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The Physical and Psychosocial Experiences of Patients Attending an Outpatient Medical

Oncology Department: A Cross-sectional Study.

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Abstract

Objective: To assess the prevalence and predictors of physical symptoms, anxiety, depression and perceived needs among patients receiving treatment at an outpatient medical oncology department.

Design: Cross-sectional survey.

Setting: The outpatient clinic of an academic medical oncology department, which sees approximately 150 to 180 outpatients each week.

Subjects: 201 patients attending the outpatient clinic.

Outcome Measures: Patients answered questions to assess their levels of anxiety and depression (Hospital Anxiety and Depression Scale), perceived needs (Cancer Needs Questionnaire) and the frequency and severity of 15 physical symptoms.

Results: Fatigue, nausea, appetite loss and vomiting were the most commonly experienced and most debilitating physical symptoms. Approximately one quarter of participants had borderline or clinical levels of anxiety and depression. Although relatively low levels of perceived needs were reported, physical and psychological needs were the most common. Levels of each outcome measure tended to be predictive of each other.

Conclusions: Medical oncology outpatients experience a wide range of physical and psychosocial problems which appear, to some extent, inter-related.

Keywords: neoplasms, medical oncology, anxiety, depression, perceived needs, physical symptoms.

Introduction

Cancer is a major cause of mortality and morbidity throughout the world: approximately 9 million new cases are diagnosed and 5 million people die from cancer annually (Koroltchouk, 1994). Most cancer patients now undergo a combination of effective but, nonetheless, traumatic treatments, including surgical removal of the cancer, radiation therapy, chemotherapy and hormonal therapies (Isselbacher et al. 1994). While these treatments have the potential to cure some cancers and to prolong the lives of patients suffering others, they are associated with multiple physical and psychosocial problems. Chemotherapy, for example, is associated with physical symptoms as diverse as fatigue, nausea, vomiting, hair loss, appetite loss, diarrhoea, constipation, difficulty sleeping, pain, fluctuations in weight and amenorrhoea (Munkres et al. 1992; Nail et al. 1991; Nerenz et al. 1982; Youngblood et al. 1994). In addition, studies suggest that up to 91% of patients receiving chemotherapy experience elevated levels of anxiety and that up to 61% experience depression (Carroll et al. 1993; Jacobsen et al. 1993; Nerenz et al. 1982). Furthermore, many aspects of patients' quality of life are also diminished: their physical and work activities are reduced, their social activities are disrupted, family and other relationships frequently deteriorate, their level of sexual activity decreases and they often find themselves under increasing financial burdens (Gilbar, 1991; Meyerowitz et al. 1983).

While both cancer specialists and patients may accept such problems as an inevitable part of the disease and treatment (Dodd, 1982; Rhodes and Watson, 1987), they can have a substantial impact on patients' compliance and outcomes: it has been estimated that up to one third of patients will abandon chemotherapy prematurely as a result of these symptoms, despite the potentially life-threatening consequences of such an action (Shapiro, 1987). Therefore, it is important for cancer specialists to be aware of the prevalence of such problems among their patients and of which patients are most likely to experience them. Such knowledge may assist them in the prevention or treatment of such problems.

The above literature describes widely varying levels of physical and psychosocial problems among medical oncology patients. This is largely because many of the previous studies have included homogenous group of patients, based on cancer sites or treatment regimens (Jacobsen et al. 1993; Meyerowitz et al. 1983; Nerenz et al. 1982). While such studies can provide detailed information about the patient group studied, given the extensive range of cancers, drugs and treatment regimes, such an approach would require medical oncologists to keep abreast of a large amount of literature.

Fewer studies have assessed the impact of chemotherapy across the range of patients attending a medical oncology department and those that were found tended to be limited in their generalisability by small sample sizes (less than 50 patients) and/or the use of convenience samples (Munkres et al. 1992; Nail et al. 1991; Youngblood et al. 1994). One large-scale study explored rates of post-treatment nausea and vomiting among cancer patients receiving a variety of drugs known to be emetogenic (Rhodes et al. 1995). This study found that just over half of all patients receiving these drugs experienced both nausea and vomiting. However, as not all chemotherapy drugs were included, it remains difficult to generalise these findings across all patients.

