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A study to assess the relationship between cancer-related fatigue and depression among cancer patients at selected tertiary hospital, Bangalore, India

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Abstract

Background: Cancer is a large group of diseases that can start in almost any organ or tissue of the body when abnormal cells grow uncontrollably, go beyond their usual boundaries to invade adjoining parts of the body and/or spread to other organs. The latter process is called metastasizing and is a major cause of death from cancer. Cancer is one of the serious and life-threatening illnesses which has an effect on the physical as well as emotional well-being of patients. In the most of the patients, cancer and its treatment will be associated with the development of Cancer-Related Fatigue (CRF), although patterns of fatigue onset, severity, daily fluctuations, and resolution vary widely depending on the type of treatment, and the site and stage for the underlying disease. Cancer-related fatigue is a prevalent and disabling symptom experienced by both cancer patients and cancer survivors. In patients with a diagnosis of cancer, the most common psychological condition is depression. The objective of the study was to find relationship between cancer-related fatigue and depression among cancer patients.

Materials and methods: A correlational research design was adopted and non-probability convenient sampling technique was used to select 100 cancer patients fulfilling selection criteria at selected tertiary hospital, Bangalore. The brief fatigue inventory (BFI) was used to assess cancer-related fatigue among cancer patients. Hamilton depression rating scale -17 (HAMD-17) was used to assess depression among cancer patients. The data obtained was analyzed using descriptive and inferential statistics. Statistical analysis for the study was done using IBM SPSS version 20.

Results: A statistically significant correlation was found between cancer-related fatigue and depression among cancer patients ($r=0.409$, $p=0.0001$), significant at $p<0.001$.The results revealed that there was a significant association between cancer-related fatigue and socio-demographic variables which includes diagnosis of cancer**,** duration of cancer ,treatment modalities and

presence of co-morbidities.The study also found that diagnosis of cancer ,duration of cancer ,stage of cancer, treatment modalities and presence of co-morbidities were significantly associated with depression.

Conclusion: The study findings revealed that cancer-related fatigue and depression are common symptoms among cancer patients, irrespective of their diagnosis and treatments received.

Keywords: Cancer–related fatigue, depression, cancer patients.

Introduction

The word ‘cancer’ still conjures up deep fears of a silent killer that creeps upon us without warning. Cancer is a large group of diseases that can start in almost any organ or tissue of the body when abnormal cells grow uncontrollably, go beyond their usual boundaries to invade adjoining parts of the body and/or spread to other organs. The latter process is called metastasizing and is a major cause of death from cancer. A neoplasm and malignant tumor are the other names of cancer.[1] Cancer is the second leading cause of death globally, accounting for an estimated 9.6 million deaths, or one in six deaths, in 2018. Lung, prostate, colorectal, stomach and liver cancer are the most common types of cancer in men, while breast, colorectal, lung, cervical and thyroid cancer are the most common among women.[2] Worldwide, an estimated 19.3 million new cancer cases and almost 10.0 million cancer deaths occurred in 2020.[2] The global cancer burden is rising significantly, in 2030 alone, about 21.7 million new cancer cases and 13 million cancer deaths are expected to occur.[3]The cancer burden continues to grow globally, exerting tremendous physical, emotional and financial strain on individuals, families, communities and health systems. Many health systems in low and middle-income countries are least prepared to manage this burden, and large numbers of cancer patients globally do not have access to quality diagnosis and treatment.[1]

There are many types of treatment modalities for cancer which depends on the type of cancer person have and how advanced it is, which include surgery ,radiation therapy, chemotherapy, immunotherapy ,targeted therapy, hormone therapy and stem cell therapy.[4]

For a majority of patients, cancer and its treatment will be associated with the development of Cancer-Related Fatigue (CRF), although patterns of fatigue onset, severity, daily fluctuations, and resolution vary widely depending on the type of treatment ,and the site and stage for the underlying disease.[5]

National Comprehensive Cancer Network [NCCN] defines cancer-related fatigue as a distressing, persistent, and subjective sense of tiredness or exhaustion related to cancer or cancer treatment that is not proportional to recent activity and interferes with usual functioning.[6] The diagnosis of cancer-related fatigue was accepted by the International Classification of Diseases ,10th revision, Clinical Modification, in 1999.[7]

Cancer related fatigue is a prevalent condition among patients with cancer and survivors of cancer that occurs across all ages ,genders, cancer diagnoses, stages of disease, and treatment regimens.[8] Cancer related fatigue may continue for months and even can last for years following completion of treatment in approximately one third of the patients with cancer.[9]

