



Investigation of Depression in Cancer Patient's Caregivers in Combined Military Hospital, Rawalpindi

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Abstract

Background: Cancer is the second leading cause of death, responsible for 1 in 6 deaths globally and Caregivers play a major role in cancer patients' care and rehabilitation. They may face several psychological issues like depression along with physical and emotional disadvantages, and significant financial consequences. The objective of this study is to find out the associations of Depression with demographic variables among family caregivers of cancer patients in combined Military Hospital, Rawalpindi.

Methods: This was a cross-sectional study conducted in the OPD and IPD of the Oncology department of CMH, Rawalpindi between February and July 2020. The 384 adult cancer patient's caregivers visiting oncology department were assessed to find out level of depression after getting informed consent. Data was collected by Demographic questionnaire and Beck Depression Inventory (BDI) tool. Chi-square test and Likelihood ratio chi-square test used to find association.

Results: Out of all 384 caregivers 181 (47.1 %) were males and 203 (52.9 %) were females. 267 (69.5 %) were diagnosed as non-depressive while 117 (30.5 %) were diagnosed as Depressive. A considerable association has been found between Depression and Age of caregivers ($p = 0.006$), Gender of caregivers ($p < 0.05$), employment status of caregivers (0.02) and relationship to a cancer patient ($p = 0.003$).

Conclusion: A high prevalence of depression is found in cancer patient's caregivers and Depression is significantly associated with Age of caregivers, Gender of caregivers, employment status of caregivers, and the relationship to cancer patients.

Keywords: Beck Depression Inventory, cancer patient's caregivers, Depression

Introduction

Cancer, which influences all ages and countries regardless of their economic status is constantly expanding and speaks to a genuine general public health issue around the world (1). Ferlay et al reported that 18.1 million new cancer cases worldwide and 9.6 million cancer-related deaths occurred in 2018 (2). Cancer is the second main source of death around the world, responsible for 1 in 6

deaths globally (3). Europe having only 9% of the global population accounts for 23.4% of the total cancer cases and 20.3% of the cancer deaths, followed by the Americas' 21% of incidence and 14.4% of cancer deaths globally. Unlike other regions, the shares of cancer deaths in Asia (57.3%) and Africa (7.3%) are higher than the shares of incidence (48.4% and 5.8%, respectively) since these regions are more

likely to develop certain forms of cancer, linked to worse forecast and higher mortality rates and restricted access in many of the continent's countries to timely detection and treatment (4). The age-standardized incidence rate of cancer in Pakistan is 114 and the risk of developing cancer before the year of 75 years is 8.8 % in Pakistan. The estimated number of prevalent cases of cancer is 154 per 1,00,000 population both sexes all ages in Pakistan (5). Speaking of the term cancer is identified with a dangerous situation regardless of the expanding awareness of clinical information in Pakistan. The diagnosis of cancer disease influences the patients as well as primary caregivers engaged in the patient care (6).

Family caregivers (FC) are “relatives, family members, friends, or neighbors who give support associated with associate degree underlying physical or mental incapability that goes past normal and normative social support provided in social relationships however is unpaid for those services (7). FCs may perform a critical role in the care and treatment of patients having cancer because of the shifting of treatment towards outpatient care, besides cancer poses an ever-growing care problem. These established increased roles for both the emotional and physical care and treatment of patients who have been passed to family and friends (1). Cancer patients typically need help from family and friends in addition to specialized medical treatment and care. Family caregivers assist patients with personal care, transportation, emotional support, finances, and symptom management throughout their caregiving process (8). Caregivers frequently compromise their own needs, placing themselves at increased risk of stress and possible psychosocial harm which can exceed the normal limit and that of the patient (9).

Caregivers may face several psychological issues like depression and a decrease in Quality of Life (QoL). There is a trend towards reduced stay in hospital due to the ever-expanding population, so more out-patient and home treatment has put a heavier weight on FCs including physical and emotional disadvantages with significant financial consequences. Grief, sorrow, and anxiety are unremarkably related to FCs of cancer patients who in several instances become of a long depression (10).

