REDVET - Revista electrónica de Veterinaria - ISSN 1695-7504
Vol 25, No. 1S (2024)
http://www.veterinaria.org
Article Received: 03 July 2024 Revised: 08 August 2024 Accepted: 05 September 2024

Assess The Psychological Impact Among Patients Receiving Chemotherapy

Prof. B. Rusha.[1*], Dr. Prof.Sujatha.[2], Dr. Helen Shaji Jc.[3]

[1*]M.sc Nursing (Ph. D) Research Scholar, Sri Balaji Vidhapeeth; Mail id- rushapandiyan@gmail.com
[2]M.sc Nursing, Ph. D, Hod Community Health Nursing, Sri Sathya Sai College Of Nursing, mail id- sujasathish659@gmail.com
[3]Principal, College of Nursing, Sri Sathya Sai College Of Nursing (Deemed to be University) mail id- helenshaji@gmail.com

ABSTRACT:
A descriptive study was conducted to assess the psychological impact among patients receiving chemotherapy in DR GVN Hospital, Trichy. The study aimed to assess the psychological impact among patients receiving chemotherapy and to find out association between the psychological impact among patients receiving chemotherapy and with their selected demographic variables. Hypothesis was there will be a significant association between the psychological impact among patients receiving chemotherapy and with their selected demographic variables. An assessment questionnaire developed by the researcher was used as the data collection tool. A sample of 172 patients receiving cisplatin were selected through purposive sampling. Data collected were analyzed using descriptive and inferential statistics. The findings revealed that 94 (54.7 %) were very high impact, 78 (45.3 %) were high impact and no one in moderate impact, low impact and very low impact and mean score and the standard deviation was 23.55 (± 9.8). There is a association between the psychological impact among patients receiving chemotherapy and with their selected demographic variables like education and comorbid condition. Recommendation to this study nurses must observe and identify the psychological factor as earlier and give importance to non pharmacological therapies to resolve the impact and enhance quality of life.

Cancer is a leading cause of death worldwide, accounting for nearly 10 million deaths in 2020, or nearly one in six deaths. Cancer causes cells to divide uncontrollably. It also prevents them from dying at the natural point in their life cycle. The most common cancers are breast, lung, colon and rectum and prostate cancers. Genetic factors and lifestyle choices, such as smoking, can contribute to the development of the disease. Around one-third of deaths from cancer are due to tobacco use, high body mass index, alcohol consumption, low fruit and vegetable intake, and lack of physical activity Several elements affect the ways that DNA communicates with cells and directs their division and death.

Many cancers can be cured if detected early and treated effectively. Treatments are constantly improving. Examples of current methods include chemotherapy, radiation therapy, and surgery. Some people benefit from newer options, such as stem cell transplantation and precision medicine.

Chemotherapy is a drug treatment that uses powerful chemicals to kill fast-growing cells in your body. Chemotherapy is most often used to treat cancer, since cancer cells grow and multiply much more quickly than most cells in the body. Though chemotherapy is an effective way to treat many types of cancer, chemotherapy treatment also carries a risk of side effects. Some chemotherapy side effects are mild and treatable, while others can cause serious complications.

A cancer diagnosis can have a significant impact on mental health and wellbeing. Cancer is the second most common cause of death after heart diseases and it accounted for 9.6 million deaths worldwide in 2018. Various individual psychosocial and contextual factors potentially contribute to the development of anxiety and depression among people with cancer. In comparison with general people, the prevalence of anxiety and depression is frequently found to be higher among cancer patient, but estimates vary due to various factors, such as the type of cancer, treatment setting, and prognosis of disease.

Recently, the American Cancer Society and National Cancer Institute have reported an increasing cancer incidence, also estimating its further rise. This, in turn, will lead to an increase in the use of chemotherapy since it is considered a cornerstone in treating many types of cancer as well as adjuvant therapy in cancers discovered at advanced stages with poor prognoses, Chemotherapy varies in duration and regimen, depending on the type and stage of cancer. Although chemotherapy increases cancer survival rates, it has a number of side effects: physiological effects such as fatigue, insomnia, nausea, and vomiting and psychological effects such as fear stemming from uncertainty regarding treatment results and disease recurrence, anxiety, depression, and sadness commonly associated with perceived loss such as losing hair.