Therefore, we conducted a cross-sectional study of the prevalence and predictors of physical symptoms, anxiety, depression and perceived needs among patients attending an outpatient medical oncology department.

Method

Setting

This study was conducted in the outpatient clinic of an academic medical oncology department, which sees between 150 and 180 outpatients each week. Approximately half of these patients are currently receiving treatment, including about 15 new patients per week and the other half are attending for follow-up visits, having completed their course of treatment.

Subjects and Procedure

Consecutive, eligible adult patients attending the outpatient medical oncology department for a second or subsequent treatment visit were asked to participate in the study. Patients were considered ineligible for the study if they had insufficient English language skills to understand the survey or if their oncologist considered them too sick or distressed to participate. First visit patients were not approached as they had not yet received any treatment and were more likely to be emotionally distressed.

Eligible patients were approached by a research assistant who explained the study and sought patients' consent to participate. Consenting patients completed a 15 minute survey about their current physical and psychosocial experiences on a touchscreen computer, while waiting to see their oncologist. If patients were called to see their oncologist while completing the survey, they could stop the survey, have their consultation and then return to where they stopped the survey. If participants did not return to complete the survey after their consultation, the computer recorded all the remaining questions as missing after a 24 hour period had elapsed.

In order to estimate the prevalence of participants' problems with 95% confidence intervals of maximum width $\pm 7\%$, a sample of 200 participants was required. As a maximum of 100 patients were ever in current treatment in this department and only a small number of new patients were seen each week, participants were recruited during one initial two-week period and

two subsequent one-week periods over six months. Participants attending more than once during the study periods were surveyed only once.

The Survey

The survey included questions grouped into the following 5 domains:

1. **Demographic characteristics** - including gender, age, marital status, educational level, employment status and the distance travelled to the medical oncology department.
2. **Cancer descriptors** - including the site of the primary cancer, the length of time since the original diagnosis and the method of administration of their treatment.
3. **Symptoms** - including if & on how many days, in the week preceding data collection, participants had experienced each of 15 physical symptoms associated with chemotherapy or hormone therapy. For each symptom reported, participants were asked to what extent (not at all, a little or a lot) the severity of the symptom had prevented them from engaging in their usual daily activities. The physical symptoms to be included were determined by collaborating with the participating medical oncologists to identify all the likely side effects of the drugs used in that department.
4. **Anxiety and depression levels** - were assessed using the Hospital Anxiety and Depression Scale (HADS), which contains 7 questions each about anxiety and depression, giving a score between 0 and 21 for each variable and classifying participants' anxiety and depression levels as low (0 - 7), borderline (8 - 10) or clinical (11 - 21) (Zigmond and Snaith, 1983). This instrument, which was developed with a general medical outpatient population, has been validated with cancer patients (Hopwood et al. 1991; Ibbotson et al. 1994; Moorey et al. 1991).
5. **Perceived needs** - were assessed using the psychometrically-tested short form Cancer Needs Questionnaire (CNQ), which contains 29 items to measure participants' perceived needs

within five domains: psychological, health information, provider care and support, physical and daily living and interpersonal communication needs (Lattimore-Foot, 1996). For each item, participants indicate whether they currently are not experiencing the need, are having their need met or have a low, moderate or high need for help with the item.

In addition, information about each participant's stage of disease at diagnosis, their current drugs and treatment regimen was obtained from their medical records. Non-consenting patients were asked their age, gender and cancer site.

Analyses

The prevalence of elevated levels of anxiety, depression and perceived needs and of each physical symptom were calculated, along with their corresponding 95% confidence intervals. A number of potential predictor variables were also investigated in relation to each of these outcome measures. To do this, each outcome measure was dichotomised as follows: low versus borderline or clinical anxiety level; low versus borderline or clinical depression level; any versus no moderate-high level needs reported; and three or less versus four or more physical symptoms reported.

