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Cancer and common mental disorders in the community: Results of the Israel-World Mental Health Survey

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ABSTRACT – Background and Objectives: To study common mental disorders (CMD) and other mental health-related variables among community residents with active cancer, cancer survivors and cancer-free respondents.

Methods: Data were extracted from the Israeli component of the 28-country World Mental Health Survey. The sample included 165 respondents who reported ever having cancer and 2,282 cancer-free respondents, all aged 39 years and older. The WHO/Composite International Diagnostic Interview (CIDI) was used to determine the prevalence rate of CMD. Emotional distress (ED) was ascertained with the GHQ-12. Also, respondents were asked about sleep disturbances and mental health service utilization.

Results: Respondents with active cancer were more likely to endorse CMD in the past year than cancer-free respondents, 22.1% SE = 6.1 and 7.2% SE = 2.5, respectively (adjusted odds ratio = 2.6, 95% CI 1.2-5.6); to have higher ED scores, M = 27.1 SE = 1.3 and M = 19.8 SE = 0.3, respectively (Wald F = 16.7, $p < 0.001$); and higher prevalence rates of sleep disturbances, 64.7% SE = 6.5% and 31.5% SE = 4.6%, respectively (adjusted odds ratio = 2.1, 95% CI 1.1-3.9). Cancer survivors did not significantly differ from cancer-free respondents on the study variables. Despite the emotional toll, there were no differences in mental health service utilization among the three cancer groups.

Conclusions: Respondents with active cancer residing in the community show enhanced psychopathology. Study findings highlight a double need: to adequately assess mental health problems in persons with cancer and to bridge the treatment gap.

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Introduction

Cancer is a leading cause of death worldwide. In Israel it accounts for 26% of all deaths¹. Generally, the burden of cancer increases as the burden of infectious diseases decreases².

Importantly for mental health care, a significant proportion of community residents and clinic service users at all stages of the disease trajectory suffer from psychiatric morbidity, such as mood and anxiety disorders (common mental disorders – CMD)³⁻⁷. A recent meta-analysis, including studies conducted in different countries, showed that one third of persons with cancer in acute care hospitals suffer from mental disorders⁸, while another meta-analytic study conducted in oncological, hematological and palliative-care units reported that about 25% and 10% had mood and anxiety disorders, respectively⁹. Additional studies found that 30%-50% of persons with cancer suffer from depression, and may benefit from early psychosocial intervention^{4,5,10,11}. Studies have found that incidence of psychiatric morbidity increases with rising levels of disability, advanced illness and pain¹², and that 30% to 50% of newly diagnosed patients with cancer have sleep disturbances^{13,14}.

Several factors have been noted to contribute to psychiatric morbidity and sleep disturbances, including the biological effects of the malignancy, side effects of chemotherapeutic drugs, grief about current and anticipated losses, and fear of death^{11,15,16}. Importantly, accurate diagnosis and appropriate treatment of mental health disorders in persons suffering from cancer can impact its course, days of hospital stays, treatment adherence and efficacy, and prognosis^{6,17,18}. The assessment of patients' mental health status shortly after the diagnosis of cancer is the best predictor for later adjustment disorder^{19,20}.

Despite the above-noted findings, the psychopathological status of persons with cancer often remains undetected and untreated^{19,21-23}. Approximately, only a third of severely distressed persons with cancer are recognized by their oncologists, and only 15%-50% of them are referred to specialized services^{19,24}. These failures may have detrimental effects on the course of illness and quality of life⁸, and coupled with objective barriers to care, e.g., limited availability and accessibility of mental health services, they contribute to the treatment gap^{6,25}. (Treatment gap is defined here by the difference between the true and treated prevalence of mental health disorders²⁶ among persons with cancer).

This treatment gap is frequent, even for people with cancer^{3,6}. For example, a community study conducted in the US showed that only 35% of cancer survivors who reported mental problems accessed specialized services²⁷. Another study, conducted among persons with cancer treated in a public hospital, showed that only 12% of those diagnosed with depression received antidepressant medications, and even a smaller percentage (5%) saw a mental health counselor²⁸. Muriel *et al.*²⁹ found that while oncologists estimated that over a third of their patients experience psychological distress needing intervention, only half of them reported making a referral to the mental health services.

