



Frequency and Severity of Depression in Cancer Patients Presenting to Tertiary Care Hospital

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Authors' contributions

This work was carried out in collaboration among all authors. Author RK designed the study, performed the statistical analysis, wrote the protocol and wrote the first draft of the manuscript. Authors HK, SB, AS, SAP, SR and AA managed the analyses of the study and managed the literature searches. All authors read and approved the final manuscript.

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ABSTRACT

Introduction: Cancer and depression, independently, cause massive human suffering worldwide. By the end of 2030 the unipolar major depression disorder could be as the chief source of ailment as estimated by World Health Organization.

Objective: Objective of this study is to detect prevalence the frequency and severity of the depression in cancer patients presenting to tertiary care hospital of Karachi.

Methodology: The current prospective cross-sectional research was performed over a period of six months from August 2020 to January 2021 on 179 patients in the Department of Oncology of Civil Hospital Karachi, after approval of synopsis from CPSP and the ethical committee of Civil

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Hospital. All patients who fulfilled the inclusion criteria and visited OPD of Civil hospital were selected in the study. Informed consent was taken after explaining the procedure, risks and benefits of the study. Patients were assessed clinically by using ICD-10 criteria and then for validity and reliability, patients were screened for presence of depression and its severity through PHQ-9. Patients scoring higher than 4 was labeled as having depression and PHQ-9 score of 5 to 9, 10 to 14, 15 to 19, 20-27 were labeled mild, moderate, moderately severe and severe depression correspondingly. Observed data was entered in the predesigned Performa was gathered and SPSS version 20.0 was used for data analysis. Mean \pm SD of age was 47.75 ± 14.901 years. Out of 179 patients 95 (53.1%) were male and 84 (46.9%) were female. 93(52%) cancer patients were depressed while 86(48%) were normal. Patients suffering from mild depression were 3.2%, moderate depression were 54.85%, moderately severe depressed were 19.4%, while 22.6% cancer patients were severely depressed. It is to be concluded that out of 179 cancer patients 93(52%) diagnosed to have depression while 86(48%) did not have depression. Based on our study findings, it is suggested that depression commonly presented in cancer patients and there is a need to screen all cancer patients for depressive disorder.

Keywords: Depressive disorder; PHQ-9; cancer; ICD-10 classification frequency.

1. INTRODUCTION

Cancer and depression, independently, cause massive human suffering worldwide [1]. By the end of 2030 the unipolar major depression disorder could be as the chief source of ailment as estimated by World Health Organization [1]. It is anticipated that over than 03.0 million individuals will be diagnosed as having cancer in the UK by the end of 2030 [2]. In the year 2008 about 169.0 million years of healthy life vanished because of cancer throughout the globe [1]. In year 2012 nearly 14.1 million new cases of cancer with about 08.2 million cancer related deaths were reported from all over the globe [3]. It is seen that severe anxiety, pain, lethargy, and disturbed functioning was more bin subjects of cancer with co morbid depression in comparison to cancer subjects without depression [2]. Suicidal feelings and noncompliance to cancer medications are the major issues in these subjects [2]. The occurrence of depressive disorders in cancer subjects is four times more than that of the common people. These disorders are highly variable; in Iran 50.0% where as in China up to 67.0% subjects with cancer patients had been suffering from depressive ailments [3]. Universally, most of the community centered researches had described the pervasiveness of depression in patients suffering from cancer as 10.00 to 25.00% in comparison to 03.3 to 21.4% in common inhabitants [3]. The pervasiveness of interview based diagnosed depression for subjects suffering from all types of cancer was analysed as 16.0% and 13.0% [2]. The management of depressive disorders in cancer subjects is essential. The psychiatrists must be involved to treat the cancer subjects with

comorbid depression, because of increased occurrence of mood disorders in the habitants and the adverse outcomes of unmanaged depressive ailments on their quality of life [3]. Therefore, improved approaches for the diagnosis and management of subjects with depression reaching at cancer care facilities are desirable [2]. The effective treatment of depression in subjects with cancer had been introduced by the United Kingdom National Institute of Health and Care Excellence and the United States Institute of Medicine [2]. In USA all subjects suffering from cancer must be screened for psychosocial ailments especially for depression [4]. In 2012 new cases of all types of cancer were 148000 from all over Pakistan [5].