The predictor variables explored were participants' age (less than 50 years versus 50+ years), gender (male versus female), marital status (single, separated, divorced or widowed versus married or defacto), education level (not completed high school versus high school or above), residence during treatment (at home versus away from home), time taken to travel to the clinic (up to one hour versus more than one hour), level of home support (none or some versus lots or everything done for them), primary cancer site (breast versus colorectal versus all others), time since initial diagnosis (up to six months versus more than six months), previous treatments for the cancer (none versus any), recency of their last treatment (in the last two weeks versus more than two weeks prior), stage of disease at diagnosis (stage 1 or 2 versus stage 3 or 4), frequency

of treatment regimen (weekly or fortnightly versus three-weekly versus monthly or six-weekly) and whether or not participants were receiving each of the six most frequently prescribed drugs: fluorouracil, cyclophosphamide, leucovorin, methotrexate, doxorubicin and carboplatin. Each dichotomised outcome measure was also included as a potential predictor variable for the other outcome measures.

Chi square analyses were conducted to assess whether each potential predictor variable was associated with elevated levels of each outcome measure. Continuity-adjusted chi square analyses were conducted for the 2 by 2 tables and standard chi square analyses were conducted for the larger tables. Predictor variables showing an association with each outcome measure at the $p \leq 0.2$ level were then entered into logistic regression analyses. Finally, odds ratios were calculated for those variables found to be significant by the logistic regression, to assess the magnitude of the associations.

Results

Participants' Characteristics

During the study periods, 271 treatment patients attended the outpatient medical oncology department. Of these, 30 (11%) were considered ineligible to participate in the study because they were too sick ($n=24$) or had insufficient English skills ($n=6$). Of the 241 eligible patients, 21 (9%) saw their oncologist too quickly to be approached. Of the 220 patients approached, 210 (96%) consented and 195 (89%) completed the survey. This represents a response rate of 72% of all treatment patients attending during the study periods.

For participants not completing the whole survey, any fully-completed sections (physical symptoms, anxiety, depression or perceived needs) were included in the analyses but partially-completed sections were excluded. Therefore, the denominators vary slightly between the different results sections reported.

Table 1 summarises the demographic, disease and treatment characteristics of the study participants. Non-consenters tended to be older than the consenting patients but were otherwise similar.

INSERT TABLE 1 HERE

Among the study participants: there were slightly more women than men; ages ranged between 23 and 86 years, with a median of 60 years; colorectal and breast cancers represented the most common primary sites, accounting for over 60% of all participants; the vast majority of participants received their chemotherapy intravenously; just over half the participants had been diagnosed with Stage 3 or 4 cancers; and fluorouracil, cyclophosphamide, leucovorin and methotrexate were the four most commonly prescribed drugs – usually in one of a variety of combinations.

Prevalence of Physical Symptoms

Table 2 summarises the proportion of participants reporting each physical symptom in the week preceding data collection. It also indicates the median number of days, in that week, each symptom was experienced and the proportion of sufferers for whom the symptom restricted their usual daily activities. Fatigue, nausea and hair loss were the most common symptoms; hair loss, skin rash and hot flushes were the most enduring symptoms; and fatigue, nausea and vomiting were the most debilitating symptoms. The median number of physical symptoms reported per participant was four (range = 0 - 11), from a maximum of 15.

INSERT TABLE 2 HERE

Participants were also asked how their physical symptoms during the preceding week compared overall to their average week since commencing treatment: 14% had experienced more symptoms and 19% less symptoms than usual.

Table 3 illustrates the variation in physical symptoms in relation to the length of time since participants' previous treatment. As expected, chi square analyses indicated that levels of fatigue, nausea and vomiting were all significantly more prevalent among participants having received treatment more recently. Although not statistically significant, similar trends were apparent for most of the other physical symptoms. On the other hand, symptoms of delayed toxicity, such as hair loss, hot flushes, menstrual changes and susceptibility to other illnesses were more prevalent among participants having received their last treatment more than two weeks prior: however, none of these differences was statistically significant.

INSERT TABLE 3 HERE

Prevalence of Anxiety and Depression

As shown in Table 4, 13% of participants had borderline levels and 11% clinical levels of anxiety. Rates of depression were similar: 15% scored at borderline and 8% at clinical levels. The median anxiety score was four points (range = 0 - 20) and the median depression score was three points (range = 0 - 20), both from a maximum of 21 points.

INSERT TABLE 4 HERE

Prevalence of Perceived Needs

Approximately two thirds of participants reported no moderate or high level needs. The physical and psychological domains showed the greatest levels of need for help: 30% and 23% of participants, respectively, reported some need in these areas. Only 11%, 4% and 2% of participants reported any needs in the health information, provider care and interpersonal communication domains, respectively.

