

PAPER

Exploring associations between psychiatric disorder, psychological distress, and health care utilization in cancer patients

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Funding information

Pink Ribbon, Grant/Award Number: 2012.WO14.C153

Abstract

Objective: The mental burden of cancer might elicit additional health care utilization. However, it is unclear how psychiatric disorder and psychological distress relate to health care utilization. Therefore, this study explores associations between psychiatric disorder, psychological distress, and health care utilization. It was hypothesized that presence of psychiatric disorder and psychological distress was associated with increased health care utilization and costs.

Methods: The current study consisted of secondary analyses of baseline data of a larger randomized controlled trial. Two hundred forty-five mixed-cancer patients with at least mild symptoms of psychological distress (Hospital Anxiety and Depression Scale–T \geq 11) were mainly recruited via online media, participating centers and patient associations. Patients were assessed with Structured Clinical Interview for DSM-IV-TR Axis I Disorders (SCID-I) for depressive, anxiety, and/or adjustment disorder. Psychological distress was measured by the Hospital Anxiety and Depression Scale. Retrospective self-reported health care utilization in the past 3 months was collected. Associations between predictors and health care utilization in terms of incidence rate ratios (IRR) and costs per category (mental, primary, somatic, and complementary) were assessed by negative binomial, logistic, and gamma regression.

Results: Eighty-nine (36.3%) patients suffered from psychiatric disorder, which was associated with mental health care utilization (IRR = 1.63) and costs (OR = 3.11). We observed a nonsignificant trend of somatic health care utilization in patients with psychiatric disorder. Psychological distress was associated with mental health care utilization (IRR = 1.09) and costs (OR = 1.09). Psychological distress was also associated with complementary health care utilization (IRR = 1.03).

Conclusion: Psychiatric disorder and psychological distress were associated with mental health care use and costs. Psychological distress was associated with complementary health care use. Adequate assessment and referral to mental health care might prevent unnecessary health care utilization.

KEYWORDS

cancer, health care utilization, oncology, psychiatric disorder, psychological distress

1 | BACKGROUND

In 2025 and beyond, each year, 20 million people worldwide will be diagnosed with cancer.¹ Many cancer patients suffer from cancer-related mental burden, or even psychiatric disorder. A meta-analysis of psychiatric disorder in oncological and hematological settings

yielded a prevalence of 30% to 40%.² Major depressive disorders (14.9%), anxiety (10.3%), and adjustment disorders (19.4%) were most prevalent.² In addition to the mental burden, psychiatric disorder may also negatively affect somatic outcomes. Depression in cancer patients is related to a higher mortality, possibly due to smoking or reduced anticancer treatment adherence.³

In addition to psychiatric disorder, cancer-related mental burden is commonly operationalized as degree of psychological distress, which is defined as a multidimensional emotional experience that may interfere with the ability to cope with cancer and its consequences.⁴ Although psychiatric disorder and psychological distress overlap conceptually, psychological distress is self-reported and extends along a continuum.⁴ Psychological distress is also related to poorer treatment adherence⁵ and mortality.⁶

There is emerging evidence that the mental burden of cancer patients might be associated with increased health care utilization. Faller et al⁷ studied mental health care utilization in a sample of 4020 German cancer patients. Psychiatric disorder appeared to be a correlate of mental health care utilization (OR = 1.68) independently of symptoms of depression (OR = 1.04) and anxiety (OR = 1.08).⁷ In addition, administrative data of 5055 heterogeneous-cancer patients indicated that depression was associated with nonmental health care visits (OR = 1.76), emergency department visits (OR = 2.45), overnight hospitalization (OR = 1.81), and hospital readmission rates (OR = 2.03).⁸ No studies have been conducted on associations between anxiety or adjustment disorders and health care utilization in cancer patients.

