International Journal of Science and Research (IJSR)
ISSN: 2319-7064
Impact Factor 2025: 7.089

A Comparative Study to Assess the Knowledge regarding Chemotherapy Induced Side Effects and its Home Care Management among Caregivers of Paediatric Patients with Cancer Residing in their Homes vs. those Residing in a Paediatric Cancer Support Centre who are Undergoing Chemotherapy in a Tertiary Cancer Care Centre in Northeast India

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Abstract: ***Introduction: Paediatric cancer is relatively rare but can be effectively treated with early diagnosis and appropriate care. Variability in chemotherapy side effects, influenced by health and nutrition, makes prediction challenging. Objectives: Primary objective: 1) To compare the level of knowledge regarding chemotherapy induced side effects and its home care management among caregivers of paediatric patients with cancer residing in their homes Vs. those residing in a paediatric cancer support centre. Secondary objectives: 1) To estimate the association between level of knowledge regarding chemotherapy induced side effects and its home care management among caregivers of paediatric patients with cancer residing in their homes with their selected demographic variables. 2) To estimate the association between level of knowledge regarding chemotherapy induced side effects and its home care management among caregivers of paediatric patients with cancer residing in a paediatric cancer support centre with their selected demographic variables. Methods: A comparative descriptive research design was used in this study. 56 caregivers of paediatric patients with cancer were chosen using purposive sampling technique. A self-structured knowledge questionnaire was developed to collect the data. Results: Caregivers in paediatric cancer support centres showed significantly higher knowledge (M=18.96) than caregivers from home (M=13.89), t (54) =5.73, P<0.001, mean difference=5.07. In home group, knowledge of chemotherapy side effects and home management was significantly associated with education (P<0.05), but not with age, gender, occupation, relation, income, prior knowledge, or chemotherapy cycles. In paediatric cancer support centre group, findings showed no significant association of age, gender, education, occupation, relation, income, prior knowledge, chemotherapy cycles with caregivers' knowledge. Conclusion: Caregivers in support centres exhibited higher knowledge than those at home; educational interventions are essential to enhance knowledge and home care practices.***

Keywords: Knowledge, Chemotherapy, Side Effects, Home Care Management

1. Introduction

Cancer can appear at any age and affect any part of the body. It begins with a genetic change in a single cell, grows into a mass (or tumor), spreads to other parts of the body, and can be lethal if left untreated. Unlike adult cancer, the majority of adolescent cancers have an unknown cause. Childhood cancer is uncommon but treatable with early detection and appropriate care. Every year, an estimated 300,000 children develop cancer across the world, and more than 50,000 of these new paediatric cases occur in India alone.[1] Chemotherapy regimens are designed to eradicate the highest possible number of tumor cells by using agents that cause DNA damage and disrupt DNA replication in cells that are actively dividing. Nevertheless, these agents impact healthy tissues that are rapidly proliferating, resulting in adverse drug reactions. This greatly restricts the clinical application of chemotherapy.[2] The intensity of side effects caused by chemotherapy often differs significantly depending on an individual's general health and nutritional condition, which makes anticipating them challenging. Consequently, despite advances in the effectiveness of chemotherapeutic agents, it remains crucial to recognize both the immediate and long-term side effects, as they remain a major concern for those receiving chemotherapy.[3] Parande F et al. (2018) conducted 6-month research at Bharati Hospital and Research Centre (Paediatric Haematology/Oncology Unit), Maharashtra, to examine chemotherapy-induced adverse drug events in paediatric oncology. The work was published in a peer-reviewed pharmacy journal. Among 50 patients undergoing four treatment cycles, 123 adverse events were recorded. Commonly impacted system was the gastrointestinal (37.04%), which was followed by disorders of the general system (32.20%), blood and lymphatic system (12.65%), musculoskeletal system (6.92%), neurological system (5.12%), and respiratory system (4.82%). The eyes and ears were the least impacted, making up only 1.20 percent of all incidents.[2] Roy S. et al. (2023) conducted a study published in the International Journal of Community Medicine and Public Health that evaluated family caregivers living close to cancer treatment centres in Thiruvananthapuram and Mumbai. The findings revealed that most of the caregivers could identify