Table 5 lists the 10 items where the highest proportions of moderate-high level needs were reported: all of these items belonged to either the physical or psychological domains.

INSERT TABLE 5 HERE

Predictors of Physical and Psychosocial Symptoms

Table 6 summarises the potential predictor variables identified by the chi square analyses at the $p \leq 0.02$ level: there were six potential predictor variables for elevated anxiety levels, 10 for elevated depression levels, nine for having four or more physical symptoms and 10 for having moderate-high level needs.

INSERT TABLE 6 HERE

Table 7 shows those variables found to be predictors of each outcome measure in the logistic regression analyses and their associated odds ratios, with 95% confidence intervals.

INSERT TABLE 7 HERE

In summary, levels of anxiety, depression, physical symptoms and perceived needs appeared inter-related: participants reporting four or more physical symptoms were much more likely to have elevated anxiety and depression levels than those reporting three or less symptoms; participants with elevated depression levels were much more likely to have elevated anxiety levels and to report four or more physical symptoms and moderate-high level perceived needs than those with low depression levels; participants with elevated anxiety levels were more likely to report four or more physical symptoms than those with low anxiety levels; and participants reporting moderate-high level perceived needs were much more likely to have elevated depression levels than those with no such needs.

Of the other potential predictor variables explored, 3-weekly treatment regimes were predictive of lower levels of depression but higher levels of perceived needs; more home support and not receiving fluorouracil were both predictive of elevated levels of depression; not having a

spouse, having received treatment in the last two weeks and receiving adriamycin were all predictive of reporting more physical symptoms; and being female was predictive of higher levels of perceived needs.

Discussion

This study aimed to assess the prevalence and predictors of physical and psychosocial problems among patients attending an outpatient medical oncology department for treatment. The results suggest that these patients experienced a wide range of these problems.

Physical Symptoms

The levels of physical symptoms found were mostly consistent with previous similar studies (Munkres et al. 1992; Musci and Dodd, 1990; Nail et al. 1991; Youngblood et al. 1994). However, vomiting was reported less frequently than in previous studies: only 15% of participants in this study compared to 26-62% in previous studies (Musci and Dodd, 1990; Nail et al. 1991; Youngblood et al. 1994). This could be due to improvements in anti-emetic therapy or to a longer interval between patients' last treatment and interview in this study, although many previous studies did not indicate the interval between treatment and survey.

Participants experiencing high levels of physical symptoms were much more likely to have elevated, as opposed to low, levels of anxiety and depression and to report some, as opposed to no, moderate-high level perceived needs. Although a causal relationship can not be established, this suggests some inter-relation between these problems. Therefore, managing one of these problems could result in improvements in the others.

Of the six most commonly-used drugs, only adriamycin was predictive of the overall level of physical symptoms experienced. There were trends for some drugs to be associated with individual physical symptoms but the numbers of participants receiving each drug were too

small for any of these to reach statistical significance. However, this was not a primary aim of this study and, as discussed earlier, numerous studies have investigated the symptoms associated with individual drugs (Glimelius et al. 1994; Meyerowitz et al. 1983).

Anxiety and Depression

Our findings of 24% of patients classified as having borderline or clinical anxiety and 23% with borderline or clinical depression are fairly consistent with the results of a previous study using the HADS with outpatients (Carroll et al. 1993) but somewhat lower than the other previous studies, which have involved inpatients or only those with advanced disease (Carroll et al. 1993; Hopwood et al. 1991; Payne, 1989).

As discussed earlier, elevated levels of the other outcome measures were predictive of elevated levels of anxiety and depression. More surprisingly, having lots of support at home was also predictive of elevated levels of depression. It is possible that the high level of support increased these patients' perceptions of dependency and lack of autonomy.

Perceived Needs

The levels and types of perceived needs reported by participants in this study were considerably lower than those previously reported (Foot and Sanson-Fisher, 1995). Furthermore, the top ten need items in the current study were all from the physical and psychological domains, whereas the previous study found the highest levels of need in the health information domain (Foot and Sanson-Fisher, 1995).