Studies on psychological distress and health care utilization show similar patterns. Psychological distress was associated with mental health care utilization in a study on 1602 Swiss childhood cancer survivors. Moreover, survivors not using mental health care more often used somatic health care.⁹ In another large cross-sectional sample of 4326 heterogeneous-cancer survivors and 57 109 noncancer patients, psychological distress was associated with increased use of outpatient and inpatient hospital health care, emergency health care, and prescription medication.¹⁰

Moreover, use of complementary and alternative care in cancer patients has long been recognized.^{11,12} Previous studies have demonstrated associations between psychological distress symptoms and use of complementary health care services,^{13,14} although evidence for this association is mixed.¹⁵

Thus, evidence suggests that both psychiatric disorder and psychological distress are associated with health care utilization in cancer patients. However, it is unclear how psychiatric disorder and psychological distress are associated with utilization of health care other than mental health care.

Therefore, the aim of this study was to provide a descriptive account of the associations between psychiatric disorder, psychological distress, and mental, primary, somatic, and complementary health care utilization. It was hypothesized that both psychiatric disorder and psychological distress would be associated with increased health care utilization and increased health care costs.

2 | METHODS

2.1 | Patients and procedure

This study was a secondary analysis of a multisite randomized controlled trial examining group- and internet-based mindfulness-based cognitive therapy versus treatment as usual for distressed cancer patients.¹⁶ The current study uses the baseline data prior to randomization. Eligibility criteria for the randomized controlled trial were (1)

(history of) diagnosis of cancer, all types; (2) a score of ≥ 11 on the Hospital Anxiety and Depression Scale (HADS); (3) command of the Dutch language; (4) computer literacy; and (5) stable on psychotropic medication for 3 months. Exclusion criteria were (1) severe psychiatric morbidity and (2) (previous) participation in a mindfulness-based intervention. Patients were recruited between April 2014 and December 2015 (see Table 1 for recruitment details). After positive screening, exclusion criteria were assessed via telephone, and patients were invited for a baseline interview. The study was approved by the local ethics committee (CMO Arnhem-Nijmegen 2013/542).

2.2 | Assessments

2.2.1 | Demographic and clinical information

Demographic and clinical information included gender, date of birth, marital status, children and level of education, type of cancer diagnosis, anticancer treatment intent (curative/palliative), and current active anticancer treatment. When patients were unsure about their anticancer treatment intent, the researchers sought advice from a consultant oncologist.

2.2.2 | Psychiatric disorder

Presence of psychiatric disorder was assessed by the SCID-I,¹⁷ which is a semistructured psychiatric interview for DSM-IV-TR Axis I disorders. In this study, the sections on current and past depressive disorder, current anxiety disorder, and current adjustment disorder were used. The SCID-I was administered by trained interviewers (F.C. and 2 research assistants). Two psychiatrists (E.B. and A.S.) and one psychologist (M.L.) supervised the administration of the SCID-I interviews and double-rated ($n = 97$) of the audiotapes. Double-rated interviews were discussed together. The opinion of the supervisor was leading.

2.2.3 | Psychological distress

Psychological distress was measured by the HADS, a 14-item self-report scale that was originally developed to screen for anxiety and depression in medical outpatient clinics.¹⁸ Internal consistency as measured by Cronbach α was .87 in the current sample. HADS-T has 7-item depression (HADS-D, $\alpha = .84$) and anxiety (HADS-A, $\alpha = .80$) subscales. The threshold of ≥ 11 corresponds to the threshold for screening for mental disorder in cancer patients.¹⁹ Although the subscales of the HADS do not provide a good separation between anxiety and depression,²⁰ we chose to explore the original subscales keeping aforementioned limitations in mind.