350 million people from all age groups affected from depression that is a very common mental disorder worldwide. A unipolar depressive disorder is

predictable to be the most noteworthy cause of disease burden by the year 2030 (11). A systematic review done by Pilevarzadeh et al., 2019 examined the prevalence of depression in patients with breast cancer and concluded that the worldwide prevalence of depression was 32.2% in 47,424 investigations, related to 30 countries. Specifically, in comparison to developing countries, the incidence of depression was highest in the Eastern Mediterranean Region (12). Epidemiological reports around the nation put the prevalence rates of depression and nervousness issues somewhere in the range of 22% and 60% with occurrence differing generally among metropolitan and rural settings. Among the many minimized inhabitants, the most helpless against depression are the females, the older, those from lower financial gatherings, and uneducated people. Depression is the most common psychological maladjustment and is the fourth driving reason for years lost because of the inability in the country (13)

As per the literature search, there was little data available on the investigation of depression in cancer patient's caregivers in Pakistan. This study was conducted to help policymakers to identify the caregiver's problems, and how they are affected by the process of caregiving, and also it provided evidence regarding the Depression level in cancer patient's caregivers. The main purpose of this study was to assess the mental health of caregivers of cancer patients and recommend measures to improve their mental health by generating evidence for advocacy and awareness.

Methodology

This quantitative study used an analytical cross-sectional study design to determine the prevalence of depression and find out an association between the level of depression and demographic variables of cancer patient's caregivers. This study was conducted in the Outpatient Department and Inpatient Department of Oncology, Combined Military Hospital (CMH), Rawalpindi from February to July 2020. The sample size for this study was 384, calculated by the WHO sample Calculator assuming a 50 % prevalence of cancer as no such authentic data available regarding the prevalence of cancer in Pakistan. All 384 participants attending OPD and IPD Oncology, CMH were approached through the Non-probability convenience sampling technique. The 384 caregivers who were able to complete the study instrument with

or without investigators help and were adult caregivers of patients with some form of cancer, were invited to engage in the study. Institutional review board approval of Armed Forces Post Graduate Medical Institute (AFPGMI), Rawalpindi (Approval no. 0169-AAA-ERC-AFPGMI) was obtained before starting the study.

A validated Questionnaire Beck Depression Inventory (BDI) was used for measurement of the level of Depression in cancer patient's caregivers regardless of any other risk factors. The tool or questionnaire used consisted of two parts A) Demographic data B) Beck Depression Inventory (14) For Quantitative data, the questionnaire consists of demographics of the caregiver and Beck Depression Inventory (BDI) either in Urdu or English was filled by the cancer Patient Caregiver after taking written consent from the respondents and the data was then entered, cleaned and analyzed in SPSS, Version 23. At every point in time, respondent's privacy, anonymity, integrity, and their right to freedom to withdraw from the research were guaranteed. The Principle Investigator presented himself and inquired about their health and welfare in order to gain the consent of the respondents. For assessing the demographic characteristics of caregivers, percent distribution, and frequencies were used. The Chi-square test and Likelihood ratio chi-square test were used for other analyses. A p-value <0.05 was considered statistically significant.

Results

Out of a total of 384 cancer patients caregivers, 181 (47.1 %) were males and 203 (52.9 %) were females in this study. Results of frequency and percentage of demographic variables and Relationship to Patient are shown in table 4.1

Table 1. Results of Demographic variables in frequency and percentages

Characteristics	Category	Frequency (n)	Percentage (%)
Gender	Male	181	47.1%
	Females	203	52.9%
Age of Caregivers	18-44	274	71.4%
	45-64	107	27.9%
	≥65	3	0.8%