It is possible that the quality of care provided to cancer patients, especially the quality of health information, has improved since the previous study was conducted in the early 1990s. However, the extreme improvements required to produce such a large reduction in perceived needs make it unlikely that this is sufficient explanation of these findings.

The previous study reported an over-representation of female patients (Foot and Sanson-Fisher, 1995). As we found female patients were three times as likely to report moderate-high levels of perceived needs than male patients, our more gender-representative sample could account for some of the difference found.

The previous study also included patients receiving radiotherapy, whose needs may be different to those of patients receiving chemotherapy and hormone therapy (Foot and Sanson-Fisher, 1995). Finally, the previous study administered the survey as a pen and paper, take-home survey, in contrast to the computerised delivery method employed in the current study (Foot and Sanson-Fisher, 1995). Therefore, it is also possible that either the computerised delivery, the hospital setting or both have also impacted on patients' responses in this study.

Not surprisingly, elevated levels of depression were predictive of reporting moderate-high level perceived needs. Female patients were also more likely, than male patients, to report such needs, as were patients on 3-weekly treatment regimes, as opposed to more or less frequent ones. However, it is unclear whether women truly experienced higher levels of need or whether men were simply more reluctant to report their needs.

Strengths, Limitations & Future Directions

The high participation rate (72% of all patients) obtained in this study and the inclusion of all treatment patients aid the generalisability of our results. However, having data from only one centre is potentially limiting, given possible differences in the populations accessing each centre. Therefore, the research team are currently planning further data collection from other medical oncology departments in order to strengthen the current findings.

An important limitation in any study of this kind is the exclusion of patients considered too physically or mentally ill to participate. Although impossible to avoid, it is likely to result in an under-estimation of the problems experienced by patients. In this study, only 9% of patients

attending the outpatient clinic were excluded for this reason: therefore, their inclusion is unlikely to have made a substantial difference to the results. However, this should still be considered when interpreting the results of this study.

Another potential limitation of this study is the reliance on patients' self-report of their physical and psychosocial problems. Previous research has suggested that self-report may be unreliable due to its reliance on patients' memories and the possibility of social desirability bias (Sudman and Bradburn, 1974; Sudman and Bradburn, 1983). However, research has also indicated that symptoms of treatment are more accurately reported by patients themselves than by their physicians (Monahan, 1988; Morrow, 1984). Furthermore, psychometrically-evaluated scales were employed for the assessment of patients' levels of anxiety, depression and perceived needs and patients were asked about their physical symptoms in the preceding week only.

Although psychometrically tested in other settings (Foot and Sanson-Fisher, 1995; Hopwood et al. 1991; Ibbotson et al. 1994; Moorey et al. 1991), the validity and reliability of patients' responses to the HADS and CNQ questions using a touchscreen computer survey is unknown. However, another study is currently underway to explore this issue and results from computerised surveys in general practice have been found to closely reflect the results from identical pen and paper surveys (Bonevski, 1996).

A novel method of data collection was employed: the data were gathered using touchscreen computers, whereby respondents answer questions by pressing the appropriate response box on the screen of a touchscreen computer. The numerous advantages of this method of data collection are discussed in another paper, which also reports the high acceptability of the method to cancer patients in this setting (Newell et al. 1997).

Conclusions

In conclusion, this study has confirmed the wide range of physical and psychosocial problems experienced by patients receiving treatment at an outpatient medical oncology department. The routine assessment of patients' levels of symptoms, anxiety, depression and perceived needs would allow the easy detection of such problems. Given the inter-relationships between these problems, treating one group of problems, physical symptoms for example, may help reduce patients' levels of psychosocial problems.

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Table 1. The characteristics of study participants.

Characteristic	% of participants* (N=201)
<i>Gender (patient report)</i>	
Male	41
Female	59
<i>Age (patient report)</i>	
< 50 years	23
50 - 59 years	24
60 - 69 years	32
70+ years	20
<i>Primary cancer site (patient report)</i>	
Colorectal	34
Breast	27
Head/neck	7
Stomach	5
Lung	3
Other	24
<i>Stage of disease at diagnosis (extracted from records)</i>	
Stage 1	12
Stage 2	30
Stage 3	28
Stage 4	26

