

## Original Article

**Depression, Pain and Mental State in Cancer Patients****Papamichail Elefteria, MSc, RN**

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**Abstract**

**Background:** Depression in cancer patients is a common psychiatric disorder with impact on the quality of life. This study investigated the association of depression with health status and cognitive function of cancer patients, along with the pain impact and the need for analgetics.

**Methodology:** One hundred cancer patients were enrolled in the study. The General Health Questionnaire (GHQ – 28), the Dysfunctional Preconception Questionnaire (DPQ), the MMSE Scale (Mini Mental State Examination) and the Depression scale-Beck questionnaire (BDI) were used.

**Results:** Depression in cancer patients is moderate and mental condition satisfactory. The administration of analgesics was associated with greater social dysfunction, higher depression score and lower cognitive performance. GHQ score was statistically significantly related to BDI score in both males and females (  $p=0.004$  and  $p<0.001$ , respectively).

**Conclusion:** General health status in cancer patients is associated with depression and need for analgetics. There is a necessity of using self-report questionnaires in oncology patients for the appropriate assessment of their mental and psychological status.

**Key words:** cancer, depression, mental, perceptions, cognitions, comorbidity

**Introduction**

Depression is one of the most serious and common mental diseases of today's society (Kim et al., 2015). It constitutes a major public health issue and has a very large impact on health, especially when it co-exists with a chronic condition (Moussavi et al., 2007). Depressive disorders are more common among people who live alone. No differences are observed between races or religious groups (Kaplan & Sadock, 2007). Depression prevalence ranges from 2% for one month until around 6% for the entire life. The disease is approximately twice as high in women than in men (Burvill, 1995). Depression is accompanied by many signs and symptoms that affect all areas of functionality (Kaplan & Sadock, 2007). Among the patients being treated at the General Hospital, 20-35% experience a depressive episode (Katon & Schulberg, 1992).

Significant is the number of people who experience depressive disorders, accounting for 4.4% of the global burden of disease (WHO International, 2000).

Besides depression, cancer patients also experience significantly more pain as death is impending. The study of Rolnick et al., () showed that 5-6 months before death, 55% of women did not receive pain medication or used mild analgesics, with only 9% using strong painkillers, an approach which did not cover the needs of patients, while 64% of women had no previous assessment of pain. Pain and depression affect mood, thoughts and is usually accompanied by bodily discomfort, disturbance of person's eating habits and sleep (Tavoli et al., 2008).

The present study investigated the comorbidity between cancer and depression and their impact to patients' cognitive decline, along with their pain and the need for analgetics. The differentiation of self-report functionality across psychiatric morbidity was also explored.

### Material and methods

The study sample consisted of 100 oncology patients regardless of gender, age, and locating point, showing psychiatric comorbidity and mainly depression. The research study was conducted in oncology patients hospitalized in Metaxas Cancer Hospital of Piraeus, and underwent either chemotherapy, or radiotherapy or a combination of these, or had undergone surgery. The measuring tool for this research study was a self-report questionnaire, consisting of 5 individual anonymous questionnaires. For the data collection, permission and approval were taken by the Scientific Committee of the hospital.

### Data collection tools and measurement scales

**1. Demographic questionnaire** of the population under study (anonymous)

**2. General Health Questionnaire (GHQ) - 28**

This validated questionnaire has been widely used in the general population by researchers in various scientific fields such as medicine and psychology (Goldberg, 1997). It is a self-report questionnaire, administered to adults of all ages and both sexes. It is used to detect recent (last two weeks) mental morbidity and focuses on two main points; the inability of the respondent to perform normal and routine operation and the appearance of new depressive psychological phenomena. It consists of 28 questions and includes four subscales regarding a) physical symptoms, b) anxiety and insomnia, c) social functioning d) major depression.

GHQ-28 is completed using a four-point "Likert" scale (0, 1,2,3).