Educational Status	Illiterate	8	2.1%
	Primary	61	15.9%
	Secondary	114	29.7%
	Graduation/Higher education	201	52.3%
Employment Status	Employed	202	52.6%
	Unemployed	38	9.9%
	Student	61	15.9%
	Housewife	75	19.5%
	Retired	8	2.1%
Marital Status	Single	128	33.3%
	Married	237	61.7%
	Separated	0	0%
	Divorced	5	1.3%
	Widowed	14	3.6%
Total household income per month (PKR)	10,000-15000	30	7.8%
	15,000-30,000	132	34.4%
	30,000-50,000	128	33.3%
	>50,000	94	24.5%
Time since Diagnosis	Last month	45	11.7%
	Last six months	163	42.4%
	Last year	114	29.7%
	Last five years	38	9.9%
	More than five years	24	6.3%
Relationship to Patient	Spouse	77	20.1%
	Mother-Father	94	24.5%
	Son-Daughter	121	31.5%
	Other	92	24.0%

Figure 1 shows the percentage of the level of Depression in cancer patient's caregivers according to the BDI scale.

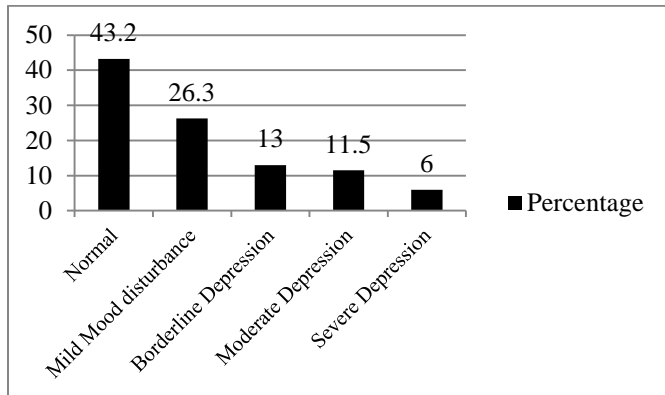


Figure 1. Percentage of Depression level in cancer patient's caregivers

The mean value of the BDI score was 12.87 ± 8.909 (0-39). As per cut off point for defining depression i.e. 17 scores, out of all 384 caregivers 267 (69.5 %) were diagnosed as non-depressive while 117 (30.5 %) were diagnosed as depressive according to the Beck Depression Inventory interpretation of results. Fig 4.2 shows the distribution of depression in cancer patients caregivers.

In table 4.2 demographic variables and relationship to a patient were cross tab with depression status as normal or depressive according to BDI score interpretation and it also shows the analysis of their association between them. A significant association was found between the gender of caregivers and the Depression status ($P < 0.05$). The age of caregivers had also a statistically significant association with the depression status of caregivers ($P < 0.05$). The educational status of caregivers ($p = 0.166$) shows no association with the depression status of cancer patients caregivers. After analyzing the association of the employment status of caregivers with the depression status, it has been revealed that employment status ($p = 0.02$) has a significant association with depression status. There has been found no significant association between marital status ($p = 0.739$) and depression status of caregivers. The total household income of caregivers having ($p = 0.499$) also has no significant association with the Depression status of caregivers as $p > 0.05$. Likewise, Time since diagnosis of cancer having ($p = 0.184$) also has no significant association with the depression status of cancer patients caregivers but, there has been a strong association between the relationship to the patient ($p = 0.003$) and the depression status of caregivers.

Table 2. Association of demographic variables of caregivers with Depression status

