Psychological Reactions in Newly Diagnosed Gastrointestinal Cancer Patients

Karin Nordin and Bengt Glimelius

From the Department of Oncology (K. Nordin, B. Glimelius), University Hospital, Uppsala, Sweden, and the Centre for Caring Sciences (K. Nordin), Uppsala University, Glunten, Uppsala, Sweden

Correspondence to: Dr Karin Nordin, Centre for Caring Sciences, Uppsala University, Glunten, S-751 83 Uppsala, Sweden. Tel: 46 18 4713 493. Fax: 46 18 4713 490. E-mail: Karin.nordin@ccs.uu.se

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Reactions to diagnosis, coping strategies, and anxiety and depression were prospectively studied in 139 consecutive, newly diagnosed gastrointestinal cancer patients. The reactions varied between diagnoses (colon, rectum, gastric, pancreatic and biliary) and states of illness (cured/non-cured). Colon and rectal cancer patients, most of whom were potentially cured, had a more confrontational attitude towards their diagnosis, reported more 'Fighting Spirit' and less 'Anxious Preoccupation' and 'Hopeless/Helplessness'. Non-cured patients reported higher levels of intrusive thoughts and avoidance of aversive thoughts than cured patients. The overall levels of anxiety and depression were low, although higher levels were seen for non-cured patients. On the Hospital Anxiety and Depression scale (HAD), a total of 17% were scored as 'doubtful cases' or 'cases' on the anxiety scale and 21% on the depression scale. Thus, pancreatic/biliary cancer patients, most of which are non-cured, and to some extent those with gastric cancer are more vulnerable to psychological distress in connection with the diagnosis than are colorectal cancer patients.

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The diagnosis of cancer can lead to psychological distress. The most common responses are adjustment problems, with anxiety and depression as the most prevalent (1). However, the prevalence figures for adjustment disorders in cancer patients vary greatly. Reported rates of both anxiety and depression have ranged from 5 to 50% ((2), for a review). Most assessment scales and diagnostic criteria for depression include items concerned with somatic symptoms, e.g. poor appetite, weight loss, nausea and loss of energy, which may be cancer-related symptoms or treatment effects rather than indicators of depression (3). This may be one explanation for the discrepancies across studies concerning rates of depression. Other explanations may be that the assessments have been performed at varying times after the diagnosis, thus failing to take the normal adaptation to a life-threating disease into account (4), or are based on patient selection.

Coping is generally assumed to be an important mediating factor in the relationship between stressful events and physical and psychological adaptation. Lazarus & Folkman (5) defined coping as 'constantly changing cognitive and behavioural efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person'. Watson and Greer (6) have suggested five dimensions of coping with cancer (coping styles); 'Fighting Spirit', 'Hopeless/Helplessness', 'Anxious Preoccupation', 'Fatalism' and 'Avoidance'. Several studies have reported on the relationships between coping styles and psychosocial well-being in cancer patients. 'Anxious Preoccupation', 'Fatalistic' and 'Hopeless/Helplessness' coping styles have been found to be positively related to patient anxiety and depression, while 'Fighting Spirit' has shown an inverse relation. No relationships were found for 'Avoidance' (6–8).

Gastrointestinal (GI) cancers (mainly colon, rectum, gastric, pancreatic and biliary) are common and account for almost one-third of all newly diagnosed cancers and about 40% of all cancer-related deaths in Sweden (9). The prognosis for patients with colorectal cancer is considerably better (5-year survival about 50%) than that for gastric (overall 15% 5-year survival) and particularly pancreatic and biliary cancer patients, having a 5-year survival of less than 5% (9).

The most common psychological problem in colorectal cancer patients is reported to be depression. The prevalence ranges, as in other tumour types, from about 7% to 50% (10). In studies of anxiety, the prevalence varies around 25% (11). In a study by Holland et al. (12) patients with advanced pancreatic carcinoma reported significantly more psychological distress, including both depression and

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Table 1

Patient characteristics

	All	Cured	Non-cured
n	139	65	73
Diagnosis			
Colon	37 (57% male)	29 (78%)	8
Rectum	32 (53% male)	25 (81%)	6
Gastric	32 (72% male)	11 (34%)	21
Biliary/Pancreatic	38 (26% male)	0 (0%)	38
Gender			
Female	68	26 (39%)	41
Male	71	39 (55%)	32
Medical treatment			
Surgery	93 (67%)	65	28
Time since surgery (mean weeks, range)	2.6 (0–13)	2.4 (0–13)	3 (0–9)
Radiotherapy	16 (12%)	12	4

Data concerning state of illness (cured/not cured) and treatment is missing for one female patient.

anxiety, than was reported by patients with advanced gastric cancer.