During the course of treatment, patients with cancer often experience psychological distress, which creates a high level of mental pressure and can act as a silent killer. Fear of mortality, changes in quality of life, social connections, physical condition, and the capacity to create mental alterations are all linked to cancer.

Psychological distress is very common among patients with cancer and is associated with a lower rate of survival. This distress can occur at any moment during a patient's illness period and can increase over time. Chemotherapy, which is most commonly used after radiation or surgery to treat patients with advanced cancer, causes several harmful effects. These include pain, weakness, alopecia, loss of appetite, weight loss, lack of sleep, diarrhea, vomiting, dry mouth, and neuropathy, which are the major causes of increased psychological distress. cancer, including psychological evaluation to identify those at risk.

REDVET - Revista electrónica de Veterinaria - ISSN 1695-7504
Vol 25, No. 1S (2024)
http://www.veterinaria.org
Article Received: 03 July 2024 Revised: 08 August 2024 Accepted: 05 September 2024

Psychological distress is a multifactorial unpleasant emotional experience of a psychological (cognitive, behavioural, emotional), social, or spiritual nature that may interfere with the patient's ability to cope with the disease. Distress may extend along a continuum from common normal feelings, such as sadness and fear, to disabling conditions, such as depression, anxiety, panic, social isolation, and even existential and spiritual crises.

The prevalence of long-term psychological distress ranges from 20% to 66%. Anxiety is common in critical periods, such as cancer diagnosis or recurrence, at the beginning of a new treatment, or during illness progression. Depression in patients with cancer, however, can be a normal reaction, a psychiatric disorder, or a somatic consequence of cancer or its treatment.

STATEMENT OF THE PROBLEM

A study to assess the psychological impact among patients receiving chemotherapy.

OBJECTIVES

• To assess the psychological impact among patients receiving chemotherapy .
• To find out association between the psychological impact among patients receiving chemotherapy and with their selected demographic variables.

HYPOTHESIS

• H1 : There will be a significant association between the psychological impact among patients receiving chemotherapy and with their selected demographic variables.

OPERATIONAL DEFINITIONS :

Assess :

To judge or form an opinion about something.
It refers to assess the psychological impact among patients receiving chemotherapy.

Psychological impact :

Any factor impacting or arising in the mind related to the mental and emotional state of a person.
It refers to any changes in physical, emotional and social aspects among patients receiving chemotherapy.

Patients receiving chemotherapy :

Person who get drugs to kill cancer cells.
It refers to cancer patient who get cisplastin drug.

Assumptions :

• Patients receiving chemotherapy will have changes in emotional, social, physical aspects.

REVIEW :

Md Marufur Roshid et.al (2024) conducted a cross sectional study on Psychological distress may worsen during cancer treatment and affect well-being at a tertiary care hospital in rural Bangladesh. Only adult patients with cancer who were receiving chemotherapy were enrolled in this study. The validated Depression Anxiety Stress Scale was used to assess psychological distress. Frequency and percentages were used in descriptive analysis, and logistic regression analysis was performed to investigate potential associated factors for depression, anxiety, and stress. Participants comprised 415 patients with a mean age of 46.3 years. The prevalence of depression, anxiety, and stress was 61.5%, 55.4%, and 22.0%, respectively. In the multivariate logistic regression analysis, patients with more than five family members and smokeless tobacco users had a significant association with depression, anxiety, and stress. In contrast, participants aged >60 years had a protective association with depression. Findings show that patients with cancer receiving chemotherapy experience a high prevalence of depression and anxiety and that the use of smokeless tobacco and having six or more family members are associated with psychological distress.

Sushil Gour et.al.,(2021) conducted cross sectional study on Psychological impact among cancer patients undergoing chemotherapy in Bundelkhand region, Central India .To find out the estimate of depression in cancer patients undergoing chemotherapy and determine the various factors associated with depression.150 participants were interviewed using predesigned questionnaire based on the Beck's depression inventory. Out of 150 cancer patients, 83 (55.3%) were found to be depressed. Depression was comparatively higher in patients' ≥50 years; in males. Among the study patients, 83 (55.33%) had depression of which 21 (25.3%) had borderline clinical depression, 54 (65.06%) had moderate depression and 08 (9.6%) had severe depression. The study revealed depression in majority of patients receiving chemotherapy. Treatment of cancer patients need to be complemented by psychological support.