Depression from mild to severe was reported to be 65.0% in cancer patients of Urban Sindh-5 and about 66.00% amongst cancer subjects all over Pakistan [6]. The rationale of this study is that because previous study [3] was done in OPD patients of private sector teaching hospitals. This study was done exclusively in public sector hospital (Civil Hospital Karachi). It is needed to have the knowledge about the number of cancer subjects attending cancer facilities having depression and those subjects who are prone to develop depression. Conversely there are deficient statistics to reply these elementary queries. Hence there is high need to do more research.

Aim of this study is to detect prevalence the frequency and severity of the depression in cancer patients presenting to tertiary care hospital of Karachi.

2. MATERIALS AND METHODS

The current prospective cross-sectional research was performed on 179 patients over a period of six months August 2020 to January 2021 in the Department of Oncology of Civil Hospital Karachi. After institutional ethical committee approval, 179 patients with Cancer were recruited using non-probability consecutive sampling technique. After identifying patient, the demographic profile of the patients was noted and patients giving consent to participate in study was assessed clinically by researcher using ICD-10 criteria and then for validity and reliability patients were screened for presence of depression and its severity through PHQ-9 [4-6]. PHQ-9 was explained by researcher to participants. Five minutes were given to respondents to encircle the options ranging from 0 - 3. The score "0" denotes no any symptom existing. The score "1" denotes symptoms existing for up to 07 days. If symptoms persist for longer than 07 days it was scored as "2". If symptoms remained persisting every day from the consecutive 02 weeks it was scored as "3". Patients scoring higher than 4 were labeled as having depression. PHQ-9 score of 5 to 9, 10 to 14, 15 to 19 and 20 to 27 present mild, moderate, moderately severe and severe depression correspondingly. Spitzer and colleagues developed the Patient Health Questionnaire-9 (PHQ-9). It is a self-scored variety of the Primary Care Evaluation of Mental Disorders (PRIME-MD) instrument. It approximately evaluates common mental disorders. The PHQ-9 assesses depressive symptoms based on nine DSM-IV criteria. There are four choices of response for each item ranging from 0 ("not at all") to 3 ("nearly every day"). It has been proposed that total PHQ-9 scores of 05, 10, 15, and 20 represent depression categorized from mild, moderate, moderately severe, to severe. Time to complete scale was less than 5 minutes. Confidentiality of patient was maintained.

2.1 Inclusion Criteria

- All cancer patients including male and female aged between 18 years and 65 years irrespective of site, duration and stage of cancer.
- Those giving informed consent.

2.2 Exclusion Criteria

- Patients with physical illnesses other than cancer.

- Not willing to be part of study

2.3 Data Analysis

Data was analyzed on SPSS version 21. Mean and standard deviation was calculated from all continuous variables like age, income and duration of cancer diagnosis. Frequency and percentage was calculated for all categorical variables like gender, educational status, occupation, site of cancer and screening and severity was determined through Patient Health Questionnaire (PHQ-9) score. Post-stratification chi square test was applied for gender, education, occupation, duration stage and site of cancer to control the effect modifier value ≤ 0.05 was reflected as statistically significant.

3. RESULTS

179 patients were included to assess the frequency and severity of depression in cancer subjects and the results were analyzed. Mean \pm SD of age was 47.75 \pm 14.901 with C.I (45.48.....50.01) years and Mean \pm SD for duration of cancer was 4.02 \pm 0.869 with C.I (3.89.....4.15) months as shown in Tables 1-2.

Mean \pm SD of family income was 15550.30 \pm 3330.793 with C.I (15044.48.....16056.11) months as shown in Table 3.

Out of 179 patients 95 (53.1%) were male and 84 (46.9%) were female as shown in Fig. 1.