2.2.4 | Health care utilization

The Trimbos/iMTA questionnaire for Costs associated with Psychiatric illnesses (TiC-P)²¹ generates retrospective self-reported quantitative data about health care utilization (type of health care, its duration, and medication use). The recommended retrospective time horizon of 3 months was used. Health care utilization was operationalized as counts of visits across 4 categories: (1) mental health care including visits to social workers, psychologists, and psychiatrists; (2) primary health care including visits to general practitioners, occupational

TABLE 1 Baseline sociodemographic and clinical characteristics (n = 245)

Characteristic		%
Gender		
Female	210	85.7
Male	35	14.3
Age in years		
Mean	51.7	
SD	10.7	
Married/in a relationship		
Yes	202	82.4
No	43	17.6
Children		
No	76	31.0
Yes	169	69.0
Education		
High	166	67.8
Middle	77	31.4
Low	2	0.8
Diagnosis		
Breast cancer	151	61.6
Gynecological cancer	18	7.3
Prostate cancer	16	6.5
Colon cancer	12	4.9
Non-Hodgkin lymphoma	11	4.5
Skin cancer	5	2.0
Thyroid cancer	4	1.6
Bladder cancer	4	1.6
Neuroendocrine tumor	4	1.6
Other	20	8.2
Time since diagnosis in years		
Mean	3.5	
SD	4.7	
Anticancer treatment intent		
Curative	206	84.1
Palliative	39	15.9
Current anticancer treatment		
None	133	54.2
Hormone therapy	79	32.2
Combination of treatments	12	4.9
Immunotherapy	9	3.7
Radiotherapy	8	3.3
Chemotherapy	4	1.6
Psychiatric disorder		
All	89	36.3
Depressive	42	17.1
Anxiety	27	11.0
Adjustment	20	8.2
Psychological distress (HADS)		
Total	17.7	6.6
Depression	8.2	3.8
Anxiety	9.4	3.7
Recruited via		
Online media (social media, website)	66	26.9

(Continues)

TABLE 1 (Continued)

Characteristic		%
Patient associations	43	17.6
Participating mental health care centers	41	16.7
Offline media (advertorials, leaflets)	27	11.0
Attended by next-of-kin	27	11.0
Health care providers	23	9.4
Unknown/could not remember	18	7.3

Abbreviation: HADS, Hospital Anxiety and Depression Scale.

physicians, and physical and occupational therapists; (3) somatic health care including visits to medical outpatient clinics, emergency department, day health care units, and overnight hospital stays. The costs analyses in the somatic health care category also included prescription medication costs; (4) complementary health care utilization including visits to homeopaths, acupuncturists, traditional Chinese medicine, and massage therapists. These categories were chosen on basis of type of health care (mental vs somatic), the distinction between primary and secondary health care, and insurance coverage (complementary health care is mostly out-of-pocket).

2.2.5 | Health care costs

Cost estimates were derived from the Dutch reference manual for health care prices²² and the Dutch website for national tariffs of prescription medications (<https://www.medicijnkosten.nl>). Cost estimates for dieticians and complementary health care providers were provided by their professional associations.

2.2.6 | Data analysis

Statistical analyses were run in IBM SPSS Statistics version 24. Patients with and without psychiatric disorder were tested for differences on clinical and demographical variables using *t* test and chi-square tests. The data structurally demonstrated variances surpassing means (overdispersion). Negative binomial regression was used to evaluate the association of psychiatric disorder (depressive, anxiety, and adjustment vs no disorder) and psychological distress with health care utilization in terms of incidence rate ratios (IRR) per category. Negative binomial regression provides regression coefficients, which denote differences in logs of expected counts per unit change in the predictor variable. Exponentiation of these regression coefficients gives the IRR (eg, incidence rate ratio of health care utilization in the past 3 months per unit increase in the predictor). The difference of 2 logs is equal to the log of their quotient, and therefore, we can interpret the parameter estimate as the log of the ratio of expected counts. This explains the "ratio" in IRR. In addition, what is referred to as a count is technically a rate.

