Prevalence of depression among relatives of cancer patients in Jordan: A cross-sectional survey

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ABSTRACT

Objective: Depression is common among chronically ill patients and their relatives. In this article, we investigated the prevalence of depression among relatives of cancer patients in Jordan, and studied the relation between several socio-demographic, disease- and treatment-related factors, together with the occurrence of depression among those relatives.

Method: A cross-sectional survey study was conducted at a major university hospital in Jordan. Relatives of cancer patients were interviewed for socio-demographic information, and medical records were checked for information about disease and treatment of patient. Psychological status of the relative was assessed using the Hospital Anxiety & Depression Scale (HADS).

Results: The prevalence of depression in our sample was 81.9%. Age and degree of relatedness were significantly correlated with the occurrence of depression among relatives of cancer patients. Significant correlations were also detected between depression among patient's relatives and the stage of the disease. Positive predictive factors for depression included relatives being middle aged, close relatedness, patients being in advanced disease stage, and on chemotherapy or undergoing surgery for cancer treatment.

Significance of results: Depression is prevalent among relatives of cancer patients. Therefore, more attention is needed to detect changes in the psychological state of vulnerable relatives of cancer patients, in an effort to reduce the occurrence of depression.

KEYWORDS: Depression, Cancer, Relatives, Jordan, HADS

INTRODUCTION

Treatment of patients with cancer continues to be a therapeutic challenge. This is largely because of the inadequate responsiveness of certain types of cancer to conventional chemotherapeutic and biologic re-

agents; increased rate of relapse; and the development of other subsequent psychological disorders such as anxiety, depression, and adjustment disorders (De Boer et al., 1999; Smith & Newland, 1999).

The prevalence of psychological distress in the general cancer population is about 1.5–51.9% and varies depending upon the type of cancer and the tools used for assessments (McDaniel et al., 1995; Pirl, 2004; Mhaidat et al., 2009). In addition, cancer diagnosis adversely affects family members of the patient, particularly those who are giving most of

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the care, i.e., "caregivers." Invariably, relatives must deal with the emotional and physical consequences of cancer diagnosis, and the debilitating aggressive treatment regimens. Psychosocial disturbances such as major depression have been reported in 2.1–66.4% of the relatives of cancer patients (Edwards & Clarke, 2004; Ozono et al., 2005; Papastavrou et al., 2009; Tsigaroppoulos et al., 2009). Therefore, cancer diagnosis and treatment are considered very stressful events for both patients and their relatives.

The prevalence of psychiatric disorders among cancer patients and their relatives can change in response to several factors that include patient's age, gender, income, cancer type, and phase of treatment (Massie et al., 1994; Wong-Kim & Bloom, 2005). We have recently showed a significant association between the occurrence of depression among patients, and knowledge of cancer diagnosis and the stage of the cancer (Mhaidat et al., 2009). In the present study, we investigated the prevalence of depression among relatives of cancer patients in Jordan. We also reported the relation between depression symptoms among relatives of cancer patients and several demographic and disease-associated factors.

METHOD

A cross-sectional survey study was conducted between September 2007 and May 2009 at King Abdullah University Hospital (KAUH), a major university hospital and a tertiary care facility (>400 beds). This hospital is the only cancer treatment facility in the north province of Jordan. The sample for the present study was chosen randomly and included a total of 302 relatives of cancer patients, which represent the 98% of relatives who agreed to participate in this study.

Medical records were reviewed to identify patients with cancer and to evaluate the stage of disease and treatment type. Relatives of cancer patients were privately interviewed in a special room and asked to fill out a questionnaire consisting of two parts. The first part included demographic data, socio-economic status, presence of insurance for the cancer patient, living place, and time to access the hospital from home. Information about cancer patient's relative's knowledge of the cancer diagnosis, type and stage of cancer, and type of treatment, were collected from medical records. The medical records included a note indicating whether the patient's relative knew about the cancer diagnosis. The second part of the questionnaire was concerned with evaluating depression status, and was based on the Hospital Anxiety & Depression Scale (HADS) (Zigmond & Snaith, 1983). Each item in HADS was rated on a four-point scale giving maximum scores of 21. Scores were divided into four ranges: normal (0–7), mild (8–10), moderate (11–15), and severe (16–21) depression.