There are few studies of reactions to the diagnosis, patient coping styles and psychological well-being among GI cancer patient groups. Furthermore, there are even fewer studies that compare psychosocial variables between those who at the time of diagnosis and primary surgery can be considered potentially cured and those who can not. Knowledge about such issues can be important when considering psychological support for these patients.

The aim of this study is to give a comprehensive description of psychological distress among an unselected group of GI cancer patients in connection with the diagnosis. The following specific research questions were raised:

1. Are there differences between patients with colon, rectal, gastric, pancreatic and biliary cancer concerning reactions to the diagnosis, coping styles, anxiety and depression?
2. Are there differences in these respects between patients who have been informed about being considered cured vs. non-cured?

In order to overcome some of the limitations of previous investigations, this study was population-based, the assessments were made close to the time of diagnosis, and depression was measured by a scale not sensitive to physical signs.

MATERIAL AND METHODS

Patients

A population-based consecutive series of newly diagnosed patients with GI cancers from the Departments of Oncology and Surgery at the University Hospital and from the Departments of Surgery at the other two hospitals in the county of Uppsala were asked to participate. Patients who did not speak Swedish, had a poor performance status (Karnofsky performance status ≤ 30) or were senile or confused were excluded. Patient recruitment started in February 1993. In order to achieve a reasonably sized group of at least 30 patients with the various diagnoses, patients with colon and rectal cancer were included until April 1994, patients with gastric cancer until June 1995, and patients with pancreatic and biliary cancer until November 1995. The latter two groups have very similar natural histories (9) and were therefore grouped together.

Data on age, gender, diagnosis, time since diagnosis, treatment and if the patient was potentially cured or not (inextricable primary and/or metastatic disease) were compiled from the medical records. Mean age was 67 years, and mean weeks (range) since diagnosis were 4 (0–12) in all diagnoses and in cured/non cured subgroups. The proportion of cured patients differed between diagnoses (Table 1). Cured and non-cured patients did not differ with regard to age, time since diagnosis or gender (unpaired t-test, χ^2). Surgery is the predominant treatment in these patients, and was performed in all patients treated for cure and in a proportion of those non-cured (Table 1). Preoperative radiotherapy (5×5 Gy) had been given to some patients with rectal cancer the week prior to surgery.

Participation and compliance

Out of 176 eligible patients, 139 (79%) participated in the study. Of those who did not participate, 30 chose not to do so, 3 were hard of hearing and 4 patients were not aware of their diagnosis. The non-participants (22 patients with colorectal cancer, 10 with gastric and 5 with pancreatic/biliary cancer) were older (mean 78 years, range 51–88) than the participants (mean 67 years, range 23–89), and there were more women ($n = 24$) than men ($n = 13$) in this group.

Patients who agreed to participate were to be interviewed by the first author as soon as their physical status permitted, or within 12 weeks from diagnosis (80% were interviewed within 6 weeks and 40% within 3 weeks, for means see Table 1). Most patients (80%) were interviewed, but owing to long travel distances, some patients (20%) completed the questionnaires on their own. The study was approved by the local research ethics committee.

Measures

The interviews were based on structured questionnaires assessing reactions to the diagnosis, mental adjustment to cancer (coping), and anxiety and depression.

Reactions to the diagnosis of cancer. The Reactions to the Diagnosis of Cancer Questionnaire (RDCQ) (13) and the Impact of Event Scale (IES) (14) were used. The RDCQ assesses the initial reactions to the diagnosis and consists of 28 items scored on a five-point scale with responses ranging from 'No, I did not feel that way' to 'Yes, I felt that way extremely'. Two dimensions are measured, 'confronting reactions' (9 items) and 'distress reactions' (19 items). The scoring of the distress items is reversed. Thus, a high score indicates a strong confrontational attitude toward the diagnosis. The total score ranges from 28 to 140 (13).