Characteristic	% of participants*
	(N=201)
<i>Length of time since initial diagnosis (patient report)</i>	
Up to 6 months	53
More than 6 months	47
<i>Current drugs# (extracted from records)</i>	
Fluorouracil	49
Cyclophosphamide	29
Leucovorin	24
Methotrexate	22
Doxorubicin	16
Carboplatin	10
Prednisone	9
Vincristine	8
Cisplatin	6
Mitomycin C	5
Mitoxantrone	4
Etoposide	4
Epirubicin	3
Other	18
<i>Main method of drug administration (patient report)</i>	
Intravenous	96
Oral	4

Characteristic	% of participants*
	(N=201)
<i>Last treatment session at clinic (patient report)</i>	
In last 7 days	19
1 - 2 weeks ago	17
2 - 3 weeks ago	36
More than 3 weeks ago	28

*Totals may not add to 100% due to missing data.

Totals do not add to 100% as many participants were receiving more than one drug.

Table 2. The prevalence and severity of physical symptoms experienced by patients attending an outpatient medical oncology department.

Symptom	% had in last week N = 198 (95% CI)	Median number of days experienced*	% of sufferers debilitated#
Fatigue	71 (65 - 78)	5	82
Nausea	42 (35 - 49)	3	71
Hair loss	36 (30 - 43)	7	24
Hot flushes (n=116) †	36 (28 - 45)	6½	41
Appetite loss	36 (29 - 43)	3	63
Metallic taste in mouth	33 (27 - 40)	4	29
Sore mouth	31 (24 - 37)	4	43
Menstrual changes (n=48) †	29 (16 - 42)	-	-
Constipation	26 (20 - 32)	3	52
Experienced other illness	23 (17 - 29)	-	-
Unusually prone to sunburn	23 (17 - 29)	-	-
Diarrhoea	22 (16 - 28)	2	51
Vomiting	15 (10 - 20)	2	70
Skin rash	15 (10 - 20)	7	34
Pain in injected limb (n=192) †	5 (2 - 8)	3	56

*The median was calculated from the number of days reported by participants experiencing the symptom.

Participants were considered "debilitated" if the symptom stopped them from doing things they would usually do. The denominator for each symptom was the number of participants having experienced it.

† These symptoms were asked of limited patient groups: menstrual changes of women aged under 55 years only; hot flushes of women only; and pain in the injected limb of patients having drugs injected only.

Table 3. The prevalence of physical symptoms experienced in relation to the recency of patients' last treatment.

Symptom	% reported symptom in last week	
	Treated in last 2 weeks	Treated more than 2 weeks
	N = 70	prior N = 128
Fatigue	83	65*
Nausea	53	36*
Appetite loss	41	33
Metallic taste in mouth	39	31
Sore mouth	34	29
Hot flushes#	34 (n=38)	37 (n=78)
Constipation	31	23
Hair loss	30	40
Diarrhoea	26	20
Unusually prone to sunburn	24	22
Vomiting	23	11*
Menstrual changes#	22 (n=18)	33 (n=30)
Experiencing other illnesses	21	23
Skin rash	20	12
Pain in injected limb#	9 (n=67)	2 (n=125)

* $p \leq 0.05$ - significant difference between participant groups.

These symptoms were asked of limited groups of participants: only female patients aged under 55 years were asked about menstrual changes; only female patients were asked about hot flushes; and only those receiving chemotherapy by injection were asked about pain in the injected limb.

Table 4. The anxiety and depression levels of patients attending an outpatient medical oncology department.

Sub-scale	% classified as... (95% CI) N=195
<i>Anxiety Level</i>	
Low	76 (70 – 82)
Borderline	13 (8 – 18)
Clinical	11 (6 – 15)
<i>Depression Level</i>	
Low	77 (71 – 83)
Borderline	15 (10 – 20)
Clinical	8 (4 – 12)

Table 5. The top 10 moderate-high level perceived needs among patients attending an outpatient medical oncology department.

Need for help with...	% with mod-high need (95% CI) N=198
1. * coping with keeping up with work around the home.	17 (12-22)
2. * dealing with lack of energy and tiredness.	16 (11-21)
3. # dealing with fears about the cancer spreading or returning.	12 (8-17)
4. * coping with disturbed sleep.	10 (6-14)
5. * coping with frustration at not being able to do the things you used to do.	9 (5-13)
6. # coping with fears about the pain and suffering you might experience.	9 (5-13)
7. # coping with anxiety about having treatment or surgery.	9 (5-13)
8. # working through your feelings about death and dying.	9 (5-13)
9. # coping with fears about further physical disability or deterioration.	9 (5-13)
10. # coping with an uncertain future.	8 (4-12)

*An item from the physical needs domain.