Aggeliki Papadopoulou et.al., (2022) conducted descriptive, cross-sectional study on Quality of life, distress, anxiety and depression of ambulatory cancer patients receiving chemotherapy This study aimed to investigate the relationship

REDVET - Revista electrónica de Veterinaria - ISSN 1695-7504
Vol 25, No. 1S (2024)
http://www.veterinaria.org
Article Received: 03 July 2024 Revised: 08 August 2024 Accepted: 05 September 2024

between distress, anxiety, depression, and QoL of ambulatory cancer patients undergoing chemotherapy.150 cancer patients who were receiving chemotherapy in the outpatient unit of a central anticancer hospital in Athens The majority of patients were women (64%), married (66%), high school graduates (43%), had breast cancer (35%), with a mean age of 60.07 ±11.42. 83% reported anxiety, 75% reported fear, 51% nervousness and sadness, 34% depression and 84.7% fatigue. The DT was positively correlated with HADS ($p<0.001$) and with almost all EORTC QLQ-C30 functional subscales and symptoms ($p<0.001$). The HADS-Anxiety was significantly correlated with overall QoL and with almost all the EORTC QLQ-C30 functional scales and symptoms ($p<0.001$). HADS-Depression was significantly correlated with overall QoL and all the EORTC QLQ-C30 functional scales and symptoms ($p<0.001$). Women tended to have higher level of distress ($p=0.003$). There was a statistically significant relationship between educational level, the cognitive functioning scale ($p=0.017$) and financial difficulties ($p=0.026$). Ambulatory cancer patients undergoing chemotherapy are at risk of facing distress in all aspects of daily living, along with anxiety and depression, which decreases their QoL.

P. Jittlaet.al., (2022) conducted a prospective observational study on an evaluation of the psychological impact of early-phase clinical trials in cancer patients, explored levels of anxiety and depression alongside impact of trial participation in the context of EPCTs. The Hospital Anxiety and Depression Scale and the Brief Illness Perceptions Questionnaire were completed at the point of EPCT consent, the end of screening and at pre-specified time points thereafter. Sixty-four patients (median age 56 years; median Eastern Cooperative Oncology Group performance status 1)were recruited. At consent, 57 patients returned questionnaires; 39% reported clinically relevant levels of anxiety whilst18% reported clinically relevant levels of depression. Sixty-three percent of patients experiencing psychological distresshad never previously reported this. Males were more likely to be depressed (P ¼ 0.037) and females were more likely to be anxious (P ¼ 0.011). Changes in anxiety or depression were observed after trial enrolment on an individual level, but not significant on a population level. Patients on EPCTs are at an increased risk of anxiety and depression but may not seek relevant support. Sites offering EPCTs should consider including psychological screening to encourage a more holistic approach to cancer care and consider the sex of individuals when tailoring psychological support to meet specific needs.

Tasneem Elghazali Bakhietet.al., (2021) conducted a A cross-sectional study on Prevalence of depression and anxiety among adult patients undergoing chemotherapy . To identify the prevalence of depression and anxiety and related socio demographic factors among patients undergoing chemotherapy .Hospital based study was conducted among patients undergoing chemotherapy . Two hundred and fifty-five patients were recruited through random sampling. An interview-administered questionnaire containing socio demographic data and the Hospital Anxiety and Depression Scale (HADS), translated and validated into the local Arabic language, was employed. Data was analyzed using SPSS version 23.The prevalence of depression and anxiety was 41.2% and 26.7%, respectively. Depression was significantly associated with duration of cancer ($p = 0.031$) and anxiety ($p = 0.000$). Anxiety was significantly associated with number of chemotherapy sessions ($p = 0.045$) and depression. No significant associations were found with socio demographic data. Depression and anxiety is frequent among patients undergoing chemotherapy and can be influenced by duration of cancer diagnosis and number of chemotherapy sessions respectively.