The Impact of Event Scale (IES) assesses current subjective distress due to a specific life event (14, 15); in the present study, the distress of a cancer disease. This is a 15-item scale that measures intrusion, characterized by unbidden thoughts and/or images of the event and avoidance, characterized by denial of meanings and consequences of the event. The patient is asked to estimate the frequency of each item during the past week on a four-point scale ranging from 'not at all' to 'often'. Scores are obtained by assigning the weights 0, 1, 3 and 5 to the four steps, respectively. In order to facilitate clinical considerations, both subscales were transformed to category scales of low (0–8), medium (9–19) and high (20–) levels of distress (15).

Coping. Coping was measured by the Mental Adjustment to Cancer (MAC) scale (6), which includes 40 items that describe reactions to having cancer, scored on a four-point scale ranging from 'definitely applies' to 'definitely does not apply'. The items are allocated to five subscales: 'Fighting Spirit' (16 items), 'Hopeless/Helplessness' (6 items), 'Anxious Preoccupation' (9 items), 'Fatalistic' (8 items) and 'Avoidance' (1 item).

In an effort to categorize patients' most predominant coping style, a standardization of individual subscale scores was performed, as suggested by Greer et al. (16), by subtracting the sample mean from each individual score and dividing by the sample standard deviation, resulting in z-scores. Patients whose z-scores were all below zero (the sample mean) were classified as having 'No Predominant Response' (NPR). In all other cases, the MAC subscale which produced the highest z-score was selected as the coping style for that patient.

Anxiety and depression. The Hospital Anxiety and Depression (HAD) scale consists of two subscales, one assessing depression (7 items) and one anxiety (7 items) (17). Subscale scores range from 0 (no distress) to 21 (maximum distress). Zigmond and Snaith (17) suggested a score of 7 or less as indicative of a 'non case', 8–10 as a 'doubtful case' and scores of 11 or more as 'cases'. Physical signs of anxiety and depression are not included (18). The time frame was the last week. The HAD scale has been found valid for use with somatic patients (18, 19).

Statistical analysis

For calculation of differences in observed frequencies, the χ^2 test was used and comparisons of group means were performed with an unpaired t-test or two-way analysis of variance. The Fisher PLSD-test was used for post hoc testing. In order to determine how much of the variance in scale scores was explained by age, state of illness (cured/non-cured), gender and time since diagnosis, stepwise regression analyses were performed.

RESULTS

Reactions to the diagnosis

RDCQ. The scores ($m = 108$, $sd = 20$) ranged from 51 to 137. There were significant differences in mean scores between the diagnoses (Table 2). Patients with colon and rectal cancer had a more confrontational attitude than those with gastric or pancreatic/biliary cancer. Cured patients had a more confrontational attitude than non-cured patients (Table 2) and men reported a more confrontational attitude than women. There was no interaction between cured/non-cured status and gender (two-way ANOVA, data not shown). There were no significant correlations between, on the one hand age and time since diagnosis and, on the other confronting scores.

A stepwise regression analysis indicated that state of illness accounted for 9% of the variance [$\beta = 10.77$, $SE(\beta) = 3.3$, $t = 3.26$, $p < 0.01$] and gender for 3% [$\beta = 7.62$, $SE(\beta) = 3.3$, $t = 2.3$, $p < 0.05$].

IES. The mean intrusion score was 7.1 ($sd = 7.5$) and the mean avoidance score was 11.4 ($sd = 8.7$). Patients with gastric cancer reported higher levels of intrusion than patients with colon or rectal cancer, as did patients with rectal cancer compared with those with colon cancer (Table 2). There were no significant differences between the diagnoses on the avoidance subscale. Cured patients reported lower levels than non-cured patients on both intrusion and avoidance subscales (Table 2). Men ($m = 9.8$) scored lower than women ($m = 13.3$, $t = 2.35$, $p < 0.05$) on the avoidance subscale but there was no gender difference for intrusion. No interaction was found between cured/non-cured status and gender, and time since diagno-

Table 2

Mean scores for the various diagnoses and for cured vs. non-cured groups on the Reaction to the Diagnosis of Cancer Questionnaire (RDCQ), Impact of Event Scale (IES) (intrusion and avoidance and the Hospital Anxiety and Depression (HAD) scale