In educational status 129 (72.2%) were Illiterate, 23 (12.4%) matriculates, 21 (11.8%) primary, 3 (1.8%) were secondary and intermediate educated as shown in Table 4.

In occupational status 89 (49.7%) were house wife, 31 (17.3%) laborer, 17 (9.5%) auto mechanic as shown in Table 5.

In distribution of site of cancer 29 (16.2%) had stomach cancer, 3(1.7%) liver, 17 (9.5%) lung, 13 (7.3%) breast, 27 (15.1%) oral cavity, 6(3.4%) esophagus and 84 (46.9%) patients had all other site of cancer as shown in Table 6.

In distribution of current treatment 78 (43.6%) had under chemotherapy, 85(47.5%) and 16 (8.9%) on surgery and radiotherapy respectively as shown in Table 7.

The frequency of depression in cancer patients was found to be 93(52%) while 86(48%) were normal as shown in Fig. 2.

In severity of depression 21 (22.6%) had severe, 51 (54.85), 18 (19.4%) and 3(3.2%) had moderate, moderately severe and mild depression respectively as shown in Table 8.

The outcome variable i.e. depression was stratified with respect to effect modifier of the study, significant difference was observed when it was stratified with respect to age, site of cancer, current treatment and family income, however, non-significant difference was

observed when it was stratified with respect to gender, educational status, occupational status and duration of cancer as shown in Tables 9-16.

Similarly, when outcome variable i.e. severity depression was stratified with respect to effect modifier of the study i.e. age, gender, occupational status, site of cancer and family income, significant difference was observed, however, non-significant difference was observed, when same was stratified with respect to educational status, current treatment, duration of disease and educational status as shown in Tables 17-24.

Table 1. Descriptive statistics of age n=179

Descriptive Statistics		Statistic	Std. Error
Age (In years)	Mean	47.75	1.146
	Std. Deviation	14.901	

Table 2. Descriptive statistics for duration of cancer n=179

Descriptive Statistics		Statistic	Std. Error
Duration (In months)	Mean	4.02	.067
	Std. Deviation	.869	

Table 3. Descriptive statistics of family income n=179

Family Income		Statistic	Std. Error
Family Income	Mean	15550.30	256.215
	Std. Deviation	3330.793	