It is known that mental burden and health care utilization are associated with gender,^{23,24} age,^{25,26} cancer severity,^{27,28} and being under cancer treatment.²⁸ Therefore, these possible confounders were included as covariates. In addition, this model specification also provided the best goodness-of-fit statistics (lowest AIC/BIC):

$$\begin{aligned}
 g(\mu) &= \log(\mu) = \alpha + \beta_1 Ps.Distress/Ps.Disorder_1 + \beta_2 Gender_2 \beta_3 Age_3 \\
 &\quad + \beta_4 AnticancerTreatmentIntent_4 \\
 &\quad + \beta_5 CurrentActiveAnticancerTreatment_5 \\
 \Rightarrow \mu &= e^{\alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5} \\
 &= e^{x'\beta} \quad (x' = [1 \ X_1 \ X_2 \ X_3 \ X_4 \ X_5])
 \end{aligned}$$

The health care utilization cost data were nonnegative and displayed positive skew. Therefore, the health care utilization outcome data in costs in Euros were analyzed by means of a 2-part modeling strategy²⁹ using (1) logistic regression to assess whether psychiatric disorder/psychological distress was associated with whether or not patients had costs per category and (2) if patients had costs, gamma regression with a log link function to assess whether psychiatric disorder/psychological distress were associated with amount of costs. There were no missing data. We did not exclude outliers.

3 | RESULTS

In total, 532 patients were screened (see Figure S1), after which 98 (18.4%) were excluded. After telephone assessment of 434 patients, another 141 (32.5%) were excluded or refused participation. Of the remaining 293 patients, 48 (16.4%) refused participation. In total, 245 patients were randomized (see Table 1), and their baseline data were included in the current study.

There was considerable variability in tumor types, although the majority had breast cancer ($n = 151$, 61.6%). About one-third (36.3%) suffered from psychiatric disorder. Five (2.0%) patients suffered from a concurrent depressive and anxiety disorder. Of the 5 patients with concurrent anxiety disorders, only one patient had a main, cancer-related diagnosis. The other 4 anxiety disorders were social phobia ($n = 2$) and specific phobia ($n = 2$). These patients were therefore included in the depressive disorder-category only. Average HADS-T was 17.6 (SD = 6.6). Patients with and without psychiatric disorder did not differ significantly on clinical and demographical variables (all P values > .05, see Table S1). Table 2 provides descriptive statistics on overall health care utilization per category.

Patients with psychiatric disorder were significantly more likely to use mental health care (see Table 3) and had more mental health care costs (see Table 4), even although almost half ($n = 38$, 42.7%) did not use mental health care. Moreover, patients with psychiatric disorder demonstrated a nonsignificant trend towards enhanced use of somatic health care. No such trend was found for somatic health care costs. Patients with psychiatric disorder were not more likely to use primary and complementary health care. Considering specific disorders, we

only found a significant associations between depression and adjustment disorder and mental health care use but no association with costs.

Patients with higher psychological distress were more likely to report having utilized mental health care (see Table 3) and had higher mental health care costs (see Table 4). Moreover, higher psychological distress was associated with more complementary health care visits, but not with more costs. Higher psychological distress was not associated with more visits to primary or somatic health care, although patients with higher psychological distress did have higher primary health care-related costs. In the analyses separating the depression and anxiety subscales, patients with more depressive symptoms were more likely to visit mental and primary health care. Patients with more anxiety symptoms were more likely to visit mental and complementary health care. Higher scores on either subscale were not associated with somatic or complementary health care costs.

4 | DISCUSSION

This study explored how psychiatric disorder and psychological distress are associated with health care utilization and costs. Patients with psychiatric disorder, most notably depressive and adjustment disorder, were more likely to visit mental health care and have more mental health care costs. Patients with psychiatric disorder also demonstrated a nonsignificant trend towards enhanced use of somatic health care. Furthermore, patients with higher psychological distress were more likely to report having utilized mental and complementary health care and were more likely to demonstrate mental health care-related costs.