Those studies were mostly originated in hospital and clinic settings. In contrast, only a few studies have examined the association between cancer and psychopathology in community samples³⁰. Also, only a few of them used structured diagnostic interviews, the gold standard in epidemiologic research. One study of this type³⁰, the US National Comorbidity Survey, found an association between cancer and major depression, specific phobias, agoraphobia and substance

use. Another study³¹ found up to three times higher prevalence rates of depression and selected anxiety disorders among persons with cancer, compared with cancer-free respondents, controlling for socio-demographic variables and social support.

Objective

To study CMD, emotional distress, sleep disturbances and mental health service utilization among community residents with active cancer, and to compare their status with cancer survivors and cancer-free respondents.

Israel, that has a national health insurance system in which psychiatric care is freely available, constitutes a suitable context to examine the prevalence rates of both, mental disorders and service utilization, with regard to persons with cancer under favorable service conditions.

Methods

Survey design

This study was part of the Israel-based component of the World Mental Health Survey (WMHS) conducted in 28-countries in recent years³². The sample population was extracted from the National Population Register (NPR) and comprised non-institutionalized *de jure* residents aged 21 and older. The sample was designed to reflect the distribution in the general population of selected gender-age-ethnicity groups, and was weighted back to the total population to compensate for unequal selection probabilities resulting from disproportionate stratifi-

cation, clustering effects and non-response³³. Face to face interviews at the respondents' homes were conducted from May 2003 to April 2004, in Arabic, Hebrew and Russian following the respondents' language preferences. Carefully trained and supervised professional interviewers administered the survey using laptop computer-assisted personal interview (CAPI) methods. Interviews took on average 60 minutes. The overall response rate was 73%, totaling 4,859 completed interviews, with no replacements.

A Human Subjects Committee approved the study.

This report refers to respondents aged above 39 years, as they were entering into the more frequent risk ages for cancer. Respondents that reported having cancer in their lifetime ($n = 165$; 6.7% of the total sample), being currently in active treatment ($n = 55$), in remission ($n = 33$), and cured ($n = 77$) were compared to those that reported never having cancer, henceforth, cancer-free respondents ($n = 2,282$). The respondents who reported being in remission and those reported to be cured were grouped as they did not show any significant differences on any of the key variables, henceforth labeled as cancer survivors ($n = 110$). Arab-Israeli respondents were not included in the following analysis because of their low numbers in this investigation ($n = 13$).

The survey questionnaire

It included:

Socio-demographic information, e.g., age, gender, years of education, marital status, and religiosity.

Diagnostic assessment. The WHO-Composite International Diagnostic Interview (CIDI)³² constituted the primary diagnostic

instrument. CIDI is a structured interview which assesses ICD-10 and DSM-IV lifetime- and 12 month-prevalence rates of selected psychiatric disorders. In the current study we focused on selected anxiety disorders (panic, generalized anxiety, agoraphobia without panic, and post-traumatic stress disorders), and mood disorders (major depressive disorder and dysthymia). Prevalence estimates of mental disorders were determined by whether respondents' past or current symptoms met lifetime and/or recent 12 month and diagnostic criteria for DSM-IV disorder. Screening items for each disorder were administered to each respondent. All participants who answered positively to the screening item were asked the diagnostic questions of the main questionnaire. Organic exclusion criteria were taken into account in determining DSM-IV diagnoses. Analysis for the current study examined recent 12 month diagnosis of CMD. This variable was diagnosed positive if respondents met criteria for any of the selected DSM-IV mood or anxiety disorders extracted from the CIDI³⁴. To establish that there were no significant variations in the severity of the diagnoses that were included we examined the differences in the Sheehan Disability Scale³⁵. Results showed that there were no significant differences in severity scores among them.

The CIDI interview schedule showed high test-retest reliability³⁶. WMH clinical reappraisal studies showed good CIDI-SCID agreement in DSM diagnoses and provide support for the construct validity of the interview³⁷. The WMH-CIDI was translated and back-translated from English to Hebrew, and all necessary adaptations were made. All three versions were reviewed by experts and pretested³³.