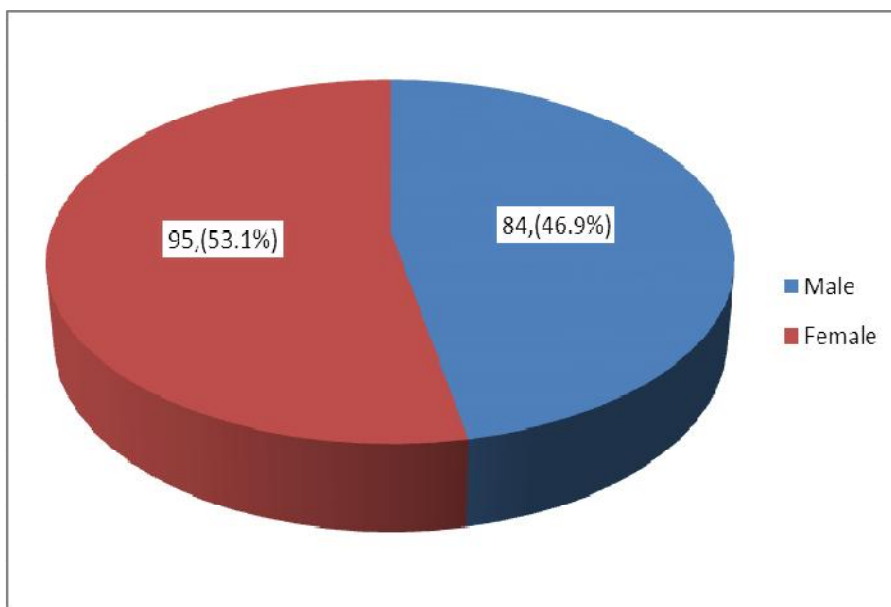


Fig. 1. Frequency of gender n=179

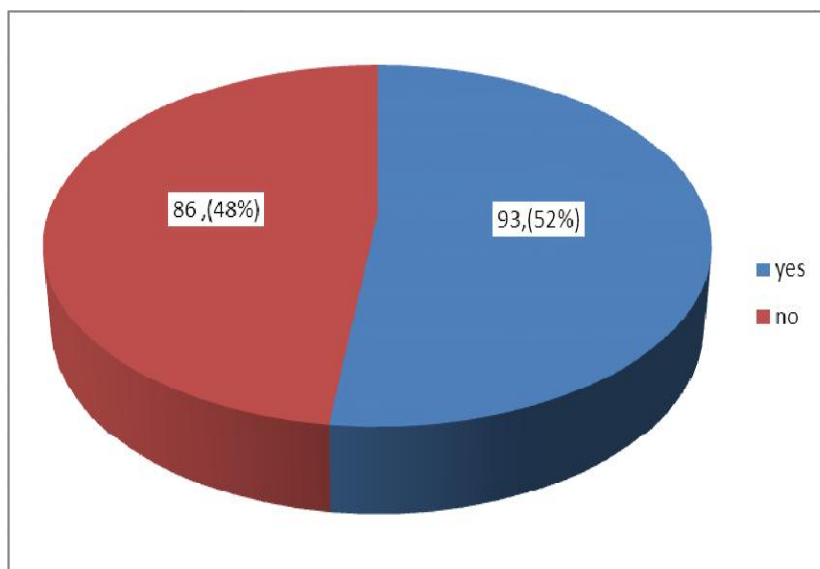


Fig. 2. Frequency of depression n=179

Table 4. Frequency of educational status n=179

Educational Status	Frequency	Percent
Illiterate	129	72.2%
Matric	23	12.4%
Primary	21	11.8%
Secondary	3	1.8%
Intermediate	3	1.8%
Total	179	100.0%

Table 5. Frequency of occupational status n=179

Occupational Status	Frequency	Percent
House Wife	89	49.75%
Labour	31	17.3%
Driver	8	4.5%
Unemployed	14	7.8%
Business	8	4.5%
Auto Mechanic	17	9.5%
Student	4	2.2%
Self employed	8	4.5%
Total	179	100.0%

Table 6. Frequency for site of cancer n=179

Site of Cancer	Frequency	Percent
Stomach	29	16.2%
Liver	3	1.7%
Lung	17	9.5%
Breast	13	7.3%
Oral Cavity	27	15.1%
Esophagus	6	3.4%
All other	84	46.9%
Total	179	100.0%

4. DISCUSSION

Distinct skilled health care providers like; physician and nurses and casual caretakers, such as family fellows or supporters, offer carefulness to persons with different situations comprising increased age, dementedness and

cancers. A prolonged stress is usually observed by this, and caretakers usually expertise deleterious emotional, social and physical possessions on their everyday life and wellbeing [7]. The consequences of oncological ailments on the individuals, especially a family member, consenting the duty to care the patient's [8-10].

Table 7. Frequency of current treatment n=179

Current Treatment	Frequency	Percent
Chemotherapy	78	43.6%
Surgery	85	47.5%
Radiotherapy	16	8.9%
Total	179	100.0%

Table 8. Frequency for severity of depression n=93

Severity of Depression	Frequency	Percent
Mild	3	3.2%
Moderate	51	54.8%
Moderately Severe	18	19.4%
Severe	21	22.6%
Total	93	100.0%

Table 9. Stratification of age group with respect to depression n=179

Depression		Age Group (years)		P-value
		19---47	> 47	
Yes	Count	52	34	0.028
	% of Total	29.1%	19.0%	
No	Count	41	52	
	% of Total	22.9%	29.1%	

Table 10. Stratification of gender group with respect to depression n=179

Depression		Gender)		P-value
		Male	Female	
Yes	Count	39	45	0.180
	% of total	21.8%	25.1%	
No	Count	54	41	
	% of total	30.2%	22.9%	