All participants answered the questionnaire in the presence of a clinical pharmacist, who was trained to conduct the questionnaire by the treating physician. The clinical pharmacist was also involved in the explanation of any patient's relative's concern regarding the study. The interviewers informed all participants that there was no financial reward for their participation. The study's protocol was carried out according to the principles described in the Declaration of Helsinki, including all amendments and revisions. Only the investigators had access to the collected data.

Concerning medical insurance in Jordan, the Ministry of Health insures all governmental employees, retirees, and their families. Jordanian universities provide medical insurance for their students and employees at KAUH. Moreover, the hospital receives a number of patients who are treated at the expense of the Royal Hashemite Court; which is considered a form of medical insurance.

It is important to note that because of the extremely strong social relations and commitments within Jordanian society, it is common for a patient's relatives to be heavily involved in the patient's illness. Therefore, they are considered the equivalent of caregivers in other societies.

Statistical analysis was performed using the Statistical Package for Social Sciences (SPSS) version 15, χ^2 test was used. p-value of <0.05 was considered statistically significant.

RESULTS

Three hundred and two of the cancer patient's relatives participated in this study; 56% were males and 44% were females with a mean age of 43 ± 6 years. Majority of patients were insured and living in cities, less than one hour away from the healthcare facility. No significant association was detected between the occurrence of depression among cancer patient's relatives and the investigated socio-economic factors except for the degree of relatedness and age. Detailed demography is shown in Table 1.

The prevalence of depression among relatives was 81.9% distributed as 24.85% with mild depression, 45.18% as moderate depression, and 11.6% as severe depression. As shown in Table 2, none of the daily habits was significantly correlated to the occurrence of depression except the number of sleep hours. Whereas reduced number of sleep hours has significantly ($p \leq 0.05$) contributed to the occurrence of depression among relatives of cancer patients, neither

Table 1. *Relationship between demographic factors and occurrence of depression among relatives of cancer patients*

Factors		Not depressed n (%)	Depressed n (%)	p -value
Age	<30	26 (8.7%)	81 (27.1%)	0.038
	30−60	28 (9.4%)	150 (50.2%)	
	>60	0 (0%)	14 (4.7%)	
Gender	Male	25 (8.4%)	106 (35.5%)	0.684
	Female	29 (9.7%)	139 (46.5%)	
Degree of relatedness	Parents	8 (2.7%)	47 (15.7%)	0.047
	Son/daughter	19 (6.4%)	97 (32.6%)	
	Brother/sister	6 (2.0%)	35 (11.7%)	
	Spouse	1 (0.3%)	19 (6.4%)	
	Others	20 (6.7%)	47 (15.7%)	
Profession	Healthcare	2 (0.7%)	13 (4.3%)	0.625
	Non-healthcare	52 (17.4%)	232 (77.6%)	
Education	Less than high school	9 (3.0%)	70 (23.4%)	0.210
	High school or diploma	24 (8.0%)	111 (37.1%)	
	Bachelor	19 (6.4%)	59 (19.7%)	
	Master or Ph.D	.2 (0.6%)	5 (1.6%)	
Nationality	Jordanian	52 (17.4%)	227 (75.9%)	0.332
	Non-Jordanian	2 (0.7%)	18 (6%)	
Marital status	Married	34 (11.4%)	185 (61.9%)	0.137
	Single	20 (6.7%)	59 (19.7%)	
	Divorced	0 (0.0%)	1 (.3%)	
Insurance	Yes	53 (17.7%)	231 (77.3%)	0.239
	No	1 (0.3%)	14 (4.7%)	
Income	<250 JD	21 (7.0%)	87 (29.1%)	0.805
	250−500 JD	26 (8.7%)	130 (43.5%)	
	>500 JD	7 (2.3%)	28 (9.4%)	
Distance to healthcare facility	<1 hour	10 (3.3%)	32 (10.7%)	0.464
	1−2 hours	10 (3.3%)	39 (13.0%)	
	>2 hours	34 (11.4%)	174 (58.2%)	
Location	City	40 (13.4%)	180 (60.2%)	0.894
	Village	14 (4.7%)	64 (21.4%)	
	Badiah (living in the desert)	0 (.0%)	1 (0.3%)	

JD = Jordanian Dinar, which is equivalent to about 1.4 U.S. dollars.

smoking nor caffeine intake showed a significant correlation.

We then studied the relation between disease-related factors such as knowledge of having disease, type of treatment; disease stage, and the occurrence of depression among relatives. Results shown in Table 3 revealed that both the stage of disease and the type of cancer treatment were significantly *(p <* 0.05*)* correlated with the occurrence of depression among patient's relatives.