Paraskevi Prapa et.al.,(2021)conducted a quantitative descriptive study on Quality of Life and Psychological Distress of Lung Cancer Patients Undergoing Chemotherapy. The aim of this study was to investigate the QoL and psychological distress of patients with lung cancer. The relationship between these two aspects was also an area of focus. Data collection was done using a self-complementary tool. The data were collected between February and March 2020. The sample consisted of 135 patients with lung cancer who were undergoing chemotherapy in 1-day clinic in Athens (a sample of convenience).Regarding the QoL of our sample, we observed that the mean score of the physical health component of SF-12 was 38.17 ± 9.94 and of the mental health component was 45.63 ± 11.80. As regards the psychological distress of our sample, we observed that the mean score for depression was 4.55 ± 5.04, for anxiety was 3.84 ± 4.17 and for stress was 5.21 ± 5.01. As is clear from the results, lung cancer patients reported poor QoL and increased rates of psychological distress.

Anastacia Bosire et.al (2020) conducted cross sectional study on Psychological Effects of Chemotherapy Experienced by Patients Diagnosed With Breast and Cervical Cancer Attending Kenyatta National Hospital Cancer Treatment Centre To determine the psychological effects of chemotherapy among patients diagnosed with breast or cervical cancer. Quantitative and qualitative data collection methods to explore on the psychological effects of chemotherapy. Quantitative data was collected from 157 systematically sampled participants. The highest percentages (31.2%) of participants were aged between 41-50 years. Most (66.9%) were married and depended on their husbands (45.9%) for social support. Only (22.9%) were in formal employment and majority (73.2%) earned below 20000kshs per month. Psychological effects experienced by the participants included; body image changes (65.6%), anxiety (79%), low self-esteem (63.1%), loneliness (55.4%) and sadness (51.6%). Further analysis showed that age, economic status and previous chemotherapy sessions had significant relationships with psychological effects. cancer chemotherapy is associated with many psychological effects which are aggravated by increased chemotherapy sessions and low monthly income.

E. B. Elimimian (2020) conducted a pilot study of improved psychological distress with art therapy in patients with cancer undergoing chemotherapy ,using four visual analog scales (VAS) with visually- similar, 0–10 scale (10 being worst) thermometers assessing: 1) pain, 2) emotional distress, 3) depression, and 4) anxiety. Participants were asked to complete all 4 metrics, pre-treatment, post-treatment, and at 48–72 h follow-up, after an hour-long art therapy session.

REDVET - Revista electrónica de Veterinaria - ISSN 1695-7504
Vol 25, No. 1S (2024)
http://www.veterinaria.org
Article Received: 03 July 2024 Revised: 08 August 2024 Accepted: 05 September 2024

Primary endpoints included post-intervention changes from baseline in the 4 VAS metrics.Through a reasonable pilot sample (n = 50), 44% had breast cancer, 22% gastrointestinal cancers, 18% hematological malignancies, and 20% had other malignancies. A decrease in all VAS measures was noted immediately post-treatment but remained low only for pain and depression, not for emotional distress and anxiety upon follow up. Art therapy improved the emotional distress, depression, anxiety and pain among all cancer patients,at all time points. Discovering simple, effective, therapeutic interventions, to aid in distress relief in cancer patients s important for ensuring clinical efficacy of treatment and improved quality of life.

Dalia Y.M. El Kheir, and Arwa H.M. (2019) conducted descripitive study on Epidemiological assessment of distress during chemotherapy: who is affected? Data were collected via a face-to-face interview with the patients using the Hospital Anxiety and Depression Scale. Among patients undergoing chemotherapy, 55(25.5%) experienced anxiety and depression. Of the 216 patients recruited, the majority were middle-aged (30 -50 years old) married women. Development of psychological distress followed a U-shaped curve in relation to the number of chemotherapy doses received. Patients who received 1ess 5 and >10 doses experienced more psychological distress than those who received 6e10 chemotherapy doses. As many as 212 (98%) patients were willing to continue with chemotherapy. psychological distress burdened a quarter of the patients receiving chemotherapy

Samonnan Thasaneesuwan and Kittikorn Nilmanat (2019) conducted a study on Psychological distress is a common psychological health problem in patients with cancer during receiving chemotherapy. They may express their psychological distress through depression, anxiety, fear, and uncertainty. Psycho-neuro-immunological imbalance caused this problem. Patients with psychological distress require a specific approach. Psychological screening through interaction, observation and/or using 2Q or the Hospital Anxiety and Depression Scale (Thai HADS) is the first step in identifying such problems. Nurses play crucial roles in supporting patients from the early stage of illness. Key nursing interventions include giving information, education, offering encouragement, and applying evidence-based care programs such as psycho-educational support programs and mindfulness/meditation-based programs relevant to the patients' preference. Providing early nursing care for patients experiencing psychological distress during receiving chemotherapy would enhance their psychological well-being.