Table 11. Stratification of educational status with respect to depression n=179

Educational Status		Depression		P-value
		Yes	No	
Illiterate	Count	68	61	0.139
	% of total	38.0%	34.1%	
Matric	Count	10	13	
	% of total	5.6%	7.3%	
Primary	Count	12	9	
	% of total	6.7%	5.0%	
Secondary	Count	0	3	
	% of total	0.0%	1.7%	
Intermediate	Count	3	0	
	% of total	1.7%	0.0%	

The effects of these ailments can negotiate with the quality of everyday life. They enhance concern for adjusting behaviors, communal relations and emotional strain, that comes to be more heightened while support is deficient. Throughout the mollifying stages of the patient's ailment, they could advance to more physical stress due to augmented imposition on their job, due to fatigue and to the restricted time existing for rest and caring of itself [11].

Table 12. Stratification of occupational status with respect to depression n=179

Occupational status		Depression		P-value
		Yes	No	
House wife	Count	51	38	0.213
	% of total	28.5%	21.2%	
Labour	Count	11	20	
	% of total	6.1%	11.2%	
Driver	Count	3	5	
	% of total	1.7%	2.8%	
Unemployed	Count	8	6	
	% of total	4.5%	3.4%	
Business	Count	3	5	
	% of total	1.7%	2.8%	
Auto mechanic	Count	9	8	
	% of total	5.0%	4.5%	
Student	Count	4	0	
	% of total	2.2%	0.0%	
Self employed	Count	4	4	
	% of total	2.2%	2.2%	

Table 13. Stratification for site of cancer with respect to depression n=179

Site of Cancer		Depression		P-value
		Yes	No	
Stomach	Count	10	19	0.002
	% of total	5.6%	10.6%	
All other	Count	40	44	
	% of total	22.3%	24.6%	
Lung	Count	11	6	
	% of total	6.1%	3.4%	
Breast	Count	13	0	
	% of total	7.3%	0.0%	
Oral cavity	Count	16	11	
	% of total	8.9%	6.1%	
Esophagus	Count	3	3	
	% of total	1.7%	1.7%	
Liver	Count	0	3	
	% of total	0.0%	1.7%	

Table 14. Stratification of current treatment with respect to depression n=179

Current treatment		Depression		P-value
		Yes	No	
Chemotherapy	Count	47	31	0.010
	% of total	26.3%	17.3%	
Surgery	Count	43	42	
	% of total	24.0%	23.5%	
Radiotherapy	Count	3	13	
	% of total	1.7%	7.3%	

Depressing symptom remain as the most considerably care giving impairment, with the frequency approximating for depressive disorders ranging from 12.0% to 30.0% [11,12]. Socio-economic features of caretaker and sufferer and illness associated features had been well recognized in association with depression. Symptoms of depression are related per responsibilities and burden of care giving. Rendering to typical strain managing mockups the constructive views impact the assessment of tense circumstances [8,13,14]

subjects having strong SOC (sense of coherence)even with tremendously acute situations like; giving care to the family fellows can provide encouraging results and can efficiently manage thru tension and retain worthy wellbeing position. The SOC is the capability of persons to activate their overcoming properties throughout episodes of misery. SOC is the sort of adaptable overcoming responses for gathering the challenges of care giving to the family participants and to conclude the consequence of the care giving.

Table 15. Stratification of family income with respect to depression n=179

Family Income		Depression		P-value
		Yes	No	
14000-18000	Count	83	10	0.010
	% of total	46.4%	5.6%	
000	Count	69	17	
	% of total	38.5%	9.5%	

Table 16. Stratification for duration of cancer with respect to depression n=179

Duration of Cancer (months)		Depression		P-value
		Yes	No	
0---4	Count	79	14	0.835
	% of total	44.1%	7.8%	
>4	Count	74	12	
	% of total	41.3%	6.7%	

Table 17. Stratification of age group with respect to severity of depression n=93

Severity of Depression		AGE GROUP (Years)		P-VALUE
		19---47	> 47	
Severe	Count	8	13	0.001
	% of Total	8.6%	14.0%	
Moderately Severe	Count	38	13	
	% of Total	40.9%	14.0%	
Moderate	Count	6	12	
	% of Total	6.5%	12.9%	
Mild	Count	0	3	
	% of Total	0.0%	3.2%	