Chronic Physical Conditions. Respondents were asked whether a doctor or any other

health professional ever told them they have a malignant tumor. Participants who replied yes to this screen question were further asked to indicate whether they are currently in "active treatment for the malignant tumour", "in remission" or "cured". Respondents were also asked whether a doctor or any other health professional ever told them they had heart disease, asthma, diabetes, kidney disease, neurodegenerative disease, chronic obstructive pulmonary disease, tuberculosis condition and whether they still had the condition in the past 12 months. Methodological research has shown that such checklists provide useful information about treated or currently undetected chronic conditions³⁸ and that they predict outpatient health care use, hospitalization and mortality³⁹. Self-report of chronic physical conditions shows moderate to high agreement with medical records data⁴⁰.

*The General Health Questionnaire (GHQ-12)*⁴¹. This 12-item scale measures emotional distress. Items were rated on a four point Likert scale and scores ranged from 12-48, where higher scores indicate increased emotional distress. All items have equal weight. Mean scores were calculated. GHQ-12 has been subject of many tests in many countries, including Israel⁴². In the current study, the GHQ-12 was used as a measure of demoralization for which it has documented adequate validity and reliability⁴³.

Sleep disturbances. Respondents were asked whether in the past 12 months they had a period of two weeks or more of one of the following disturbances: difficulty in falling or staying asleep, and early awakening. In this study, the disturbance was rated present if at least one of the three types of sleep disturbances was reported^{33,36,37}.

Mental health service utilization. Respondents were asked to indicate whether they

had visited any one of a list of agents (health professionals: e.g., psychiatrist, psychologist, social worker, primary care physician, other doctors; religious counselors; and traditional and non-traditional healers) to talk about problems related to their mental health condition in the past 12 months. Due to statistical power constraints we grouped the services into those that are formal health services and other type of services^{33,36,37}.

Statistical analysis

All cancer sites were aggregated to increase statistical power. There were no significant differences in socio-demographic characteristics and medical and psychiatric morbidity between respondents who reported being “in remission” and those reported being “cured”. Therefore, these groups were combined in the analysis and labeled cancer survivors.

Prevalence estimates were derived using standard survey procedures that accounted for sampling probabilities, as well as post-stratification adjustment to compensate for variation in survey non-response³³. Cross-tabulations were used to calculate bivariate odds ratios (ORs), 95% confidence intervals (95% CI) and *p*-values to assess the strength of the associations. Logistic and linear regression modeling accounted for the potential confounding effects of socio-demographic factors and other chronic health conditions in binary variables (e.g., psychiatric diagnosis) and continuous variables (e.g., GHQ-12 scores), respectively. The regression coefficients were transformed into adjusted odds ratios (AORs) and their 95% confidence intervals (95% CI) for ease of interpretation. We adjusted for confounding socio-demographic variables: age; gender; years of education; religiosity; and marital status. In addition, we

adjusted for any self-reported chronic illness other than cancer. These variables were included in the final models if their association with cancer status and the mental health measures (i.e., CMD, GHQ-12, sleep disturbance) met a level of $p < 0.1$. All analyses were performed using SPSS Statistics version 18.0 for windows (SPSS Inc., 2009).

Results

Sample characteristics

Self-reported cancer sites included, breast ($n = 52$, 31.3%); intestine ($n = 17$, 10.2%); prostate ($n = 21$, 12.7%); skin (melanoma) ($n = 17$, 10.2%); uterus ($n = 10$, 6%); leukemia or lymphoma ($n = 6$, 3.6%); lung ($n = 8$, 4.8%); and other ($n = 35$, 21.1%). Cancer diagnosis was made on average, 9.4 SE = 0.7 years prior to the date of the survey, as follows: for respondents with active cancer, 6.3 years SE = 1.6, and for survivors, 10.6 years SE = 0.9.

Several demographic characteristics differed significantly by cancer statuses (Table 1). Respondents with active cancer were older, $M = 66.6$ SE = 1.7, and had less years of formal education, $M = 11.0$ SE = 0.7 than survivors, $M = 61.4$ SE = 1.2; and $M = 13.1$ SE = 0.4, respectively. They also differed with those who were cancer-free, $M = 57.1$ SE = 0.3; and $M = 12.9$ SE = 0.1, respectively.