Although the percentage of patients with psychiatric disorder having received mental health care was higher than reported previously (57.3 vs 43.6⁸), about half of patients with psychiatric disorder did not use mental health care. This is in line with research demonstrating that there is no one-on-one relationship between positive screen for psychological distress and subsequent wish for or use of mental health care.³⁰ For example, distressed patients could also choose to rely on family or prefer to not talk about it.³⁰ Moreover, lack of organizational and therapeutic integration of psycho-oncological services in routine oncology care is a known barrier to using psychological services.³¹ Ideally, mental health care professionals inform and support patients in making a conscious decision on their psychological needs and wishes.³²

Patients with psychiatric disorder demonstrated a nonsignificant trend towards more use of somatic health care. A previous study found

TABLE 2 Descriptives on health care utilization in the past 3 months: counts and costs (in Euros) per category ($n = 245$)

	Measure	Mental	Primary	Somatic	Complementary
Counts	1 > visits: n	106	216	214	71
	1 > visits: %	43.3	88.2	87.3	29.0
	Mean	2.00	7.22	6.51	1.07
	SD	3.56	7.98	8.30	2.35
	Range	0-30	0-48	0-46	0-20
Costs	Mean	121.27	280.51	810.79	66.58
	SD	221.01	403.27	1333.88	147.06
	Range	0-1466	0-4604	0-12925	0-1250

TABLE 3 Incidence rate ratios (IRR) of health care utilization per independent variable and health care utilization category (n = 245)

		Mental Health Care Utilization IRR (95% CI)	Primary Health Care Utilization IRR (95% CI)	Somatic Health Care Utilization IRR (95% CI)	Complementary Health Care Utilization IRR (95% CI)
Psychiatric disorder (yes/no)	All	1.63 (1.18-2.25)**	0.93 (0.70-1.23)	1.30 (0.98-1.72)	1.18 (0.81-1.71)
	Depressive	1.71 (1.11-2.62)*	1.01 (0.70-1.46)	1.34 (0.92-1.95)	1.25 (0.78-2.01)
	Anxiety	1.43 (0.86-2.37)	0.80 (0.51-1.26)	1.35 (0.87-2.11)	1.15 (0.63-2.10)
	Adjustment	1.77 (1.00-3.10)*	0.97 (0.59-1.61)	1.15 (0.70-1.91)	1.48 (0.77-2.83)
Psychological distress (per point increase)	Total	1.09 (1.06-1.12)**	1.02 (1.00-1.04)	1.00 (0.98-1.03)	1.03 (1.00-1.06)*
	Depression	1.14 (1.09-1.19)**	1.04 (1.00-1.08)*	1.03 (0.99-1.07)	1.04 (0.99-1.10)
	Anxiety	1.12 (1.07-1.18)**	1.02 (0.98-1.06)	0.98 (0.94-1.02)	1.06 (1.01-1.11)*

Nonsignificant results at $P > .05$ are in bold.

* $P < .05$.

** $P < .01$.

associations between depression and somatic health care utilization.⁸ Patients with depression are perhaps more likely to somatize, amplify their symptoms, and be more aware of bodily sensations, rendering them more likely to seek help in nonmental health care.³³ Psychiatric disorder was not associated with more costs. The present use of reference data on health care costs might have resulted in a too crude approximation of actual health care costs. Bottom-up micro-costing endeavors, aiming to determine every cost item involved of a specific health care procedure, could have translated into cost data more sensitive to presence of psychiatric disorder.

Both patients with depression and adjustment disorder showed increased mental health care utilization. Patients with anxiety disorder did not. Feelings of anxiety might be normalized in context of cancer, so anxiety disorder is often overlooked by health care providers.³⁴ Furthermore, although patients with adjustment disorder demonstrated more mental health care-related visits, only anxiety disorder was associated with increased mental health care-related costs. Most likely, this inconsistent finding is caused by analytical differences between the count and cost data. Furthermore, separate diagnoses of depression, anxiety, and adjustment disorder were unrelated with visits or costs in primary, somatic, or complementary health care. However, the separate analyses of specific disorders had a reduced sample size, which may have led to underpowered analyses.³⁵