typical side effects of chemotherapy, including hair loss (95%), changes in appetite (88%), and nausea/vomiting (88%). Nonetheless, the participants' awareness of symptoms associated with infection was relatively lower.[4] Effective symptom management is essential because poor symptom management can have a detrimental impact on the child's general health and well-being. In children with cancer, several symptoms often occur in clusters. Cancer symptoms are frequently debilitating, disagreeable, and challenging for children and families. These symptoms, which can impact the child's physical and mental development as well as the family's quality of life, are brought on by the illness, its treatment, and associated procedures. Long-term treatment of severe symptoms can lower a person's quality of life and impede a child's development in several ways. Living at a cancer support centre provides caregivers with a thorough, nurturing environment that significantly enhances their comprehension of managing chemotherapy side effects and general home care. Overall well-being of a patient receiving chemotherapy can be greatly enhanced by effective side effect control. When symptoms are immediately and correctly managed at home, patients can feel more at ease and more capable of addressing the demands of their therapy. Adhering to treatment regimens is more probable in patients and caregivers who feel comfortable handling side effects at home. This may result in improved treatment results and a higher likelihood of treatment success.

2. Objectives of the Study

Primary Objective:
To compare the level of knowledge regarding chemotherapy induced side effects and its home care management among caregivers of paediatric patients with cancer residing in their homes Vs. those residing in a paediatric cancer support centre.

Secondary objectives:
1) To estimate the association between level of knowledge regarding chemotherapy induced side effects and its home care management among caregivers of paediatric patients with cancer residing in their homes with their selected demographic variables.
2) To estimate the association between level of knowledge regarding chemotherapy induced side effects and its home care management among caregivers of paediatric patients with cancer residing in a paediatric cancer support centre with their selected demographic variables.

3. Methodology

Research approach
As the nature of the problem permits a quantitative approach, hence it was applied for comparison of knowlegde regarding chemotherapy induced side effects and its home management among caregivers of paediatric patients with cancer residing in their homes Vs. those residing in a paediatric cancer support centre who are undergoing chemotherapy in a tertiary cancer care centre in Northeast India.

Research design
A comparative descriptive research design was used in this investigation.

Sample and sample size
The sample of this study was 56 caregivers of paediatric patients with cancer aged between 0-14 years residing in their homes and those residing in a paediatric cancer support centre who are undergoing chemotherapy in a tertiary cancer care centre in Northeast India.

Sampling criteria
The following criteria served as the basis for selection of samples for the study.

Inclusion criteria:
Caregivers of paediatric patients with cancer
- Aged between 0-14 years residing in their homes and those residing in a paediatric cancer support centre receiving chemotherapy at Dr. B Borooah Cancer Institute, Guwahati, Assam.
- Who are accessible during the designated data collection period
- Who provided consent to be recruited for the study.
- Who can read, write and understand English or Assamese.

Exclusion criteria:
Caregivers of paediatric patients with cancer
- Whose patient is severely ill.
- Who are health personnel.

Sampling technique
Purposive sampling technique was used for the current research study.

Variables
In this study the variables identified were:
- **Research variables:** In this study, research variable is the knowlegde regarding chemotherapy induced side effects and its home care management.
- **Demographic variables:** Demographic variables include data of caregivers include age, gender, education, occupation, relation with the patient, monthly family income, previous knowledge and clinical data include no. of cycles of chemotherapy taken by the patient.

Description of tool
The tool comprised of two sections.

Section I (Socio-demographic Proforma): It is designed to collect the socio-demographic data of caregivers of paediatric patients with cancer.

Section I is divided into two parts:

Part A: Personal data of caregivers of paediatric patients with cancer which include age, gender, education, occupation, relation with the patient, monthly family income, previous knowledge.

Part B: Clinical data of paediatric patients with cancer include no. of cycles of chemotherapy taken.

Section II (Self- Structured Questionnaire): It is designed to assess the knowledge of caregivers of paediatric patients with cancer regarding chemotherapy induced side effects and

its home care management. This section consists of 28 questions.

Section II is divided into two parts:

Part A: Self- structured questionnaire for assessing knowledge regarding chemotherapy induced side effects.