	RDCQ confronting			IES intrusion			IES avoidance		
	n	Mean	sd	n	Mean	sd	n	Mean	sd
Colon	37	116	15.6 a	36	3.6	4.0 a	36	8.9	6.6 a
Rectal	32	111	16.9 ab	32	7.2	7.4 b	32	11.9	8.9 a
Gastric	32	103	23.6 bc	32	11.3	8.5 c	32	12.8	8.4 a
Biliary/Pancreatic	38	101	21.0 c	35	6.7	7.6 ab	35	12.5	10.2 a
	$F = 4.41$ ($p<0.01$)			$F = 6.81$ ($p<0.01$)			$F = 1.51$ ns		
Cured	65	114	17.5	64	5.3	6.4	64	9.9	8.2
Non-cured	73	102	21.0	70	8.6	8.1	70	12.9	8.9
	$t = 3.57$ ($p<0.01$)			$t = 2.59$ ($p<0.05$)			$t = 2.02$ ($p<0.05$)		
	HAD anxiety			HAD depression					
Colon	37	1.8	2.2 a	37	2.7	2.6 a			
Rectal	28	3.4	3.3 ab	28	3.8	3.5 ab			
Gastric	31	5.4	4.6 b	31	5.6	4.0 b			
Biliary/Pancreatic	33	4.8	5.3 b	33	5.6	4.9 b			
	$F = 5.54$ ($p<0.01$)			$F = 4.63$ ($p<0.01$)					
Cured	60	2.6	3.2	60	3.3	3.2			
Non-cured	67	4.9	4.8	67	5.4	4.4			
	$t = 3.17$ ($p<0.01$)			$t = 3.12$ ($p<0.01$)					

The same letter indicates no significant difference, whereas different letters indicate significant differences $p<0.01$ (Fischer PLSD).

sis was unrelated to both scales (data not shown). In the regression analyses, none of the variables accounted for the variance in avoidance in a significant way. In intrusion, 4% of the variance was explained by state of illness [$\beta = 2.89$, SE(β) = 1.25, $t = 2.3$, $p < 0.05$] and 4% by age [$\beta = 0.11$, SE(β) = 0.05, $t = 2.2$, $p < 0.05$].

When the scores were categorized, most patients, particularly among cured patients, reported a low level of distress on the intrusion subscale, whereas avoidance was more evenly distributed between low, medium and high distress levels with no difference according to state of illness (Table 3).

Table 3

Number (%) of patients in low, medium and high categories of the Impact of Event Scale

	Level of distress		
	Low	Medium	High
Intrusion (n = 135)	98 (73%)	24 (18%)	13 (9%)
Cured (n = 64)	52 (81%)	10 (16%)	2 (3%)
Non-cured (n = 70)	46 (64%)	14 (20%)	11 (16%)
$\chi^2 = 7.15$, $p<0.05$			
Avoidance (n = 135)	56 (41%)	52 (39%)	27 (20%)
Cured (n = 64)	31 (48%)	23 (36%)	10 (16%)
Non-cured (n = 70)	24 (34%)	29 (41%)	17 (25%)
$\chi^2 = 3.14$, ns			

Coping

Significant differences were observed between the diagnoses on the 'Fighting spirit', 'Hopeless/Helpelessness' and 'Anxious preoccupation' subscales (Table 4). Cured patients scored higher than non-cured patients on 'Fighting Spirit' and lower on 'Hopeless/Helplessness' and 'Anxious Preoccupation'.

Women (m = 21.1) scored higher than men (m = 18.4, $t = 3.61$, $p < 0.01$) on the 'Fatalistic' subscale. Women also scored higher on 'Hopeless/Helplessness' (m = 9.7 vs. m = 8.3 for men, $t = 2.03$, $p < 0.05$) and on 'Avoidance' (m = 1.7 vs. 1.3, $t = 2.58$, $p < 0.05$). An interaction was found between cured/non-cured status and gender for 'Hopeless/Helplessness'. Non-cured women had a higher score (m = 11.2) than the remaining groups (m = 7.2–8.7) [$F(1, 122) = 6.06$, $p < 0.05$].

Stepwise regression analyses for each subscale separately yielded the following results:

Fighting spirit. A total of 13% of the variance was accounted for by state of illness [$\beta = 5.44$, SE(β) = 1.29, $t = 4.2$ $p < 0.01$].