Noriko Ishizuka et.al.,(2017) conducted a cross sectional study on Psychological Distress and Resilience among Partners of Cancer Patients Receiving Outpatient Chemotherapy. Spouses and significant others of cancer patients were consecutively recruited .The primary outcome was psychological distress, as assessed by the Hospital Anxiety and Depression Scale. The primary explanatory variables were resilience, as assessed by the short Japanese version of the Resilience Scale, and cancer-related psychological experience. Traumatic stress was assessed by the Japanese-language version of the Impact of Event Scale-Revised, while perception of caregiving burden and patients' symptoms, and psychological support needs were assessed by single-item questions. To examine the association between psychological distress, and resilience and partners' psychological experience, hierarchical multiple regression analysis was applied. Psychological distress was evident in 33 of 109 partners, (30.3%, 95% confidence interval, 21.5 - 39.1). After adjusting for potential confounders, hierarchical multiple regression analysis showed the main effect of resilience.. The protective effect of resilience on partners' psychological distress is moderated by traumatic stress and perceived caregiving burden during patients' chemotherapy. The findings of this study suggest that a systematic way of providing appropriate psychological service to appropriate partners of cancer patients is required.

RESEARCH METHODOLOGY

RESEARCH APPROACH: Quantitative approach
RESEARCH DESIGN: Descripitive design
SETTING OF THE STUDY: DR. GVN hospital, Trichy
ACCESSIBLE POPULATION: Patient receiving chemotherapy
TARGET POPULATION: Patient receiving cisplatin
SAMPLING TECHNIQUE: Purposive sampling technique was used to select 172 patients
CRITERIA FOR SAMPLE SELECTION:

INCLUSION CRITERIA:

- Patients receiving cisplatin
- Patients available during data collection
- Patients willing to participate

EXCLUSION CRITERIA:

- Patients not available during data collection
- Patients not willing to participate

DEVELOPMENT OF TOOL:

Section A : Demographic variables: This part consists of 10 items for obtaining information about the sample's age, sex, religion, education, occupation, monthly income, marital status, dietary pattern, site of tumor, and comorbid conditions

REDVET - Revista electrónica de Veterinaria - ISSN 1695-7504
Vol 25, No. 1S (2024)
http://www.veterinaria.org
Article Received: 03 July 2024 Revised: 08 August 2024 Accepted: 05 September 2024

Section B : Assessment questionnaire- There will be 3 domains under psychological impact as physical, emotional and social aspects. Analysis and interpretation of data was analysed by using descriptive and inferential statistics.

Criterion measure:

The statements were developed for respondents to respond on 5 point rating scale i.e. under each aspects, there will be 9, 7, 6statements respectively. Therefore there were total 22 statements. The score of each statement was as follows.
Very highly impact – 0-22
Highly impact – 23 - 44
Moderately impact – 45 - 66
Low impact – 67 - 88
Very low impact– 89 - 110