Table 18. Stratification of gender with respect to severity of depressionn=93

Severity of Depression		Gender		P-value
		Male	Female	
Severe	Count	8	13	0.015
	% of total	8.6%	14.0%	
Moderate	Count	28	23	
	% of total	30.1%	24.7%	
Moderately severe	Count	3	15	
	% of total	3.2%	16.1%	
Mild	Count	0	3	
	% of total	0.0%	3.2%	

The psychological distress in giving care to subjects suffering from cancer can be prevented [15]. Boyoung Park in his study reported that the pervasiveness of depression was 82.2% amongst family caretakers of cancer subjects [16]. In a research performed in Korea, reported a 67.0% prevalence of depression [17].

Table 19. Stratification of educational status with respect to severity of depression n=93

Severity of depression		Educational status				P-value
		Illiterate	Matric	Primary	Intermediate	
Severe	Count	18	3	0	0	0.074
	% of total	19.4%	3.2%	0.0%	0.0%	
Moderate	Count	32	4	12	3	
	% of total	34.4%	4.3%	12.9%	3.2%	
Moderately severe	Count	15	3	0	0	
	% of total	16.1%	3.2%	0.0%	0.0%	
Mild	Count	3	0	0	0	
	% of total	3.2%	0.0%	0.0%	0.0%	

Table 20. Stratification of occupational status with respect to severity of depression n=93

Occupational status		Severity of depression				P-value
		Severe	Moderate	Moderately severe	Mild	
House wife	Count	10	23	15	3	0.0001
	% of total	10.8%	24.7%	16.1%	3.2%	
Labour	Count	8	3	0	0	
	% of total	8.6%	3.2%	0%	0%	
Driver	Count	0	3	0	0	
	% of total	0%	3.2%	0.0%	0.0%	
Unemployed	Count	0	8	0	0	
	% of total	0%	8.6%	0.0%	0.0%	
Business	Count	0	0	3	0	
	% of total	0%	0%	3.2%	0%	
Auto mechanic	Count	3	6	0	0	
	% of total	3.2%	6.5%	0.0%	0.0%	
Student	Count	0	4	0	0	
	% of total	0%	4.3%	0%	0%	
Self employed	Count	0	4	0	0	
	% of total	0%	4.3%	0%	0%	

Table 21. Stratification of site of cancer with respect to severity of depression n=93

Severity of depression		Site of cancer						P-value
		Stomach	Esophagus	Lung	Breast	Oral cavity	All other	
Severe	Count	5	0	5	8	3	0	0.0001
	% of total	5.4%	0.0%	5.4%	8.6%	3.2%	0.0%	
Moderate	Count	5	3	3	23	13	3	
	% of total	5.4%	3.2%	3.2%	24.7%	14.0%	3.2%	
Moderately severe	Count	0	0	3	9	0	0	
	% of total	0.0%	0.0%	3.2%	9.7%	0.0%	0.0%	
Mild	Count	0	0	0	0	0	0	
	% of total	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	

Table 22. Stratification of current treatment with respect to severity of depression n=93

Severity of depression		Current treatment			Total
		Chemotherapy	Surgery	Radiotherapy	
Severe	Count	10	11	0	21
	% of total	10.8%	11.8%	0.0%	22.6%
Moderate	Count	31	20	0	51
	% of total	33.3%	21.5%	0.0%	54.8%
Moderately severe	Count	6	9	3	18
	% of total	6.5%	9.7%	3.2%	19.4%
Mild	Count	0	3	0	3
	% of total	0.0%	3.2%	0.0%	3.2%

Table 23. Stratification of family income with respect to severity of depression n=93

Severity of depression		Family income		P-value
		14000---18000	>18000	
Severe	Count	21	0	0.005
	% of total	22.6%	0.0%	
Moderate	Count	47	4	
	% of total	50.5%	4.3%	
Moderately severe	Count	12	6	
	% of total	12.9%	6.5%	
Mild	Count	3	0	
	% of total	3.2%	0.0%	

