	
Yes	7.8	10.0	7.1	
Walking one block, somewhat limited/limited a lot, %				0.03
No	77.1	70.0	79.6	
Yes	21.9	28.5	19.6	
Missing‡	1.0	1.5	0.8	
Decreased social activity because of physical/ emotional health, limited at least sometimes, %				<0.001
No	55.6	40.0	61.1	
Yes	43.6	57.7	38.6	
Missing‡	0.8	2.3	0.3	
CARG Toxicity Risk Group				0.20
Low	25.5	19.2	27.7	
Medium	45.6	44.6	45.9	
High	21.7	24.6	20.7	
Missing‡	7.3	11.5	5.7	

*Ascertained from Chi-square test, except where otherwise noted.

†Ascertained from two sample t test.

‡Missing categories were not included in statistical tests.

§Two patients without BMI information.

Abbreviation: SD = standard deviation, BMI = body mass index

Table 2.

Patients with documented grade 3–5 chemotherapy-related toxicity overall and by the level of social support

Chemotherapy-related toxicity	Overall	By the level of social support		
	N (%)	Poor social support (≤ 75) N (%)	Good social support (> 75) N (%)	P value*
No toxicity	234 (47.0%)	67 (51.5%)	167 (45.4%)	
Any grade 3-5 toxicity	264 (53.0%)	63 (48.5%)	201 (54.6%)	0.23
By toxicity type				
Hematological	49 (9.8%)	15 (11.5%)	34 (9.2%)	0.45
Non-hematological	134 (26.9%)	29 (22.3%)	105 (28.5%)	0.17
Both	81 (16.3%)	19 (14.6%)	62 (16.9%)	0.55

*Ascertained from Chi-square test.

Table 3.

Odds ratio (OR) and 95% confidence interval (CI) for documented grade 3-5 chemotherapy-related toxicity associated with social support

	No toxicity	Any grade 3-5 toxicity			By toxicity type								
					Hematological alone			Non-hematological alone			Both		
	N	N	OR (95% CI)	P value	N	OR (95% CI)	P value	N	OR (95% CI)	P value	N	OR (95% CI)	P value
Univariate analysis													
Social support													
Good	167	201	1.00		34	1.00		105	1.00		62	1.00	
Poor	67	63	0.78 (0.52-1.17)	0.23	15	1.10 (0.56-2.15)	0.78	29	0.69 (0.42-1.13)	0.14	19	0.76 (0.43-1.37)	0.37
Tangible social support													
Good	167	197	1.00		33	1.00		101	1.00		63	1.00	
Poor	67	67	0.85 (0.57-1.26)	0.41	16	1.21 (0.62-2.34)	0.57	33	0.81 (0.50-1.32)	0.41	18	0.71 (0.39-1.29)	0.26
Emotional/informational support													
Good	169	194	1.00		36	1.00		100	1.00		58	1.00	
Poor	65	70	0.94 (0.63-1.39)	0.75	13	0.94 (0.47-1.88)	0.86	34	0.88 (0.55-1.43)	0.62	23	1.03 (0.59-1.81)	0.92
Multivariate analysis *													
Social support													
Good	156	191	1.00		31	1.00		101	1.00		59	1.00	
Poor	61	54	**0.58 (0.36-0.92)**	**0.02**	14	0.94 (0.45-1.94)	0.86	25	**0.52 (0.30-0.91)**	**0.02**	15	**0.49 (0.25-0.97)**	**0.04**
Tangible social support													
Good	159	187	1.00		32	1.00		97	1.00		58	1.00	
Poor	58	58	0.69 (0.44-1.10)	0.12	13	0.91 (0.44-1.91)	0.81	29	0.68 (0.40-1.17)	0.17	16	0.58 (0.30-1.13)	0.11
Emotional/Informational support													
Good	158	184	1.00		33	1.00		96	1.00		55	1.00	
Poor	59	61	0.77 (0.49-1.21)	0.25	12	0.86 (0.41-1.81)	0.68	30	0.74 (0.44-1.26)	0.27	19	0.77 (0.41-1.45)	0.41

*Adjustment for CARG Toxicity Risk Group (low, medium, and high).

Table 4.

Adjusted* odds ratio (OR) and 95% confidence interval (CI) for documented grade 3-5 non-hematological chemotherapy-related toxicity associated with each social support item

	No toxicity	Grade 3-5 non-hematological toxicity		
	N	N	OR (95% CI)	P value
Tangible support				
Someone to help if you were confined to bed				
≥Most of the time	157	100	1.00	
<Most of the time	58	26	0.63 (0.36-1.11)	0.11
Missing†	2	0		
Someone to take you to the doctor if you needed it				
≥Most of the time	191	117	1.00	
<Most of the time	26	7	**0.32 (0.12-0.80)**	**0.02**
Missing†	0	2		
Someone to prepare your meals if you were unable to do it				
≥Most of the time	178	111	1.00	
<Most of the time	38	15	0.59 (0.30-1.17)	0.13
Missing†	1	0		
Someone to help with daily chores if you were sick				
≥Most of the time	175	106	1.00	
<Most of the time	38	19	0.78 (0.41-1.47)	0.44
Missing†	4	1		
Emotional/Informational support				
Someone to give you good advice about a crisis				
≥Most of the time	178	108	1.00	
<Most of the time	38	18	0.71 (0.37-1.35)	0.29
Missing†	1	0		
Someone who understands your problems.				
≥Most of the time	182	112	1.00	
<Most of the time	35	14	0.64 (0.32-1.28)	0.21
Missing†				
Someone to confide in or talk to about yourself or your problem				
≥Most of the time	182	112	1.00	
<Most of the time	35	14	0.58 (0.29-1.16)	0.12
Missing†				
Someone you can count on to listen to you when you need to talk				
≥Most of the time	183	112	1.00	
<Most of the time	34	14	0.60 (0.30-1.22)	0.16
Missing†				
Someone whose advise you really want				

	No toxicity	Grade 3-5 non-hematological toxicity		
	N	N	OR (95% CI)	P value
≥Most of the time	179	105	1.00	
<Most of the time	37	21	0.84 (0.45-1.57)	0.58
Missing†	1	0		
Someone to share your most private worries and fears with				
≥Most of the time	173	106	1.00	
<Most of the time	43	18	0.55 (0.29-1.04)	0.07
Missing†	1	2		
Someone to turn to for suggestions about how to deal with a personal problem				
≥Most of the time	176	108	1.00	
<Most of the time	39	17	0.68 (0.35-1.30)	0.24
Missing†	2	1		
Someone to give you information to help you understand a situation				
≥Most of the time	181	106	1.00	
<Most of the time	35	19	0.88 (0.46-1.67)	0.70
Missing†	1	1		

*Adjusted for CARG Toxicity Risk Group (low, medium, and high).

†Missing categories were not included in the statistical analysis.