Part B: Self structured questionnaire for assessing knowledge regarding home management of chemotherapy induced side effects.

Scoring of the tool
Total no. of knowledge questionnaire= 28
The maximum score was 28 and the minimum score was 0.

Scoring was interpreted as follows:
Inadequate knowledge: <(Mean – Standard Deviation)= 0-12
Moderately adequate knowledge: Between (Mean + Standard Deviation) and (Mean – Standard Deviation) = 13-20
Adequate knowledge: >(Mean + Standard Deviation)= 21-28

4. Results

Section A: Description of frequency and percentage distribution of caregivers of paediatric patients with cancer according to demographic variable

Table 1: Frequency and percentage distribution of caregivers of paediatric patients with cancer according to demographic variables, n= 56

Sl. No.	Demographic variables	Group		Total
		Home	Paediatric Cancer Support Centre	
	Age			
a.	18-30 Years	12(42.86%)	11(39.29%)	23(41.07%)
b.	31-40 Years	13(46.43%)	13(46.43%)	26(46.43%)
c.	41-50 Years	2(7.14%)	4(14.29%)	6(10.71%)
d.	≥51 Years	1(3.57%)	0(0%)	1(1.79%)
	Gender			
a.	Male	8(28.57%)	7(25%)	15(26.79%)
b.	Female	20(71.43%)	21(75%)	41(73.21%)
	Educational Qualification			
a.	No Formal Education	2(7.14%)	1(3.57%)	3(5.36%)
b.	Primary	7(25%)	4(14.29%)	11(19.64%)
c.	High School	11(39.29%)	7(25%)	18(32.14%)
d.	Higher Secondary	5(17.86%)	9(32.14%)	14(25%)
e.	Graduate	2(7.14%)	7(25%)	9(16.07%)
f.	Postgraduate and above	1(3.57%)	0(0%)	1(1.79%)
	Occupation			
a.	Govt. job	2(7.14%)	1(3.57%)	3(5.36%)
b.	Private job	0(0%)	5(17.86%)	5(8.93%)
c.	Business	4(14.29%)	2(7.14%)	6(10.71%)
d.	Others	22(78.57%)	20(71.43%)	42(75%)
	i) Homemaker	15(68.18%)	17(85%)	32(76.19%)
	ii) Driver	0(0%)	1(5%)	1(2.38%)
	iii) Farmer	3(13.64%)	1(5%)	4(9.52%)
	iv) Daily Wager	3(13.64%)	0(0%)	3(7.14%)
	v) Student	1(4.54%)	1(5%)	2(4.76%)
	Relation with Patient			
a.	Parent	25(89.29%)	27(96.43%)	52(92.86%)
b.	Sibling	1(3.57%)	1(3.57%)	2(3.57%)
c.	Close Relative	1(3.57%)	0(0%)	1(1.79%)
d.	Cousin	1(3.57%)	0(0%)	1(1.79%)
	Monthly Family Income			
a.	≤ Rs. 10,000	17(60.71%)	24(85.71%)	41(73.21%)
b.	Rs. 10001- Rs. 35,000	10(35.71%)	4(14.29%)	14(25%)
c.	Rs. 35,001- Rs. 50,000	0(0%)	0(0%)	0(0%)
d.	≥ Rs. 50,001	1(3.57%)	0(0%)	1(1.79%)
	Previous Knowledge			
a.	Yes	9(32.14%)	12(42.86%)	21(37.5%)
b.	No	19(67.86%)	16(57.14%)	35(62.5%)
	If yes, source of information			
	i) Peer	1(11.11%)	6(50%)	7(33.33%)
	ii) Health professionals	7(77.78%)	5(41.67%)	12(57.14%)
	iii) Media	1(11.11%)	1(8.33%)	2(9.52%)
	Cycles of Chemotherapy Taken by the Patient			
a.	1 – 3 Cycles	8(28.57%)	6(21.43%)	14(25%)
b.	4 – 6 Cycles	8(28.57%)	11(39.29%)	19(33.93%)
c.	7 – 9 Cycles	6(21.43%)	4(14.29%)	10(17.86%)
d.	≥10 Cycles	6(21.43%)	7(25%)	13(23.21%)