Table 24. Stratification for duration of cancer with respect to severity of depression n=93

Severity of depression		Duration of Cancer (months)		P-value
		2---4	> 4	
Severe	Count	21	0	0.112
	% of total	22.6%	0.0%	
Moderate	Count	40	11	
	% of total	43.0%	11.8%	
Moderately severe	Count	15	3	
	% of total	16.1%	3.2%	
Mild	Count	3	0	
	% of total	3.2%	0.0%	

In current study frequency of depression was quite low when compared with the frequency reported by Boyoung Park and in Korean study. According to Hisilimit point, depression was analysed in 35.2% of the cancer subjects and 17.6% in the relatives of these subjects [18]. Segrin et al. found the occurrence of depression was 32.0% in subjects with breast cancer and 33.0% in their family members, correspondingly [6]. Frequency of depression among care givers of this study is almost same to that of reported by Segrin but higher than the frequency of depression reported by Hisilimit. Gozum et al. analysed that Turkish subjects with cancer had 53.2% prevalence of depression and 11.8% of

the family members had depression [8]. Frequency of depression reported by Gozum was also a bit higher than that of this study. The reasons behind these diverse rates in different populaces are due to the common features and configurations of these inhabitants are unlike. The most cancer patients in China suffer from high level of depression, the pervasiveness of depression was noted as 67.3%. This prevalence of depression is much greater than the rates of depression in non-Chinese equivalents [5-19]. This difference in frequency of depression among care givers may be due to sample size difference or some methodological differences for measurement of depression among

caregivers. But the main difference can be explained on the basis of cultural/ethnic values difference. In our set up the treatment of cancer patients is very much expensive but at Government level some tertiary level hospitals providing the treatment to cancer patients free of cost but still caregivers had a strong emotional relation and affiliation especially in this part of the world may be a protective factor for caregivers. We don't have specialized palliative care centers for such patients. However economical problems, lack of members for care giving and other social, psychosocial and interpersonal characteristics makes it a bit difficult for the caregivers not to stay stress free. Socio-economic features of caretakers play the greatest significant role in interpreting the depression, representing 28.5% of the detected unevenness in depression. Regular earnings and duration are appeared to be certainly related with symptoms of depression, these results are in accord to researches done in past. Caretakers having a lesser amount of monthly earnings and deprived sleep, suffer from increased symptoms of depression [20,21]. Even though the tense occasions are unavoidable, it is likely to recognize a caretaker with greater risks of undesirable consequences, evaluate the grade at which the caretaker's life and well-being might be adversely influenced. The interferences which might decrease the undesirable effects of the care giving should be recommended. Recognition of the psychological, behavioral and physiological issues of caring for a subject with cancer offers a tremendous occasion for primary avoidance. The assessment by the primary care physicians is a common barrier in the primary prevention [7]. It is observed that adequate knowledge regarding the illness may reduce the depression rates. A multi-disciplinary approach is needed for the managements of cancer subjects. There are many emotive influences on subjects and their family members during different stages of cancer treatment. Consequently, it is very essential that during every step of treatment, a thorough psycho-social care must be provided to subjects and their family members.

5. CONCLUSION

It is to be concluded that out of 179 cancer patients 93(52%) diagnosed to have depression while 86(48%) did not have depression. Based on our study findings, it is suggested that depression commonly presented in cancer patients and there is a need to screen all cancer patients for depressive disorder.

CONSENT AND ETHICAL APPROVAL

The study processed after approval of synopsis from CPSP and the ethical committee of Civil Hospital. Informed consent was taken from the patients after explaining the procedure, risks and benefits of the study.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