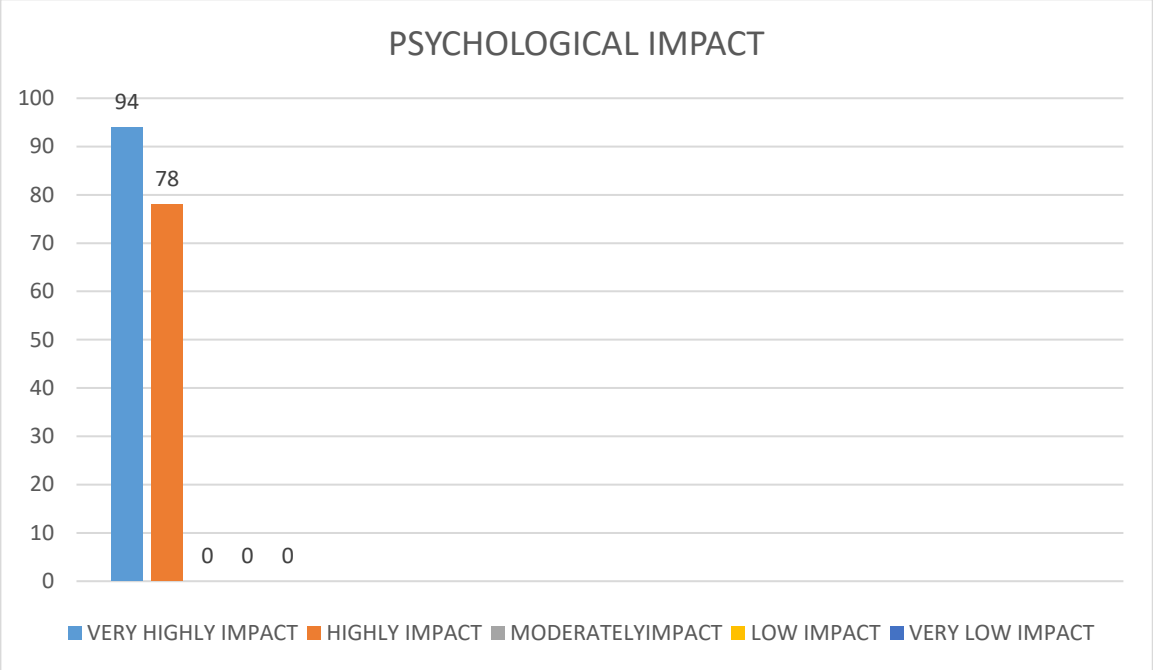
RESULTS:

Section A : Distribution of subjects according to their demographic variables :

s.no	Demographic variables	f	%
1.	**Age**		
1.1	31 – 45 years	62	36
1.2	46 – 60 years	78	45
1.3	61 – 75 years	32	19
2.	**Sex**		
2.1	Male	86	50
2.2	Female	86	50
3.	**Religion**		
3.1	Hindu	64	37.2
3.2	Christian	66	38.4
3.3	Muslim	42	24.4
4	**Education**		
4.1	Illiterate	20	11.6
4.2	Primary	36	20.9
4.3	High school	58	33.7
4.4	Higher secondary	38	22.1
4.5	Collegiate	20	11.6
5	**Occupation**		
5.1	Unemployed	37	21.5
5.2	Self employee	44	25.6
5.3	Private employee	46	26.7
5.4	Govt employee	45	26.2
6	**Family monthly income**		
6.1	Below rs 5000	48	27.9
6.2	Rs 5001 – 10000	50	29.1
6.3	Rs 10001 – 15000	30	17.4
6.4	Above 15000	44	25.6
7	**Marital status**		
7.1	Married	130	75.6
7.2	Unmarried	19	11.0
7.3	Divorced	16	9.3
7.4	Separated	7	4.1
8	**Dietary pattern**		
8.1	Vegetarian	34	19.8
8.2	Non vegetarian	138	80.2
9	**Site of tumor**		
9.1	Cervix cancer	72	41.9
9.2	Oral cancer	36	20.9
9.3	Lung cancer	43	25.0
9.4	Esophagus cancer	21	12.2
10	**Comorbid conditions**		
10.1	Hypertension	103	59.9
10.2	Kidney disorders	6	3.5
10.3	Respiratory disorders	7	4.1
10.4	None	56	32.6

REDVET - Revista electrónica de Veterinaria - ISSN 1695-7504
Vol 25, No. 1S (2024)
http://www.veterinaria.org
Article Received: 03 July 2024 Revised: 08 August 2024 Accepted: 05 September 2024

Section B : (i) The findings revealed that 94 (54.7 %) were very high impact, 78 (45.3 %) were high impact and no one in moderate impact, low impact and very low impact and mean score and the standard deviation was 23.55 (± 9.8)