Psychiatric morbidity

The 12 month-prevalence rates of CMD were statistically significantly higher for respondents with active cancer, 22.1% SE = 6.1%, compared with cancer survivors, 7.2% SE = 2.5%, and cancer-free respondents, 8.5%, SE = 0.6 $\chi^2 = 8.65$, $p < 0.05$, AOR: 2.6

Table 1
The community respondents by cancer status and socio-demographic characteristics^a

	Active cancer (n = 55)	Cancer-survivors (n = 110)	Cancer-free (n = 2282)	<i>P</i>
Age in years; mean (SE)	66.6 (1.7)	61.4 (1.2)	57.1 (0.3)	<0.001
Gender				
Men	48.7%	36.2%	47.7%	0.07
Women	51.3%	63.8%	52.3%	
Marital status				
Married	73.2%	75.6%	76.1%	0.87
Divorced	12.2%	8.5%	9.2%	
Widowed	11.2%	14.4%	11.5%	
Single	3.4%	1.5%	3.2%	
Education in years; mean (SE)	11.0 (0.7)	13.1 (0.4)	12.9 (0.1)	<0.05
Chronic disease other than cancer ^b	73.6%	48.4%	35.2%	<0.001
Religiosity				
Orthodox	6.5%	1.5%	4.2%	0.28
Religious	16.8%	11%	17.6%	
Traditional	45.5%	43.5%	42.4%	
Secular	31.3%	43.9%	35.9%	

^a The sample was restricted to respondents above 39 years of age.

^b Other chronic illnesses: heart disease, asthma, diabetes, kidney disease, neurodegenerative disease, chronic obstructive pulmonary disease, tuberculosis.

(95% CI 1.2-5.6). There were no significant differences in AOR for CMD between survivor- and cancer-free respondents (Table 2).

Emotional distress

Emotional distress showed significant differences in GHQ-12 scores between active cancer, $M = 27.1$ $SE = 1.3$, and cancer-free respondents, $M = 19.8$ $SE = 0.3$, Wald $F = 16.7$, $p < 0.001$ after controlling for socio-demographic variables and other chronic illnesses. There were no significant statistical differences in GHQ-12 scores between cancer survivors, $M = 19.7$ $SE = 0.6$, and cancer-free respondents, $M = 19.8$ $SE = 0.3$ (Table 3).

Sleep disturbances

Prevalence rates of sleep disturbance in the preceding 12 months were statistically significantly higher for respondents with active cancer, 64.7% $SE = 6.5\%$, compared with survivors, 31.5% $SE = 4.6\%$, and cancer-free respondents, 35.4% $SE = 1\%$, $\chi^2 = 18.27$, $p < 0.001$.

The adjusted odds ratio was 2.1 95% CI 1.1-3.9 for respondents who reported active cancer compared with those cancer-free. There were no significant statistical differences in the 12 month-rates of sleep disturbance between cancer survivors and the cancer-free respondents (Table 4).

Table 2
Adjusted odds ratios (95% confidence interval) for common mental health disorders (CMD) in the preceding 12 months associated with cancer status

CMD 12 months prevalence rates		
Variables	OR	95%CI
Gender*		
Men	Reference	
Women	1.4	1.0-2.0
Age*		
40-49	Reference	
50-64	1.2	0.9-1.8
65+	0.7	0.5-1.1
Marital status**		
Not currently married	Reference	
Married	0.6	0.4-0.8
Education in years		
0-9	Reference	
10-12	1.0	0.7-1.6
13<	0.7	0.5-1.1
Religiosity		
Secular	Reference	
Traditional	0.9	0.4-2.1
Religious	1.0	0.6-1.6
Orthodox	1.3	0.9-1.9
Other chronic disease**		
No	Reference	
Yes	1.6	1.1-2.1
Cancer status*		
Cancer-free	Reference	
Active cancer	2.6	1.2-5.6
Cancer survivors	0.8	0.4-1.8

* $p < 0.05$; ** $p < 0.01$.

OR- Adjusted odds ratio for all other variables in the table in logistic regression models.