**3. DPQ Scale-Dysfunctional Preconception Questionnaire M. Vassiliadou, D Goldberg**

This is a questionnaire that explores the dysfunctional preconceptions of patients which helps health professionals to design a brief therapeutic psychological treatment. The DPQ questionnaire consists of 24 questions with dilemmas that people often face in their lives. The respondent expresses what they think and

feel about themselves, the world and the future (Vassiliadou & Goldberg, 2006)

**4. MMSE Scale (Mini Mental State Examination)**

It explores the cognitive decline of patients. MMSE scale consists of 30 questions relating to the orientation of the patient, the recording, collecting, reflection, naming, repetition, execution of orders, the automatic writing and copying. The questions are scored with 1 or 0, depending on whether the answer is correct or not. 0-10 points indicate severe dementia, 10-20 moderate, 21-24 slight, 25-27 is indication of mental disorder, 28-30 absence of mental disorder. This scale has been translated and weighed in Greece (Foundoulakis 1994), and shows that 23 to 24 score point is to distinguish between normal and pathological symptoms, and therefore patients need further clinical and neuropsychological examination. It is important to note that the MMSE score of a person can be affected by the level of education, cultural background, language and the difficulties experienced.

**5. Depression scale-Beck questionnaire (B.D.I.)**

Beck questionnaire for depression (BDI) is a preliminary assessment tool, which has taken its name from the American psychiatrist Aaron Beck, who developed the basis of cognitive psychotherapy model. It has been widely used for the detection and assessment of depression severity. It consists of 21 entries - questions which the patient is asked to answer about how they feel on the day completing the questionnaire (Beck & Steer, 1984).

BDI questions refer to the following factors: mood, pessimism, sense of failure, loss of satisfaction, feelings of guilt, punishment feeling, dislike of self, self-reproaches, suicidal ideation, crying, irritability, social withdrawal, indecisiveness, distorted body image, efficiency at work, sleeping disorder, fatigue, disturbance in appetite, weight loss, physical preoccupation, loss of libido. It has been weighed in Greek and its use is widespread (Jemos J. Beck 1984). The questions are scored with 0, 1, 2, 3, depending on the patient's response. Rating 0-9: indicates minimal depression, 10-18: indicates mild depression, 19-29: indicates moderate depression and 30-63: indicates severe depression. (Beck, 1984).

## Statistics

The SPSS-17.0 statistical package was used to analyse the data. Descriptive and inferential statistics was performed. The duration of disease was classified into four quarters (<15 months, 16-22, 22-24, >24 months). Parametric and nonparametric methods were used according to indications. Specifically, the statistical methods t-test and ANOVA were employed for comparisons between two or more samples, respectively, and the  $\chi^2$  test and its variations (likelihood ratio and Fisher's test) depending on the number of observations. The level of statistical significance was set at  $p=0.05$ .

## Results

The majority of participants were male (51%), basic education graduates (61%) and married (68%) (Table 1). The mean disease duration from diagnosis time was  $1.8 \pm 1.9$  years. In a 0-10 point Likert scale, 64% of the participants rated their pain intensity between 5-6 points, while 12% gave the highest rate (9-10 points) (Table 2).

The mean BDI values was  $17.7 \pm 9.8$ , indicative of mild depression. The mean MMSE value was  $26.4 \pm 3.1$ , indicative of a satisfactory mental function. Those who reported analgesic consumption had a marginally statistically significantly lower score in MMSE compared with those who did not ( $25.85$  vs  $27.04$ ,  $p=0.058$ ) and a statistically significantly higher score in the social dysfunction subscale of the GHQ (Table 3).

Table 4 shows the correlations between the subscales according to disease duration. A statistically significant positive correlation occurred between BDI-GHQ in all time periods (marginally for the period between 22 to 24 months), while correlation between BDI-DPQ occurred only during the period between 16 to 21 months.

GHQ score was statistically significantly related to BDI score in both males and females ( $p=0.004$  and  $p<0.001$ , respectively), while in males GHQ was correlated with DPQ score at  $p=0.074$  level (Table 5).