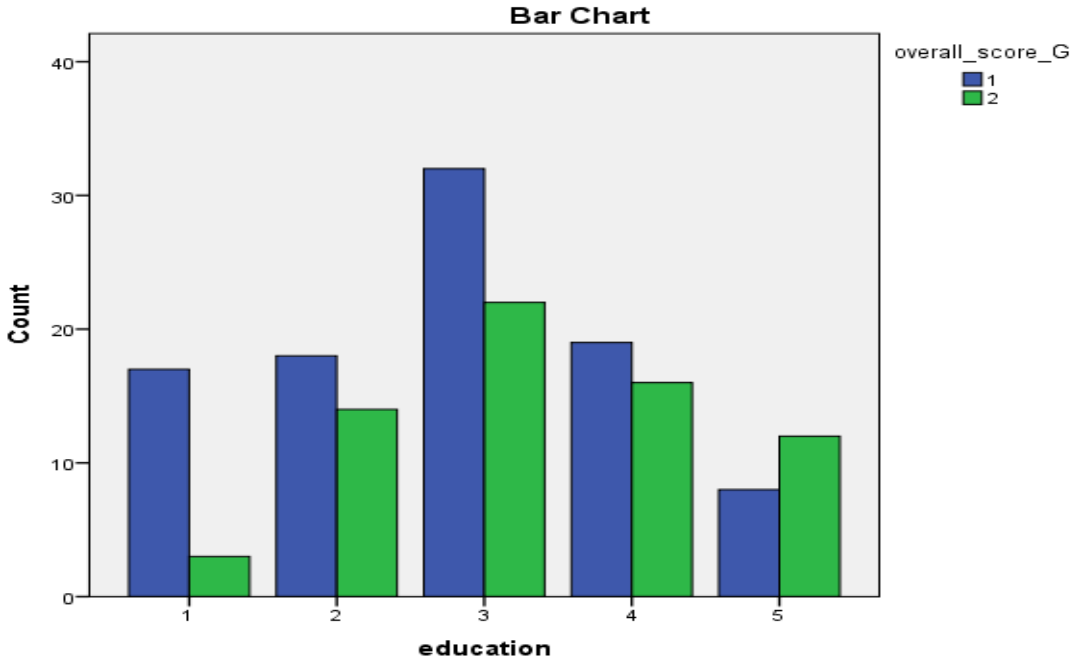


(ii) The findings showed that there is a association between the psychological impact among patients receiving chemotherapy and with their selected demographic variables like education and comorbid condition.

Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	8.932[a]	4	.063
Likelihood Ratio	9.695	4	.046
Linear-by-Linear Association	6.337	1	.012
N of Valid Cases	161		

0 cells (0.0%) have expected count less than 5. The minimum expected count is 8.32.