Findings imply that:

1) The majority, 13 caregivers (46.43%) in both the home and support centre groups, were aged 31–40 years.
2) Most caregivers in both the home and support centre groups were female, with 20 (71.43%) in the home group and 21 (75%) in the support centre.
3) Most caregivers had a high school education, with 11 (39.29%) from the home group and in support centre group majority possessed education up to the higher secondary level with 9 (32.14%).
4) Most caregivers in both groups were categorized under 'others', with 22(78.57%) in the home group and 20 (71.43%) in the paediatric cancer support centre.
5) The majority were homemakers, comprising 15 (68.18%) from the home group and 17 (85%) from the paediatric cancer support centre under the 'Others' occupation category.
6) In both groups, most caregivers were parents, with 25 (89.29%) in the home group and 27 (96.43%) in the paediatric cancer support centre.
7) Most caregivers in both groups reported a monthly family income of Rs.10,000 or less, comprising 17(60.71%) in the home group and 24(85.71%) in the paediatric cancer support centre.
8) Most caregivers from both groups lacked prior knowledge about chemotherapy induced side effects and its home care management of it with 19 caregivers (67.86%) in the home group and 16(57.14%) in the paediatric cancer support centre group.
9) In the home group, Majority of caregivers i.e., 7(77.78%) obtained information from healthcare providers while in the paediatric cancer support centre group, majority of caregivers with 6(50%) reported peers as their main source.
10) The majority of caregivers in both the group reported 4–6 cycles of chemotherapy their children had undergone with 8 caregivers (28.57%) from home group, and 11(39.29%) were from the support centre. Also, 8 caregivers (28.57%) from the home group reported 1-3 cycles of chemotherapy cycles that their children had undergone.

Section B: Frequency and Percentage distribution of knowledge level of caregivers of paediatric patients with cancer residing in their homes and in a paediatric cancer support centre.

Table 2: Frequency and percentage distribution of knowledge level of caregivers of paediatric patients with cancer residing in their homes and in paediatric cancer support centre, The findings confirmed that the most caregivers in both groups had moderately adequate knowledge with 16 caregivers (57.14%) in the home group and 19 caregivers (67.86%) in the support centre group. In the home group, 11 caregivers (39.29%) had inadequate knowledge and only 1 caregiver (3.57%) had adequate knowledge. In contrast, in the paediatric cancer support centre group, 9 caregivers (32.14%) had adequate knowledge, and none had inadequate knowledge.

S. No.	Knowledge Level	Group		Total
		Home	Paediatric Cancer Support Centre	
a.	Inadequate	11(39.29%)	0(0%)	11(19.64%)
b.	Moderately Adequate	16(57.14%)	19(67.86%)	35(62.5%)
c.	Adequate	1(3.57%)	9(32.14%)	10(17.86%)
Total		28(100%)	28(100%)	56(100%)

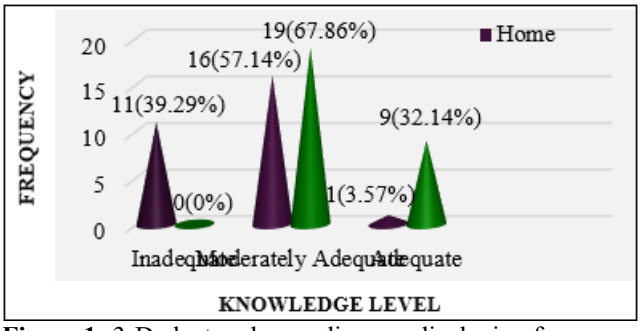


Figure 1: 3-D clustered cone diagram displaying frequency and percentage distribution of knowledge level of caregivers of paediatric patients with cancer residing in their homes and in paediatric cancer support centre, n= 56

Section C: Comparison of level of knowledge among caregivers of paediatric patients with cancer residing in their homes with those residing in a paediatric cancer support centre.

Table 3: Comparison of level of knowledge among caregivers of paediatric patients with cancer residing in their homes with those residing in a paediatric cancer support centre which was tested by independent sample t test.