Mental health service utilization

All respondents who had active cancer and cancer survivors reported seeking only formal health services for their mental health

problems in the preceding 12 month and in lifetime, none reported seeking other services. No statistically significant differences were found in mental health service utilization in the preceding 12 months between active cancer respondents, $n = 7$, 12.5% SE = 4.5%, survivors, $n = 11$, 9.2% SE = 2.7%, and cancer-free respondents, $n = 155$, 7.1% SE = 0.6%, $\chi^2 = 2.82$, $p = 0.23$. Similar proportions of active cancer, 24.4%, survivors, 34.8%, and cancer-free, 30.2%, respondents that had CMD had contacted professional services. Similarly, for the three groups that had no CMD, the service utilization rates did not differ, 9.2%, 7.3%, and 4.9%, respectively.

No differences were found in lifetime formal health service utilization by active cancer respondents, $n = 14$, 27.6% SE = 6.5%, cancer survivors, $n = 23$, 21.6% SE = 4.1%, and cancer-free respondents, $n = 401$, 17.6% SE = 0.8%, $\chi^2 = 2.68$, $p = 0.29$. Similar results were obtained for emotional distress and sleep disturbances.

Discussion

This is the first epidemiological study on selected mental health problems and service utilization among community respondents with active cancer and cancer survivors in Israel. Our results showed that respondents who at the time of the study were undergoing treatment for cancer reported more mental health problems. More specifically, these respondents were two and a half times more likely to be diagnosed with CMD in the preceding 12 months, had higher emotional distress, and higher prevalence rates of sleep disturbance compared with cancer survivors and cancer-free respondents. Our findings confirmed the results of other community-

Table 3
Cancer status groups by emotional distress (GHQ-12). Means and standard errors (SE)

Cancer status	n	Emotional Distress (GHQ-12)		Wald F	P value*
		Mean	SE		
				16.7	<0.001
Cancer- free	2181	19.8	0.3		
Active cancer	52	27.1	1.3		
Cancer survivors	106	19.7	0.6		

* Adjusted for gender, age, marital status, education, religiosity and chronic diseases.

Table 4
Adjusted odds ratio (95% confidence interval) for sleep problems in the preceding 12 months associated with cancer status

Variables	Sleeping problems	
	OR	95%CI
Gender**		
Male	Reference	
Female	1.8	1.5-2.2
Age** in years		
40-49	Reference	
50-64	1.4	1.1-1.7
65+	1.7	1.3-2.2
Marital status*		
Not currently married	Reference	
Married	0.8	0.6-1.0
Education in years**		
0-9	Reference	
10-12	0.7	0.5-0.9
13+	0.4	0.3-0.5
Religiosity		
Secular	Reference	
Traditional	1.3	1.0-1.7
Religious	1.4	1.1-1.7
Orthodox	1.1	0.6-1.8
Any chronic disease**		
No	Reference	
Yes	1.8	1.5-2.2
Cancer status*		
Cancer free	Reference	
Active cancer	2.1	1.1-3.9
Cancer survivors	0.7	0.5-1.1

* p < 0.05; ** p < 0.01.

OR- Adjusted odds ratio for all other variables in the table in logistic regression models.

based studies which showed that a significant proportion of persons with cancer have comorbid psychiatric disorders^{3-5,8}. Yet, the service utilization for mental problems did not differ from those who were cancer-free. Our findings also showed that cancer survivors did not differ from cancer-free respondent on the prevalence rates of the mental health problems we explored^{44,45}, a proxy measure of adjustment.

This study has important implications for the care of persons with cancer. It highlights the need for adequate mental health assessment of persons with cancer who can benefit from evidence-based treatment in primary care or in specialized services, thus improving the course and outcome of their disease and quality of life^{6,8,17,18}. In addition, it calls for the reduction of the treatment gap⁶, a public health problem that remains despite the existence of efficacious interventions for anxiety and depressive disorders, e.g., psychopharmacological⁴⁶ and psychotherapeutic (e.g., cognitive-behavioral therapy)⁴⁷ interventions. CMD may become part of a vicious cycle in which the cancer and the mental health problems affect each other in a negative cycle.

This study has several limitations. First, due to statistical power constraints analyses were performed on aggregate types of cancer and across genders and ethnic groups. These may have concealed differences. Second, no information was available on cancer

stage, which may have an effect on the association with the mental health-related variables. Despite these limitations, we believe that the overall study contribution compensate its limitations.

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