REFERENCES

1. Park EM, Rosenstein DL. Depression in young adults with cancer. *Dialogues Clin Neuro Sci.* 2015;171(2):171-180.
2. Walker J, Hansen CH, Martin P, Symeonides S, Ramessur R, Murray G, et al. Prevalence, associations and adequacy of treatment of major depression in patients with cancer: A cross-sectional analysis of routinely collected clinical data. *Lancet Psychiatry.* 2014;1(5):343—50
3. Hashmi A, Tauseef U, Ahmed SI, Mubeen SM, Ghaffar N, Mehmood R. Depression in cancer patients attending outpatients department of tertiary care hospitals of Karachi. *Ann Abbasi Shaheed Hosp Karachi Med Dent Coll.* 2013;18(2):101-5
4. Ferlay J, Soerjomataram I, Ervik M, Dikshit R, Eser S, Mathers C, et al. GLOBOCAN 2012 v1.0, cancer incidence and mortality worldwide: IARC cancer base No. 11. Lyon, France: International Agency for Research on Cancer; 2013.
5. Jadoon NA, Munir W, Shahzad MA, Choudhry ZS. Assessment of depression and anxiety in adult cancer outpatients. *BMC Cancer.* 2010;10:594.
6. Kroenke K, Spitzer RL, Williams JB. The PHQ-9: Validity of a brief depression severity measure. *J Gen Intern Med* 2001; 16:606-13.
7. Bevans M, Sternberg EM. Caregiving burden, stress and health effects among family caregivers of adult cancer patients. *Jama.* 2012;307(4):398-403.
8. Given B, Wyatt G, Given C, Gift A, Sherwood P, De Voss D, et al., editors. Burden and depression among caregivers of patients with cancer at the end-of-life NIH Public Access. *Oncology nursing forum*; 2004:
9. Stenberg U, Ruland CM, Miaskowski C. Review of the literature on the effects of

- caring for a patient with cancer. *Psycho-Oncology*. 2010;19(10): 1013-25.
10. Grov EK, Fosså SD, Sørebo Ø, Dahl AA. Primary caregivers of cancer patients in the palliative phase: A path analysis of variables influencing their burden. *Social science & medicine*. 2006;63(9): 2429-39.
 11. Shyu YIL. The needs of family caregivers of frail elders during the transition from hospital to home: A Taiwanese sample. *Journal of Advanced Nursing*. 2000;32(3): 619-25.
 12. STANDARD OER. Società Italiana di Psico-Oncologia; 1998.
 13. Tang ST, Li CY, Chen CCH. Trajectory and determinants of the quality of life of family caregivers of terminally ill cancer patients in Taiwan. *Quality of Life Research* 2008;17(3):387-95.
 14. Tang ST, Li CY. The important role of sense of coherence in relation to depressive symptoms for Taiwanese family caregivers of cancer patients at the end of life. *Journal of Psychosomatic Research*. 2008;64(2):195-203.
 15. Chumbler NR, Rittman MR, Wu SS. Associations in sense of coherence and depression in caregivers of stroke survivors across 2 years. *The Journal of Behavioral Health Services & Research*. 2008;35(2):226-34.
 16. Park B, Kim SY, Shin JY, Sanson Fisher RW, Shin DW, Cho J, et al. Prevalence and predictors of anxiety and depression among family caregivers of cancer patients: A nationwide survey of patient-family caregiver dyads in Korea. *Supportive Care in Cancer* 2013;21(10): 2799-807.
 17. Rhee YS, Yun YH, Park S, Shin DO, Lee KM, Yoo HJ, et al. Depression in family caregivers of cancer patients: the feeling of burden as a predictor of depression. *J Clin Oncol [Research Support, Non-U S Gov't]* 2008;26(36):5890-5.
 18. Hisli N. A study on the validity of Beck Depression Inventory. *Turkish Journal of Psychology* 1988;6(22):118-23.
 19. Braun M, Mikulincer M, Rydall A, Walsh A, Rodin G. Hidden morbidity in cancer: spouse caregivers. *Journal of Clinical Oncology*. 2007;25(30):4829-34.
 20. Sun F, Hilgeman MM, Durkin DW, Allen RS, Burgio LD. Perceived income inadequacy as a predictor of psychological distress in Alzheimer's caregivers. *Psychology and aging* 2009;24(1):177.
 21. Carter PA, Chang BL. Sleep and depression in cancer caregivers. *Cancer Nursing* 2000;23(6):410-5.

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