Table 6 shows tranquilizers consumption in relation to the disease stage. A 90% of patients who took tranquilizers were of stage III or IV, compared with 75% of those who did not. The difference was statistically significant:  $p=0.020$ .

## Discussion

The findings of this research show that depression in cancer patients (a significant proportion of which were end-stage patients) is moderate, while their mental condition is satisfactory. In addition, the stage of the disease and the medication are related to the type and severity of the mental disorder. Those receiving analgesics showed greater social dysfunction, higher depression score and lower cognitive performance than those who did not use analgesics.

The appearance of mental disorders is expected in cancer patients, particularly those on the end stage of their illness and the profound distress of the patients is an important public health issue (Car et al., 2012). Especially in patients with metastatic cancer (end-stage), depression is a significant comorbidity. Chemotherapy and other cancer treatment methods are responsible for 40-60% of the patient's discomfort. However, the prevalence of mental disorders and their intensity vary (Dugan et al, 1998). The investigation of Singer et al., (2010) in cancer patients showed that the most common psychiatric diagnosis was depression (11.6%), while the prevalence of generalized anxiety disorder was 5.7% and 10.4% for somatisation. However, other studies present much higher rates, with the frequency of depressive symptoms reaching 35% in ambulatory patients with various types of cancer in different stages of the disease, while in hospitalized patients the rate exceeds 50% (Dugan et al, 1998). The advanced stage of the disease along with the lack of social resources exacerbate anxiety and depressive disorders (Nordin et al, 2001; Priscilla et al, 2011).

However, it is noted that treatment is given to less than half of patients in need. Indeed, depression is underdiagnosed and undertreated for a very high rate of 80%. It is often difficult to distinguish between "proper" grief and depression, as the patient approaches the end of their life. For the treatment to be effective, it is recommended that antidepressants are introduced early in treatment and patients are supervised with a view to their maximum possible adherence to medication. Pain, insomnia, fatigue and depression along with anxiety constitute a hardly manageable mix of emotions, requiring the individual approach and the holistic care of the patient (Dunn et al, 2011; Galloway et al, 2012).

**Table 1. Demographic characteristics of the sample**

	N (%)
<b>Gender</b>	
Women	49
Men	51
Total	100
<b>Age</b>	
20-29	1
30-39	7
40-49	15
50-59	32
60-69	25
>70 years old	20
Total	100
<b>Educational level</b>	
Elementary	45
Junior High School	16
High School	29
Tertiary Education	10
<b>Total</b>	100
<b>Marital status</b>	
Married	68
Unmarried	13
Divorced	13
Widowed	6
<b>Total</b>	100

**Table 2. Pain intension sample distribution**

Pain scale (grading)	N(%)
<b>0</b>	8
<b>1-2</b>	26
<b>3-4</b>	10
<b>5-6</b>	20
<b>7-8</b>	24
<b>9-10</b>	12
<b>Total</b>	100

**Table 3. Analgesic use and MMSE-GHQ scales scores**

	Analgesics use	N	MT	SD	p
<b>Somatization</b>	Yes	54	11.3519	3.65574	0.127
	No	45	10.1266	4.26072	
<b>Anxiety and insomnia</b>	Yes	54	12.7778	4.88612	0.114
	No	45	10.9968	6.21165	
<b>Social dysfunction</b>	Yes	54	13.9850	4.73413	0.004
	No	45	11.2829	4.39108	
<b>Depression</b>	Yes	54	6.2097	5.10956	0.600
	No	45	5.6320	5.79962	
<b>GHQ total</b>	Yes	54	45.3291	14.45817	0.075
	No	45	39.6942	16.68764	
<b>MMSE total</b>	Yes	54	25.8588	3.08087	0.058
	No	45	27.0444	3.02982	