Hopeless/Helplessness. Eight percent of the variance was explained by state of illness [$\beta = 2.13$, SE(β) = 0.67, $t = 3.17$, $p < 0.01$].

Anxious preoccupation. In this coping-style, 9% of the variance was explained by state of illness [$\beta = 2.76$, SE(β) = 0.78, $t = 3.53$, $p < 0.01$] and 7% by age [$\beta = 0.1$, SE(β) = 0.03, $t = 3.33$, $p < 0.01$].

Table 4

Means scores on Mental Adjustment to Cancer (MAC) subscales

Maximum	Fighting Spirit (64)		Hopeless/Helplessness (24)		Anxious Preoccupation (35)		Fatalistic (27)		Avoidance (4)	
	Mean	sd	Mean	sd	Mean	sd	Mean	sd	Mean	sd
Total (n = 127)	48.4	7.7	8.9	3.8	16.6	4.9	19.6	4.5	1.5	0.9
Colon (n = 35)	50.6	8.1 a	7.5	2.2 a	15.5	4.1 a	19.6	4.3 a	1.5	0.9 a
Rectal (n = 30)	49.7	6.4 a	8.1	2.9 a	15.3	4.2 a	18.4	3.6 a	1.3	0.8 a
Gastric (n = 30)	47.5	8.0 ab	10.0	4.0 b	18.5	4.8 b	19.7	4.8 a	1.4	0.9 a
Biliary/Pancreatic (n = 32)	45.7	7.5 b	10.3	5.1 b	17.1	5.8 ab	20.8	5.0 a	1.7	1.1 a
	F = 2.78		F = 4.54		F = 3.03		F = 1.47		F = 0.8	
	(p < 0.05)		(p < 0.01)		(p < 0.05)		ns		ns	
Cured (n = 61)	51.5	6.3	7.7	2.6	15.2	3.8	18.9	4.1	1.4	0.9
Non-cured (n = 65)	45.6	7.9	10.0	4.4	18.0	5.4	20.4	4.8	1.5	1.0
	t = 4.59		t = 3.53		t = 3.35		t = 1.86		t = 0.38	
	(p < 0.01)		(p < 0.01)		(p < 0.01)		ns		ns	

The same letter indicates no significant difference, whereas different letters indicate significant differences $p < 0.05$.

Fatalism. Twenty-three percent of the variance was explained by age [$\beta = 0.17$, SE(β) = 0.03, t = 5.67, $p < 0.01$] and 7% by gender [$\beta = 2.34$, SE(β) = 0.7, t = 3.34, $p < 0.01$].

Avoidance. None of the variables could explain any significant part of the variance.

When individual subscale scores were transformed to a z-distribution, the most frequent coping style for the whole sample was 'Fighting Spirit' (35%). Remaining styles showed lower frequencies (Table 5). Six percent responded with a 'No Predominant Response' (NPR). The table also shows the distribution of coping styles for cured vs. non-cured patients.

Anxiety and depression

Mean HAD scores were 3.9 for anxiety (sd = 4.2, range 0–18) and 4.4 for depression (sd = 3.9, range 0–16). Patients with gastric or pancreatic/biliary cancer reported higher levels of anxiety and depression than patients with colon cancer (Table 2). Non-cured patients reported both higher anxiety and higher depression than cured patients (Table 2). There were no gender differences, and no differences related to time since diagnosis or age.

Stepwise analyses indicated that 6% of the variance in anxiety was explained by state of illness [$\beta = 2.01$, SE(β) = 0.69, t = 2.9, $p < 0.01$] and 5% by age [$\beta = 0.07$, SE(β) = 0.03, t = 2.33, $p < 0.05$]. In depression, 7% was explained by state of illness [$\beta = 2.01$, SE(β) = 0.67, t = 3.0, $p < 0.01$].

Even though the mean scores for both anxiety and depression were low (Table 2), 17% of the patients scored as 'doubtful cases' or 'cases' on the anxiety scale and 21% on the depression scale (Table 6). Among non-cured patients, about one-quarter scored as 'doubtful' or 'cases' on both the anxiety and the depression scales.