Table 2. *Relationship between daily habits and occurrence of depression among relatives of cancer patients*

Factors		Not depressed n (%)	Depressed n (%)	p-value
Smoking	None	41 (13.7%)	163 (54.5%)	0.357
	1 pack/day	9 (3.0%)	50 (16.7%)	
	>1 pack/day	4 (1.3%)	32 (10.7%)	
Caffeine	None	14 (4.7%)	52 (17.4%)	0.171
	1−2 cups	24 (8.0%)	80 (26.8%)	
	2−4 cups	8 (2.7%)	55 (18.4%)	
	>4 cups	8 (2.7%)	58 (19.4%)	
Sleep	<4 hours	8 (2.7%)	68 (22.7%)	0.005
	4−6 hours	18 (6.0%)	107 (35.8%)	
	6−8 hours	23 (7.7%)	51 (17.1%)	
	>8 hours	5 (1.7%)	19 (6.4%)	

Table 3. *Relationship between disease-related factors and occurrence of depression*

Factors		Not depressed *n* (%)	Depressed *n* (%)	*p*-value
Knowledge about having the disease	Yes	52 (17.4%)	231 (77.3%)	0.552
	No	2 (0.7%)	14 (7.7%)	
Stage	I	10 (3.3%)	26 (8.7%)	0.026
	II	6 (2.0%)	74 (24.7%)	
	III	17 (5.7%)	62 (20.7%)	
	IV	21 (7.0%)	83 (27.8%)	
Type of therapy	Surgery	3 (1.0%)	12 (4.0%)	0.049
	Chemotherapy	30 (10.0%)	125 (41.8%)	
	Radiotherapy	2 (0.7%)	0 (0%)	
	Combination	11 (3.7%)	76 (25.4%)	
	Palliative care	6 (2.0)	23 (7.7%)	
	None	2 (0.7%)	9 (3.0%)	

DISCUSSION

In the present study, we assessed the prevalence of depression among relatives of cancer patients in Jordan. Results revealed that 81.9% of relatives of cancer patients developed signs and symptoms of depression. Age of patient's relative, sleep disturbances, and the stage of the disease significantly contributed to the development of depression among relatives of cancer patients.

Previous studies have shown that the prevalence of depression in caregivers or relatives of cancer patients was variable and ranged from 2.1 % to 66.4% (Edwards & Clarke, 2004; Ozono et al., 2005; Papastavrou et al., 2009; Tsigaroppoulos et al., 2009). In our study, the prevalence of depression (detected by HADS) was found in 81.9% of relatives of patients, which is higher than that reported by other studies. This result points out the need to screen relatives of patients with cancer for depression and to provide early intervention. In addition, this variability might be explained by different samples being studied, assessment measures employed, and different diagnostic criteria applied (Fallowfield et al., 2001; Jacobsen & Jim, 2008). Moreover, the higher prevalence of depression reported in our study could be because of cultural issues related to the negative public perception about cancer prognosis. Unlike other reports (Papastavrou et al., 2009) suggesting that depression is greater in patient's caregivers/relatives with lower income or education, our study revealed no statistically significant association between demographic factors other than age, and occurrence of depression.

Results shown also revealed that relatives of cancer patients at advanced disease stages are more likely to experience depression. This might be because of the higher levels of physical debilitation and advanced illnesses among cancer patients in advanced disease stages (Passik et al., 1998). Moreover,

results here showed a correlation between the number of sleep hours and depression. This correlation could be related to the fact that changes in sleep patterns or sleep disturbances are symptoms of depression.

Another factor that influences the prevalence of depression among cancer patients' relatives is the type of therapy used for the patient. Our results indicated a positive association between the type of therapy and depression in that the occurrence of depression was higher with chemotherapy and surgery. Given the potential side effects and potential complications, it is possible that chemotherapy and surgery increase emotional distress and decrease quality of life of patients, which could be negatively affecting the emotional status of patient's relative.

In conclusion, we showed, for the first time, the prevalence of depression among relatives of cancer patients in Jordan as being higher than in other studies conducted in other areas. Positive predictive factors include close relatedness, being middle aged, and patients being in advanced disease stage and on chemotherapy or undergoing surgery for cancer treatment. More attention is needed to detect changes in the psychological state of vulnerable relatives of cancer patients, in an effort to reduce the occurrence of depression.

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