Depression also co-occurs with fatigue, sleep disturbance and pain as found in women receiving breast cancer treatment.[10]Depression is the most common psychological condition in patients with cancer. These patients often have worse outcomes, such as decreased adherence to treatment and increased suicide rates. In

patients with a diagnosis of cancer, the most common psychological condition is depression. Depressive symptoms in these patients can range from feelings of sadness to a clinical diagnosis of major depression.[11]

In addition to fatigue being a possible cause of depression and depression being a possible cause of fatigue, both fatigue and depression shares a common cause. That shows certain forms of cancer and cancer treatment can cause both fatigue and depression.[12]

Materials and Methods

Study Design:

The study used correlational research design.

Variables

Study variables for the study include Cancer- related fatigue and depression.

Socio-demographic variables includes Age, gender, education qualification, marital status , monthly income of the family, residential area, name of the diagnosis, duration of diagnosis, stage of cancer, treatment modalities, presence of co-morbidities, health insurance, number of hours of uninterrupted sleep during night, travelling distance to hospital , total expenditure of cancer treatment per month and habits (alcohol consumption, tobacco consumption , cigarette smoking).

Setting of the study

The study was carried out at selected tertiary hospital, Bangalore. The hospital offers a range of advanced medical services.

Sample size

100 cancer patients visiting oncology outpatient department.

Sampling technique

Non-convenient sampling was adopted to select the samples.

Inclusion and exclusion criteria

Inclusion criteria: Cancer patients who were

- Above 18 years of age.
- Completed cancer treatment atleast one month ago.
- Available at the time of data collection.
- Willing to participate in the study.
- Able to read and understand English or Kannada.

Exclusion criteria

- Cancer patients who were already diagnosed with depression.
- Cancer patients who are critically ill.

Development of tool

Brief fatigue Inventory (BFI) and Hamilton depression rating scale (HAM-D) -17 were used to assess cancer-related fatigue and depression respectively.

Validity

The content validity of the tool was done by 7 experts and as per suggestions of the experts, the modification and changes were made in the final tool.

Reliability

The reliability of Brief Fatigue Inventory (BFI) and Hamilton Depression Rating Scale (HAM-D)- 17 was assessed by Cronbach's Alpha test and was 0.733 and 0.703 respectively (English version) and 0.697 and 0.699 respectively (Kannada version).

Ethical clearance

Ethical clearance was obtained from ethics committee of the respective hospital involved in the study.

Pilot study

A total of 10 cancer patients visiting oncology outpatient department at selected tertiary hospital were selected for the pilot study. The pilot study results found that it was feasible to conduct the main study in terms of time , availability of study subjects and ensuring the appropriateness of methods and procedures used for data collection.

Data collection procedure

The data was collected in selected tertiary hospital, Bangalore after obtaining permission from concerned authorities. Cancer patients who met the selection criteria were recruited from the oncology outpatient department. A total of 100 cancer patients were selected for the study. Subjects were given detailed information about the study and informed consent was obtained from all the subjects. Information regarding socio-demographic profile of the subjects was collected by using self-structured questionnaire.

The Brief Fatigue Inventory was used to assess cancer-related fatigue among cancer patients. Hamilton Depression Rating Scale -17 was used to assess depression among cancer patients. .

Statistical method

Data obtained from the sample was organized and analyzed with the use of both descriptive and inferential statistics.

Descriptive statistics:

Frequency distribution, percentage distribution, mean and standard deviation were used to describe the socio demographic variables.

Inferential statistics

Karl's pearson correlation co-efficient was used to find the relationship between cancer-related fatigue and depression.

Chi-square Test was used to find the association between cancer-related fatigue, depression and selected socio demographic variables.

Results

The collected data was analysed according to the objectives of the study.

The findings are presented below :

Socio demographic characteristics of the subjects.

Frequency and percentage distribution were computed for socio-demographic characteristics of the subjects. It was observed that (64%) of the subjects belonged to the age above 45 years .The majority (53%) of the subjects were female . Majority of the subjects (40 %) had secondary education . Majority (97%) of the subjects were married and most (71%) of the subjects were staying in rural area.

Majority (49%) of subjects were suffering from breast cancer and (62%) of the subjects had duration of diagnosis between 13-18 months. Majority (61%) of the subjects had 3rd stage of cancer. Fifty –four percentage of the subjects had undergone chemotherapy as treatment modality for cancer whereas (7%) of the subjects had undergone both chemotherapy and radiation therapy as treatment modalities for cancer.