DISCUSSION

Gastrointestinal cancer patients' reactions to the diagnosis, coping strategies, anxiety and depression varied depending upon diagnosis and state of illness. Patients with colon or rectal cancer, most of whom are potentially cured after primary surgery, had a more confrontational attitude towards the diagnosis than patients with gastric or pancreatic/biliary cancer. In the latter diagnosis, however, the proportion of cured patients is low. The colon/rectal group also attested to more 'Fighting Spirit', less 'Hopeless/Helplessness' and less 'Anxious Preoccupation'. Colon cancer patients reported lower levels of anxiety and depression than gastric or pancreatic/biliary cancer patients. In most of the investigated variables, differences in response between diagnoses seemed to reflect different proportions of potentially cured patients.

GI cancer patients' confronting attitude is comparable with the attitude for a sample of ambulatory cancer patients, reported in a study by Frank-Stromborg (13). We found, however, no correlation with age. Similarly, in a study by Horowitz (15), we further found that the mean levels of intrusion and avoidance among cancer patients were low. The IES scale has been used to measure distress after traumatic events, e.g. tornados, death of a parent, and rape (20–22). In these studies, the levels of distress were usually much higher, although they varied widely among individuals. The highest levels have been reported in a study of persons who had been exposed to rape, or attempted rape (22). A total of 77% reported high levels of distress on the intrusion subscale and 57% on the avoidance subscale, when assessed within two weeks after the traumatic event (22). Female survivors after a tornado scored 17.9 on intrusion and 15.6 on avoidance (20), and stress clinic patients who had lost a parent reported high levels (intrusion 20.1, avoidance 20.8) (21). These high

Table 5

Distributions of categories of Mental Adjustment to Cancer (MAC) coping styles

	Fighting Spirit		Hopeless/Helplessness		Anxious Preoccupation		Fatalistic		Avoidance		No predominant response	
	n	%	n	%	n	%	n	%	n	%	n	%
All (n = 127)	44	35	21	16	20	16	18	14	16	13	8	6
Cured (n = 61)	32	52	5	8	6	10	7	12	9	15	2	3
Non-cured (n = 65)	12	18	15	23	14	22	11	17	7	11	6	9
$\chi^2 = 20.32$ $p < 0.01$												

levels were seen although assessments were made on an average 17 and 26 weeks, respectively, after the stressful event. In comparison to these stressful events, receiving a diagnosis of cancer, even if not possible to cure, does not seem to be nearly as traumatic. One possible explanation is that the patients in the above-mentioned studies (21, 22) are psychological-clinical samples, whereas the present patients constitute an unselected group from somatic departments. Furthermore, cancer patients may have had disease symptoms long before being diagnosed and in many cases also suspected that they had cancer. The stressful event is thus not as unexpected as, for example, a tornado or a rape, and the patients may, as a consequence, have had a chance to cope with the traumatic event.

Patients who have been informed that they have a very poor prognosis with no chance of cure may naturally be more vulnerable than those cured, and they also reported higher levels of distress. The distinction between cured and non-cured is usually very clear to the physician giving the information. In Sweden, there has been, for at least two decades, a tradition to be honest with the patients and to give them open information about their disease and prognosis. Despite this, the information, or the perception of the information, may not at all be particularly clear to the individual patient. Most potentially cured patients will probably perceive the information correctly, i.e. that they have a chance to be cured, whereas this may not be the case in non-cured patients. This fending off of negative information is termed 'positive illusion' and the individual will as a result achieve a higher psychological well-being (23). Without this factor, it is probable that the observed differences would have been even greater. It is also possible that the way the information is given, in the present study by several different physicians, will influence reaction patterns (24). In any case, the consistent cured/non-cured differences suggest that patient perceptions were largely parallel to this distinction.

Table 6

Number of patients in 'non-cases', 'doubtful cases' and 'cases' categories of the Hospital Anxiety and Depression Scale (HAD)

	Non-cases		Doubtful cases		Cases	
	n	%	n	%	n	%
Anxiety (n = 132)	109	83	12	9	11	8
Cured (n = 65)	57	89	5	8	2	3
Non-cured (n = 67)	51	76	7	10	9	14
$\chi^2 = 5.06$ ns						
Depression (n = 129)	105	79	14	11	13	10
Cured (n = 65)	57	89	5	8	2	3
Non-cured (n = 67)	48	72	8	12	11	16
$\chi^2 = 7.63$ $p < 0.05$						