An item from the psychological needs domain.

Table 6. Potential predictor variables identified by chi square analyses.

Potential Predictor Variable	Outcome Measure			
	Borderline/clinical Anxiety	Borderline/clinical Depression	4+ Physical Symptoms	Moderate-High Level Needs
•N moderate-high level needs	Some	Some	Some	
•N high level needs	Some	Some	Some	
•N physical symptoms	4+	4+		4+
•Depression level	Borderline/clinical		Borderline/clinical	Borderline/clinical
•anxiety level		Borderline/clinical	Borderline/clinical	Borderline/clinical
•gender				Female
•marital status			No spouse/partner	No spouse/partner
•amount of support at home	Lots	Lots		Lots
•primary cancer site		Not breast or colon		
•treatment regime	More frequent	More frequent	More frequent	More frequent
•time since last treatment		2 weeks or less	2 weeks or less	2 weeks or less
•on adriamycin			Yes	
•on cyclophosphamide		No	Yes	
•on fluorouracil		No		No
•previous treatments for the cancer				Some

Table 7. Predictors of increased physical and psychosocial problems among patients attending an outpatient medical oncology department.

Predictor Variables, by Outcome Measure	Logistic Regression Results		Odds Ratio (95% CI)
	Parameter Estimate	Standard Error	
<i>Borderline/Clinical Anxiety Level</i>			
•Depression level?			
⇒ Low	-	-	
⇒ Borderline/clinical	1.348	0.387	3.8 (1.8-8.2)
•N physical symptoms?			
⇒ 3 or less	-	-	
⇒ 4 or more	1.055	0.411	2.9 (1.3-6.4)
<i>Borderline/Clinical Depression Level</i>			
•N physical symptoms?			
⇒ 3 or less	-	-	
⇒ 4 or more	2.413	0.639	11.2 (3.2-39.1)
•Frequency of treatment regime?			
⇒ Monthly/6-weekly	-	-	
⇒ 3-weekly	-2.099	0.719	0.1 (0.03-0.5)
⇒ daily/weekly/fortnightly	0.267	0.636	ns
•N moderate-high level needs?			
⇒ None	-	-	
⇒ Some	1.951	0.505	7.0 (2.6-18.9)
•On fluorouracil?			
⇒ Yes	-	-	
⇒ No	1.355	0.575	3.9 (1.3-12.0)
•Amount of support at home?			
⇒ Little/none	-	-	
⇒ Lots	1.120	0.509	3.1 (1.1-8.3)

Predictor Variables, by Outcome Measure	Logistic Regression Results		Odds Ratio (95% CI)
	Parameter Estimate	Standard Error	
4+ Physical Symptoms			
•Depression level?			
⇒ Low	-	-	
⇒ Borderline/clinical	1.353	0.463	3.9 (1.6-9.6)
•On adriamycin?			
⇒ No	-	-	
⇒ yes	1.189	0.470	3.3 (1.3-8.3)
•Anxiety level?			
⇒ Low	-	-	
⇒ Borderline/clinical	1.124	0.428	3.1 (1.3-7.1)
•Marital status?			
⇒ Married/defacto	-	-	
⇒ Single/separated/divorced/ widowed	1.098	0.389	3.0 (1.4-6.4)
•Time since last treatment?			
⇒ More than 2 weeks	-	-	
⇒ 2 weeks or less	0.962	0.361	2.6 (1.3-5.3)
Having Moderate-High Level Needs			
•Depression level?			
⇒ Low	-	-	
⇒ borderline/clinical	2.261	0.471	9.6 (3.8-24.2)
•Frequency of treatment regime?			
⇒ Monthly/6-weekly	-	-	
⇒ 3-weekly	1.375	0.457	4.0 (1.6-9.7)
⇒ daily/weekly/fortnightly	0.887	0.560	ns
•Gender?			
⇒ male	-	-	
⇒ female	1.114	0.427	3.0 (1.3-7.0)