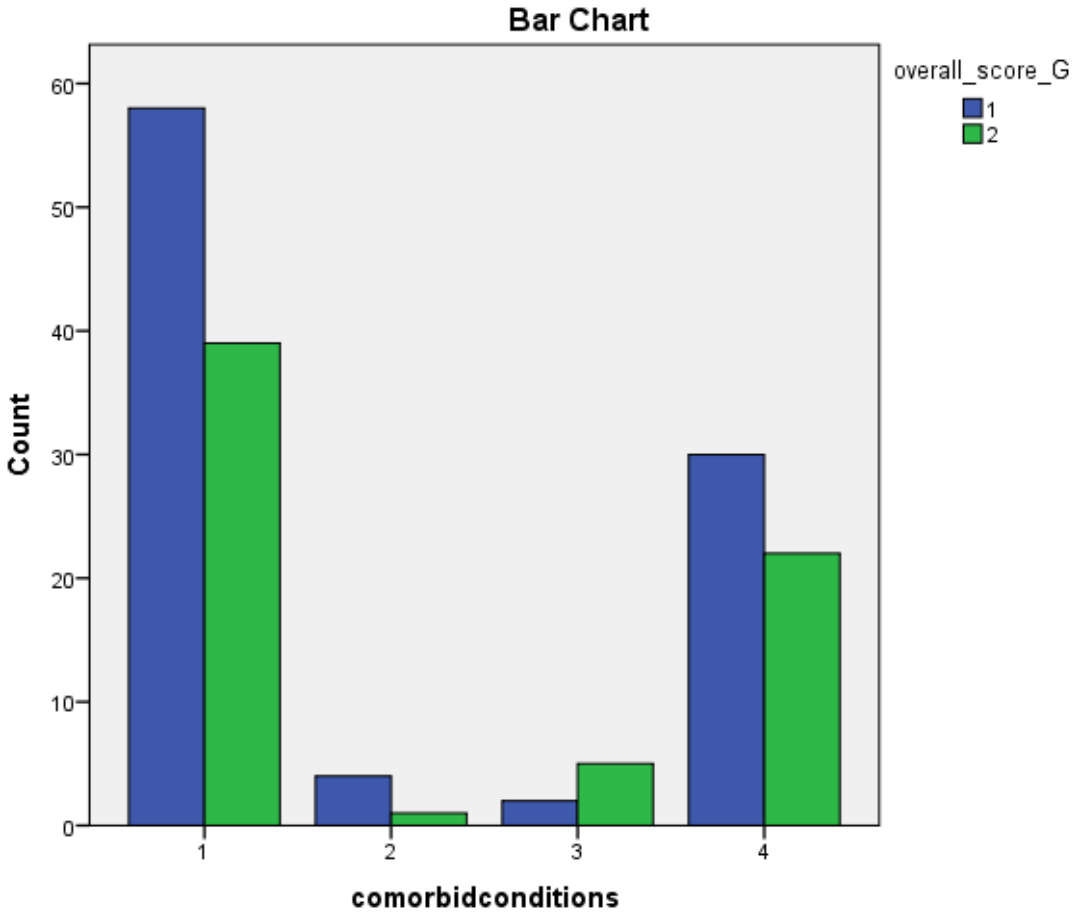


REDVET - Revista electrónica de Veterinaria - ISSN 1695-7504
Vol 25, No. 1S (2024)
http://www.veterinaria.org
Article Received: 03 July 2024 Revised: 08 August 2024 Accepted: 05 September 2024

Co morbid conditions

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3.612[a]	3	.307
Likelihood Ratio	3.688	3	.297
Linear-by-Linear Association	.229	1	.632
N of Valid Cases	161		

4 cells (50.0%) have expected count less than 5. The minimum expected count is 2.08.



Conclusion :

The study reported that Cancer is dangerous global burden and the treatment gives physiological and psychological problem. . Psychological distress plays a role in cancer recurrence and recovery; thus, there is a need for a holistic approach to the management of patients with cancer, including psychological evaluation to identify those at risk.

Recommendations :

Study can be replicated on a larger sample of subjects so that the findings can be generalized.
Interventional package can be implemented. Non pharmacological measures to be incorporated to enchance quality of life.

References :

1. Roshid MM, Rahman MM, Sarker MH, Rahman MJ, Prihanto JB, Alam MN, et al. Assessment of psychological distress and its associated factors among patients with cancer undergoing chemotherapy in rural Bangladesh. J Family Med Prim Care 2024;13:647-55
2. Aggeliki Papadopoulou, Ourania Govina, Ioanna Tsatsou,et al. Quality of life, distress, anxiety and depression of ambulatory cancer patients receiving chemotherapy. Oncology. Medicine and pharmacy reports 2022:95(4): 418 – 429.
3. Gour S, Maurya RK, Singh PP, Ahirwar V, Dhakar M, Maravi P. Psychological impact among cancer patients undergoing chemotherapy in Bundelkhand region, Central India. Int J Res Med Sci 2021;9:706-10.

4. Paraskevi Prapa, Ioanna V. Quality of Life and Psychological Distress of Lung Cancer Patients Undergoing Chemotherapy (2021) :12(2-3)June 2021: 61-66
5. Tasneem Elghazali Bakhiet, Prevalence of depression and anxiety among adult patients undergoing chemotherapy in Khartoum, Sudan: A cross-sectional study. Journal of Affective Disorders Reports 6 (2021) 100218.
6. Bosire A, Mageto I, Kimani S. Psychological effects of chemotherapy experienced by patients diagnosed with breast and cervical cancer attending Kenyatta national hospital cancer treatment centre. Int J Health Sci Res. 2020; 10(1):166-174.
7. E. B. Elimimian , L. Elson,et.al .A pilot study of improved psychological distress with art therapy in patients with cancer undergoing chemotherapy. BMC Cancer. (2020) 20:899: 1- 11
8. El Kheir DYM, Ibrahim AHM. Epidemiological assessment of distress during chemo-therapy: who is affected?. J Taibah Univ Med Sc 2019;14(5):448e453.
9. Thasaneesuwan, S., & Nilmanat, K. Psychological Distress in Patient with Cancer Undergoing Chemotherapy and Nursing Care. Journal of Research in Nursing-Midwifery and Health Sciences, (2019); 39(4), 110–119
10. Noriko Ishizuka et.al Psychological Distress and Resilience among Partners of Cancer Patients Receiving Outpatient Chemotherapy **.**International Journal of Clinical Medicine 2017: 8(8):10.4236.