More than half (51 %) of the subjects had no co-morbidities whereas (10%) of subjects had both diabetes mellitus and hypertension. Only (19%) of the subjects had habit of cigarette smoking whereas (4%) and (2%) of the subject had habit of alcohol consumption and tobacco consumption respectively.

Frequency and percentage distribution of cancer-related fatigue.

Majority (80%) of the subjects had moderate cancer - related fatigue and (20%) of the subjects had severe cancer-related fatigue.

Majority (80%) of the subjects had moderate cancer - related fatigue and (20%) of the subjects had severe cancer-related fatigue.

Frequency and percentage distribution of depression.

Majority (57%) of the subjects had moderate depression , (25%) had severe depression whereas (4 %) of the subjects had very severe depression .

Mean and standard deviation of cancer-related fatigue and depression.

It was observed that the mean score of cancer-related fatigue was 58.74 with standard deviation ±6.699.

The mean score of depression was 17.66 with standard deviation ± 3.059.

Correlation between cancer –related fatigue and depression.

It was found that there was a mild positive degree of correlation (r=0.409, p=0.0001) between cancer-related fatigue and depression, which was statistically significant at p<0.001.

Association between cancer-related fatigue and socio-demographic variables.

Chi square findings revealed that there was a significant association between cancer-related fatigue and socio-demographic variables which includes diagnosis of cancer **(p=0.001),** duration of cancer **(p=0.004**), treatment modalities **(p=0.027) and** presence of co-morbidities **(p=0.011).**

Association between depression and socio-demographic variables.

Chi square finding revealed that there was a significant association between depression and socio-demographic variables which includes diagnosis of cancer (p=0.0001), duration of cancer (p=0.012), stage of cancer(p=0.002), treatment modalities (p=0.047) and presence of co-morbidities (p=0.003).

Discussion

Cancer-related fatigue and depression are common symptoms experienced by cancer patients, irrespective of their diagnosis and treatments received. This study aims to determine the relationship between cancer-related fatigue and depression among cancer-patients. In this study it was observed that there was a mild positive degree of correlation (r=0.409, p=0.0001) between cancer-related fatigue and depression, which was statistically significant at p<0.001. These results were consistent with previous studies showing a statistically significant correlation existing between cancer-related fatigue and depression, among cancer patients.[13-15]

The present study results were found to be contradicted with the previous study conducted by LF Brown(2016) that showed there was no directionality in the relationship between cancer-related fatigue and depression among cancer patients.[16]

In this study it was observed that there was a significant association between cancer–related fatigue and socio-demographic variables which includes diagnosis of cancer (p=0.001), duration of cancer (p=0.004), treatment modalities (p=0.027) and presence of co-morbidities (p=0.011).

Previous studies reported that patients receiving combination of chemotherapy and radiotherapy had higher level of fatigue compared to those receiving single therapy.[17,18] These findings found to be consistent with present study result.

The present study findings were contradicted with the previous study conducted by Nugusse T (2021) found that age and stage of cancer had shown a significant association with cancer-related fatigue.[19] Radiotherapy causes transient increase in fatigue which accumulates over weeks and reaches to the pretreatment level at one month after completion of treatment.[20]

In present study it was observed that there was a significant association between depression and socio-demographic variables which includes diagnosis of cancer **(p=0.0001),** duration of cancer **(p=0.012**), stage of cancer **(p=0.002), treatment** modalities **(p=0.047)** and presence of co-morbidities **(p=0.003).**

The study findings were consistent with previous study conducted by Remesh k et'al (2019) which found that stage of cancer had significant association with depression.[21].

A study conducted by Nikbakhsh N (2014), revealed that there was a significant association of depression with type of cancer which supports the present study findings and also age of the participants[22] which is contradictory to the present study findings.

Present study findings found to be contradicted with the previous study conducted by Kumar k et'al (2015) that revealed a strong & significant association of depression with monthly income (p=0.017), and financial support among cancer patients respectively.[23]

The present study findings highlights that cancer-related fatigue and depression are common symptoms experienced by cancer patients, irrespective of their diagnosis and treatments received.

Limitations

- Authenticity of the information regarding variables is based on the response of the subjects.
- Limited sample size.

Conclusion

The study findings revealed that Cancer-related fatigue and depression were significantly correlated and there is a need to assess the level of fatigue and depression for each patient diagnosed with cancer so that early intervention may reduce or alleviate these symptoms.

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