Psychological distress appeared to be associated with visits to mental and complementary health care. The finding that complementary health care use was related to psychological distress, mainly anxiety symptoms, reflects earlier findings.^{13,14} In our sample, 29% of the cancer patients appeared to use complementary health care even though this is often not fully reimbursed by health care insurance in the Netherlands. Although psychological distress was associated with complementary health care utilization, the majority (56.3%) using complementary health care did so without simultaneously consulting a mental health care professional. Patients resorting to complementary care might fear the stigma of mental health care, or they might prefer complementary approaches to improve their mental well-being. Some have argued that complementary health care use in distressed cancer patients is a sign of a lack of integration of psycho-oncological services.³⁶ This reiterates the point that mental health care professionals should be available to facilitate cancer patients to make a conscious choice whether, and how, they want to alleviate their mental burden.

The absence of an association between psychological distress and somatic health care utilization contradicts previous findings of Han et al¹⁰ that cancer survivors with severe psychological distress use more somatic health care services. A possible explanation for this difference might be that in the Netherlands, the general practitioner is the gatekeeper to somatic health care and might prevent somatic health care by referring cancer patients to mental health services instead. Supporting this explanation, tentative results indicate an association between depressive symptoms and primary health care visits.

Future studies should substantiate the association between psychiatric disorders and somatic health care utilization to determine whether appropriate referral to mental health care in cancer patients possibly contributes to decreased utilization of somatic health care. Furthermore, more research is needed on the nature, outcomes, and costs of complementary health care use. For some patients, referral to professionals offering evidence-based mental health care might be a better option than letting them seek their refuge with complementary health care providers offering less appropriate interventions.

4.1 | Study limitations

Our study sample was selective: self-referred, at least mildly distressed and interested in a mindfulness-based intervention. Moreover, the large majority of our patients were highly educated, female, Caucasian, had breast cancer, and were treated with curative intent, so our sample was relatively homogenous. Although we cannot extrapolate our findings to all Dutch distressed cancer patients, these characteristics are in concordance with characteristics of cancer patients receiving psychosocial health care in the Netherlands.³⁷ Due to the cross-sectional nature of the data, we cannot rule out alternative explanations such as the possibility that increased health care utilization could increase mental burden.

Ideally, we would have used medical chart data of both primary health care and/or hospitals to check the reliability of the clinical and self-reported health care utilization data. We did not have access to data on cancer stages and comorbid medical conditions. Moreover, self-reported health care utilization data are most likely less reliable. Therefore, all health care utilization data were gathered using an interview-based format and filled out together with a researcher to ensure reporting accuracy and completeness. Nevertheless, it remains possible that self-reported health care utilization was affected by

TABLE 4 Odds ratios (OR) of presence of health care utilization costs in logistic regression and exponentiated coefficients in gamma regression on amount of costs (n = 245)