The demonstrated pattern of coping with GI cancer with the highest mean value for 'Fighting Spirit' corresponds fairly well with that of earlier cancer studies, mostly using the MAC scale with breast cancer patients (7, 16, 19, 25, 26). There is one coping strategy, 'Anxious Preoccupation', for which patients with GI cancer scored markedly lower (mean 16.6) than those in previous studies (mean 20.3–24.8) (16, 26). Since cured patients had significantly lower scores for 'Anxious Preoccupation' than non-cured patients, this is not likely to be a reflection of the worse prognosis for GI cancer patients compared to, for example, breast cancer patients. The GI cancer patients are, however, older (m = 67 years) than the patients in previous studies (m = 45 years). It has been reported that younger persons react with more distress and anxiety to traumatic events (27). Lampic et al. (25) have reported levels of 'Anxious Preoccupation' similar to ours in a group of mixed cancer patients with a mean age of 61 years (28).

The multivariate analyses indicated that the variable accounting for the largest proportion of variance in coping strategies is state of illness, with the exception of 'Fatalism'. For the latter type, 23% of the variance was explained by age, which also accounted for a proportion (7%) of the variance in 'Anxious Preoccupation'. These findings concur with the positive correlation between 'Fatalism' and age and the non-significant trend for 'Anxious Preoccupation' in the MAC-scale manual (26). However, the manual reports no differences in subscale means between patients with local, loco-regional or metastatic diseases. The normative sample in the MAC-scale manual includes a mixture of newly diagnosed and relapsed patients. The patients in our study were all newly diagnosed. In most of the previous studies, there is no information about how long after the diagnosis coping was assessed. The Lazarus Folkman approach states that coping is a

process that changes over time and across contexts (5). This line of reasoning suggests that it is important to know when coping is assessed in relation to the diagnosis.

Anxiety and depression levels were low and comparable to those reported earlier by us in a group of patients with the same diagnoses attending routine control visits (28). The mean age of our patients is high (67 years) and older persons generally report lower levels of anxiety and depression than younger persons (27). They also experience significantly less psychological distress concerning the cancer diagnosis than younger patients (29). Even though the mean scores were low, about one-fifth of the patients scored as 'doubtful cases' or 'cases' on both the anxiety and the depression scales. In the categorization, we utilized the most commonly used cut-off scores, as originally suggested by Zigmond and Snaith (17). In the previous study (28), fewer patients (12%) were 'doubtful cases' or 'cases' on the depression scale. This difference can perhaps be explained by the fact that the present patients are closer in time to their diagnosis.

Men reported a more confrontational attitude than women, and they had lower levels of avoidance. In other cancer studies, women have reported higher levels for anxiety than men (28, 30) but there were no gender differences for anxiety in the present study. Women had more 'Fatalism', 'Hopeless/Helplessness' and 'Avoidance'. Except for 'Hopeless/Helplessness', the male–female differences did not contribute to the differences between states of illness. Non-cured women had the highest levels of 'Hopeless/Helplessness'.

The reliability of the subscale 'Avoidance' in the MAC scale, containing only one item, can be discussed. It has also been recommended that this type of coping style should be measured in other ways (31). In the present study, avoidance was measured by the IES scale as a complement. A weak correlation ($r = 0.19$, $n = 127$, $p < 0.05$) between the two scales was also noted.

Our efforts to recruit an unselected material from a defined population meant that not all included patients could participate in a personal interview at the hospital. This introduced a variation in the data collection procedure that could potentially influence the results. However, we believe that this influence is limited, since structured questionnaires were used and in the interviews these were strictly followed. Moreover, we believe that the selection that would have been introduced if we had limited the study to those that were interviewed, would have resulted in a larger bias.

In conclusion, in this population-based study, colon and rectal cancer patients, most of whom are potentially cured, had a more 'positive' reaction to their diagnosis than pancreatic/biliary cancer patients. The former group had higher scores on the coping style 'Fighting Spirit', which in other studies has been associated with better emotional adjustment (6–8, 25). They reported lower levels on coping styles 'Hopeless/Helplessness' and 'Anxious Preoccupation' associated with poor emotional adjustment (6–8, 25). Thus, non-cured patients, particularly pancreatic/biliary cancer patients but also those with gastric cancer, seem to be more vulnerable to psychological distress in connection with the diagnosis. Beyond this, the results do not indicate any particular subgroups at risk for increased psychological distress, with the possible exception of non-cured women.

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