**Table 6. Disease stage and tranquilizers use**

<b>Tranquilizers use</b>	<b>Disease stage</b>				
	<b>I</b>	<b>II</b>	<b>III</b>	<b>IV</b>	<b>Total</b>
<b>Yes</b>	4	2	12	14	32
<b>No</b>	5	12	25	26	68
<b>Total</b>	9	14	37	40	100
<b>X<sup>2</sup>, p=0,020</b>					

**Table 4. Scales correlation depending on disease duration**

Disease duration			BDI	GHQ	
<b>&lt;15 months</b>	<b>Spearman's rho</b>	<b>DPQ</b>	Correlation Coefficient	-0.110	0.083
			p	0.654	0.735
			N	19	19
		<b>BDI</b>	Correlation Coefficient		0.799
			p		<0.001
			N		19
<b>16-21 months</b>	<b>Spearman's rho</b>	<b>DPQ</b>	Correlation Coefficient	0.546	0.307
			p	0.019	0.215
			N	18	18
		<b>BDI</b>	Correlation Coefficient		0.512
			p		0.030
			N		18
<b>22-24 months</b>	<b>Spearman's rho</b>	<b>DPQ</b>	Correlation Coefficient	0.058	0.166
			p	0.802	0.472
			N	21	21
		<b>BDI</b>	Correlation Coefficient		0.062
			p		0.791
			N		21
<b>&gt;24 months</b>	<b>Spearman's rho</b>	<b>DPQ</b>	Correlation Coefficient	0.263	0.244
			p	0.385	0.422
			N	13	13
		<b>BDI</b>	Correlation Coefficient		0.757
			p		0.003
			N		13

**Table 5. Scales correlation depending on gender**

	Gender		DPQ	BDI		
Spearman's rho	Female	GHQ	Correlation Coefficient	0.110	0.638	
			p	0.453	<0.001	
			N	49	49	
		DPQ	Correlation Coefficient		0.170	
			Sig. (2-tailed)		0.242	
			N		49	
		Male	GHQ	Correlation Coefficient	0.252	0.395
				p	0.074	0.004
				N	51	51
	DPQ		Correlation Coefficient		0.186	
			p		0.192	
			N		51	

Pain and fatigue, the prevalence of which reaches 80%, are the most common symptoms in cancer patients and are associated with the disease itself and its treatment (Theobald, 2004). Analgesics consumption in this study seems to differentiate for the worse the responses of participants, showing the complex etiology of mental disorders in cancer patients and its function with their basic needs.

The source of depression and anxiety differs significantly from patient to patient and they are associated with the quality of life, bearing in mind that anxiety is higher in newly diagnosed. Young patients with higher levels of stress in the beginning of the disease are likely to present higher levels of depression in the future (Galloway et al, 2012).

This study also shows the importance of using self-report questionnaires that significantly help to clarify issues relating to the mental health of cancer patients and help towards the individual approach to each patient and their holistic care.

Often, health professionals do not accept the use of calculation scales for psychopathological symptoms because of the perception that depression constitutes a rather normal reaction to a terminal disease and therefore there is no point fighting it, while questioning its measurability (Trask, 2004; Shi et al, 2011). However, the completion of questionnaires by the patients themselves shows that there are aspects of their

mental burden that are not detected by doctors and reveals specific areas that require intervention (Palma et al, 2008).

The results of this study provide a starting point for further investigation of the factors associated with the development of mental disorders in cancer patients.

Future research should particularly focus on analgesic therapy and the need for early intervention to prevent depression, so that the increase of the years of survival that is so difficultly conquered would be accompanied by the best possible quality of life.

### Limitations

This was a convenience sample of patients, the majority of which were over 50 years old and pensioners, whose disease in a significant percentage was end-stage. In addition, no psychiatric interview was used, which could provide additional information on the mental state of patients. Also, about 30% of patients were receiving antidepressant treatment, which may have modified the final results of the measurements.

Therefore, our results, although limited, are not generalizable. Additional research by type of cancer and in a wide range of ages is expected to further elucidate the findings of this study.

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