Variables	Category	n (%)		P value
		Normal	Depressive	
Gender	Male	150 (82.9)	31 (17.1)	$P < 0.05$ $\chi^2 = 28.76$
	Females	117 (57.6)	86 (42.4)	
Age of Caregivers	18-44	185 (67.5)	89 (32.5)	$P = 0.006$ $\chi^2 = 10.329$
	45-64	82 (76.6)	25 (23.4)	
	≥ 65	0 (0)	3 (100)	
Educational Status	Illiterate	5 (62.5)	3 (37.5)	$P = 0.166$ $\chi^2 = 5.081$
	Primary	49 (80.3)	12 (19.7)	
	Secondary	81 (71)	33 (29)	
	Graduation/Higher education	132 (65.7)	69 (34.3)	
Employment Status	Employed	146 (72.3)	56 (27.7)	$P = 0.023$ $\chi^2 = 11.352$
	Unemployed	20 (52.6)	18 (47.4)	
	Student	41 (67.2)	20 (32.7)	
	Housewife	57 (76)	18 (24)	
	Retired	3 (37.5)	5 (62.5)	
Marital Status	Single	89 (69.5)	39 (30.5)	$P = 0.739$ $\chi^2 = 1.257$
	Married	167 (70.5)	70 (29.5)	
	Widowed	8 (57.1)	6 (42.9)	
	Divorced	3 (60)	2 (40)	
	Separated	0	0	
Total household income per month (PKR)	10,000-15,000	23 (76.7)	7 (23.3)	$P = 0.499$ $\chi^2 = 2.372$
	15,000-30,000	96 (72.7)	36 (27.3)	
	30,000-50,000	84 (65.6)	44 (34.4)	
	$> 50,000$	64 (68.1)	30 (31.9)	
Time since Diagnosis	Last month	32 (71.1)	13 (28.9)	$P = 0.184$ $\chi^2 = 6.210$
	Last six months	119 (73)	44 (27)	
	Last year	81 (71.05)	33 (28.95)	
	Last five years	22 (57.9)	16 (42.1)	
	More than five years	13 (54.2)	11 (45.8)	
Relationship to Patient	Spouse	57 (74)	20 (26)	$P = 0.003$ $\chi^2 = 13.88$
	Mother-Father	74 (78.7)	20 (21.3)	
	Son-Daughter	69 (57)	52 (43)	
	Other	67 (72.8)	25 (27.2)	

Discussion

The caregiving process can affect the mental health of caregivers to cancer patients. The detrimental negative effect of caregiving has been identified among caregivers because of comprehensive caregiving demand and limited resources (15). The present study aimed to assess the prevalence of depression in cancer patient's caregivers and find out the association of demographic variables of caregivers like age, gender, educational status, employment status, total household income, time since diagnosis of cancer, and relationship to cancer patients with a level of depression. This study has been conducted in the hospital setting, oncology department of Combined Military Hospital, Rawalpindi located in the province of Punjab, Pakistan. Pertaining to a question regarding the prevalence of depression in cancer patients caregivers, this study illuminates that according to the

tool used named Beck Depression Inventory (BDI) level of Depression, 43.2% of caregivers were diagnosed as Normal, 26.3% were diagnosed as Mild mood disturbance during caregiving, 13% had a Borderline Depression, 11.5% had a Moderate Depression and 6% had a severe Depression. In overall caregivers, 30.5% were diagnosed as Depression while 69.5% were diagnosed as Normal according to cut-off score 17. In regional studies (1) concluded that according to the values of the Beck Depression inventory, 42% were rated as normal, 24.7% were rated as mildly, 20.7% were rated as moderately and 12.7% were rated as severely depressed. According to a south Indian study which used the Hamilton rating scale for the prevalence of depression in breast cancer caregivers was 52.5% (6). A systematic review and meta-analysis of thirty studies on the prevalence of depression in caregivers of cancer patients conducted in China concluded that the prevalence of anxiety and depression in cancer patient caregivers is approximately 47 percent and 42 percent, as calculated by validated instruments, respectively (10).

This study will help Physicians, Public Health, and healthcare professionals at the oncology department and policymakers to understand the mental health issues of cancer patient's caregivers. The findings of this study highlighted the factors affecting the mental health of caregivers to cancer patients. It will help to advocate mental health problems like depression in our society considering that in this region advocacy for mental health is against the social norms.

The research was based in the hospital and therefore concentrated only on caregivers of cancer patients who presented in oncology OPD or Oncology IPD of CMH Rawalpindi. Selection bias can be a potential limitation due to the fact that in CMH patients were mostly from armed forces families. Future studies should concentrate on larger samples and various hospital results. Findings obtained from this research might not be indicative of what is prevalent at the level of the nation.

Our findings suggest that Policymakers should foster a positive atmosphere for mental wellbeing for caregivers of cancer patients. The government should plan to minimize social stigma regarding mental health. Caregivers should encourage not to hesitate for seeking help and getting medical checkups. Medical professionals should promote awareness for early detection and interventions to prevent and deal with mental issues like depression. Information about

depression, its symptoms, its risk factors, and prevention should be provided to caregivers, and focus should be on skill development to handle this situation. Attitude and behavioral change interventions should be used to encourage and motivate caregivers. NGOs and other social workers should provide social support and a healthy environment for caregivers.