	Mental Health Care Costs		Primary Health Care Costs		Somatic Health Care Costs		Complementary Health Care Costs	
	Logistic OR (95% CI)	Gamma β (95% CI)	Logistic OR (95% CI)	Gamma β (95% CI)	Logistic OR (95% CI)	Gamma β (95% CI)	Logistic OR (95% CI)	Gamma β (95% CI)
Psychiatric disorder (yes/no)								
All	3.11** (1.76-5.51)	0.97 (0.71-1.33)	1.23 (0.52-2.86)	1.08 (0.84-1.40)	65 057 390.69 (0.00-0.00)	0.90 (0.66-1.22)	1.12 (0.63-1.99)	0.84 (0.59-1.20)
Depressive	3.44** (1.56-7.12)	1.16 (0.77-1.73)	0.98 (0.34-2.88)	1.01 (0.72-1.40)	67 667 798.49 (0.00-0.00)	1.00 (0.67-1.51)	1.46 (0.69-3.11)	0.89 (0.59-1.34)
Anxiety	3.92** (1.58-9.73)	1.02 (0.67-1.55)	1.83 (0.39-8.65)	1.34 (0.90-1.99)	67 593 484.23 (0.00-0.00)	0.81 (0.50-1.33)	0.78 (0.29-2.11)	0.77 (0.44-1.35)
Adjustment	2.05 (0.75-5.56)	0.75 (0.44-1.26)	1.25 (0.26-6.00)	0.94 (0.58-1.51)	55 314 787.50 (0.00-0.00)	0.90 (0.44-1.26)	1.28 (0.47-3.48)	0.73 (0.41-1.27)
Psychological distress (per point increase)								
Total	1.09** (1.04-1.14)	1.04** (1.01-1.07)	1.03 (0.97-1.10)	1.02 (1.00-1.04)	1.10 (0.96-1.26)	1.00 (0.97-1.02)	1.04 (0.98-1.07)	1.01 (0.99-1.04)
Depression	1.16** (1.07-1.25)	1.02 (0.98-1.06)	1.08 (0.97-1.20)	1.04* (1.00-1.07)	1.22 (0.95-1.57)	1.02 (0.98-1.06)	1.04 (0.97-1.13)	1.01 (0.96-1.06)
Anxiety	1.11** (1.03-1.20)	1.11** (1.05-1.16)	1.02 (0.91-1.14)	1.02 (0.98-1.06)	1.12 (0.89-1.42)	0.97 (0.96-0.99)	1.04 (0.96-1.12)	1.03 (0.99-1.08)

Nonsignificant results at $P > .05$ are in bold.* $P < .05$.** $P < .01$.

psychiatric disorder, as it is known that depressive disorder affects memory functions.³⁸

Lastly, limitations inherent to the explorative nature and research questions of the current study should be mentioned: Performing multiple testing without adjustment may have resulted in chance findings and psychiatric disorder and psychological distress were not compared head-to-head against each other.

4.2 | Clinical implications

Notwithstanding the limitations, the results of our study suggest that there is room for improvement in terms of mental health care for cancer patients. A large proportion of cancer patients remains under the radar of mental health care. Patients scoring above the cut-off for psychiatric disorder should be offered further psychiatric diagnostics. Ideally, multiple methods are available to identify psychological needs of cancer patients,³² and mental health care professionals gauge patients' needs and wishes. They can support patients in making a conscious choice to rely on family, refrain from seeking (regular) help, or to participate in evidence-based treatment such as cognitive behavioral therapy³⁹ or mindfulness-based interventions.⁴⁰

5 | CONCLUSION

This study explored how psychiatric disorder and psychological distress are associated with health care utilization and costs. Patients with psychiatric disorder were more likely to visit mental health care and have more mental health care costs. Furthermore, patients with higher psychological distress were more likely to report having utilized mental and complementary health care and were more likely to demonstrate mental health care-related costs. Appropriate referral of cancer patients who are both in need of and receptive to psychological treatment could result not only in improved well-being of cancer patients but also in a reduction of nonmental health care utilization.

ACKNOWLEDGEMENTS

This research is funded by a Pink Ribbon grant (2012.WO14.C153) awarded to Prof Dr Speckens and Dr Van der Lee. Compen and Bisseling are grateful to research assistants Eva Witteveen and Heidi Willemsse for their support in conducting the assessments.

CONFLICT OF INTEREST

The authors declare they have no competing interests.

AUTHOR CONTRIBUTIONS

A.S. and M.L. are the principal investigators who designed the study. F. C. and E.B. contributed to the design. F.C. and E.B. were involved in data collection, and F.C. conducted the analyses. F.C. drafted this paper, which was modified and supplemented by E.B., A.S., E.A., and M.L. All authors read and approved the final manuscript.

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How to cite this article: Compén FR, Adang EMM, Bisseling EM, Van der Lee ML, Speckens AEM. Exploring associations between psychiatric disorder, psychological distress, and health care utilization in cancer patients. *Psycho-Oncology*. 2018;1-8. <https://doi.org/10.1002/pon.4591>

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