Conclusion

This study showed a significant association between depression in caregivers and Age of caregivers, Gender of caregivers, the employment status of caregivers, and the relationship to cancer patients. It also revealed that a high prevalence of depression is found in caregivers of cancer patients. This study concluded that Female caregivers of older age having retired or unemployed and have close relationships with cancer patients are more prone to depression as compared to other factors. It is a starting point for the advocacy of mental health issues in caregivers to cancer patients so that policymakers and healthcare professionals take necessary actions to minimize the risk factors causing depression in caregivers. There is a robust need for palliative care provision to caregivers so that they can perform caregiving tasks more efficiently.

References

1. Ayabakan-Cot D, Ates E, Kurt B, Nazlican E, Akbala M. Investigation of depression and quality of life factors in cancer patients' caregivers. *Journal of BU ON: official journal of the Balkan Union of Oncology*. 2017;22(2):524-9.
2. Ferlay J, Colombet M, Soerjomataram I, Mathers C, Parkin D, Piñeros M, et al. Estimating the global cancer incidence and mortality in 2018: GLOBOCAN sources and methods. *International journal of cancer*. 2019;144(8):1941-53.
3. World Health Organization. Cancer Key facts 2018 [updated 12 September, 2018. Available from: <https://www.who.int/news-room/factsheets/detail/cancer>.
4. Bray F, Ferlay J, Soerjomataram I, Siegel RL, Torre LA, Jemal A. Global cancer statistics 2018: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA: a cancer journal for clinicians*. 2018;68(6):394-424.
5. Cancer IAFRo. Pakistan, Source Globocan 2019 [Available from: <https://gco.iarc.fr/today/data/factsheets/populations/586-pakistan-fact-sheets.pdf>.

6. Sahadevan S, Namboodiri V. Depression in caregivers of patients with breast cancer: A cross-sectional study from a cancer research center in South India. *Indian journal of psychiatry*. 2019;61(3):277.
7. Hauser JM, Kramer BJ. Family caregivers in palliative care. *Clinics in geriatric medicine*. 2004;20(4):671-88.
8. Nipp R, El-Jawahri A, Fishbein J, Gallagher E, Stagl J, Park E, et al. Factors associated with depression and anxiety symptoms in family caregivers of patients with incurable cancer. *Annals of Oncology*. 2016;27(8):1607-12.
9. Kessler ER, Moss A, Eckhardt SG, Laudenslager ML, Kilbourn K, Mauss IB, et al. Distress among caregivers of phase I trial participants: a cross-sectional study. *Supportive Care in Cancer*. 2014;22(12):3331-40.
10. Geng H-m, Chuang D-m, Yang F, Yang Y, Liu W-m, Liu L-h, et al. Prevalence and determinants of depression in caregivers of cancer patients: A systematic review and meta-analysis. *Medicine*. 2018;97(39).
11. Godil A, Mallick MSA, Adam AM, Haq A, Khetspal A, Afzal R, et al. Prevalence and severity of depression in a Pakistani population with at least one major chronic disease. *Journal of Clinical and Diagnostic Research: JCDR*. 2017;11(8):OC05.
12. Pilevarzadeh M, Amirshahi M, Afsargharehbagh R, Rafiemanesh H, Hashemi SM, Balouchi A. Global prevalence of depression among breast cancer patients: a systematic review and meta-analysis. 2019.
13. Onaiza Qureshi. Depression in Pakistan: Globally Minded A website for global mental health; 2017 [Available from: <https://www.globallyminded.org/home/depression-in-pakistan/>].
14. Beck AT. *Cognitive therapy of depression*: Guilford press; 1979.
15. Irfan B, Irfan O, Ansari A, Qidwai W, Nanji K. Impact of caregiving on various aspects of the lives of caregivers. *Cureus*. 2017;9(5).