Group	Mean	SD	Mean Difference	t-test for Equality of Means		
				t	df	P-Value
Home	13.89	3.38	-5.07	5.73	54	<0.001***
Paediatric Cancer Support Centre	18.96	3.24				

*** Significant

The findings show that the level of knowledge regarding chemotherapy induced side effects and its home care management among caregivers of paediatric patients with cancer residing in their homes Vs. those residing in a paediatric cancer support centre varied significantly, t (54) =5.73, P<0.001. It shows mean knowledge score in home group is 13.89 and 18.96 in paediatric cancer support centre group with mean difference of 5.07. Thus, findings reveal that knowledge of caregivers from paediatric cancer support centre have higher level of knowledge than the caregivers from home.

Section D: Association between level of knowlegde regarding chemotherapy induced side effects and its home care management among caregivers of paediatric patients with cancer residing in their homes with their selected demographic variables.

n= 56

Demographic variables	Sub Group	Knowledge			Total	Fisher's Exact *P* Value
		Inadequate	Moderately Adequate	Adequate		
Age	18-30 Years	5	6	1	12	0.730 NS
	31-40 Years	6	7	--	13	
	41-50 Years	--	2	0	2	
	≥ 51 Years	--	1	--	1	
Gender	Male	4	4	--	8	0.768 NS
	Female	7	12	1	20	
	Transgender	--	--	--	--	
Education	No Formal Education	1	1	--	2	0.034*
	Primary	4	3	--	7	
	High School	4	7	--	11	
	Higher Secondary	1	4	--	5	
	Graduate	1	1	--	2	
	Post Graduate & above	--	--	1	1	
Occupation	Govt. job	1	1	--	2	0.999 NS
	Private job	--	--	--	--	
	Business	2	2	--	4	
	Others	8	13	1	22	
Relation with the patient	Parent	11	14	--	25	0.107 NS
	Sibling	--	1	--	1	
	Close relative	--	1	--	1	
	Cousin	--	1	--	1	
Monthly Family Income	≤ Rs. 10000	7	10	--	17	0.644 NS
	Rs. 10001-Rs. 35,000	4	5	1	10	
	Rs. 35,001 - Rs. 50,000	--	--	--	--	
	≥Rs. 50,001	--	1	--	1	
Previous Knowledge	Yes	4	5	--	9	0.999 NS
	No	7	11	1	19	
No. of Cycles of Chemotherapy	1 – 3 Cycles	3	4	1	8	0.999 NS
	4 – 6 Cycles	3	5	--	8	
	7 – 9 Cycles	3	3	--	6	
	≥10 Cycles	2	4	--	6	

NS non-significant
*Significant

Table 4: Association between level of knowledge regarding chemotherapy induced side effects and its home care management among caregivers of paediatric patients with cancer residing in their homes with their selected demographic variables.

The result shows that knowledge of chemotherapy-induced side effects and how to manage them at home showed a significant association with educational level (P<0.05). However, other demographic characteristics including age, gender, occupation, relation with the patient, monthly family income, prior knowledge, and the number of chemotherapy cycles the patient had received, did not demonstrate a significant relationship with knowledge.

Section E: Association between level of knowledge regarding chemotherapy induced side effects and its home care management among caregivers of paediatric patients with cancer residing in a paediatric cancer support centre with their selected demographic variables.

n= 28

Demographic Variables	Sub Group	Knowledge			Total	Fisher's Exact *P* Value
		Inadequate	Moderately Adequate	Adequate		
Age	18-30 Years	--	8	3	11	0.863 NS
	31-40 Years	--	8	5	13	
	41-50 Years	--	3	1	4	
	≥ 51 Years	--	--	--	--	
Gender	Male	--	5	2	7	0.999 NS
	Female	--	14	7	21	
	Transgender	--	--	--	--	
Education	No Formal Education	--	1	--	1	0.551 NS
	Primary	--	3	1	4	
	High School	--	6	1	7	
	Higher Secondary	--	6	3	9	
	Graduate	--	3	4	7	
	Post Graduate & above	--	--	--	--	
Occupation	Govt. job	--	--	1	1	0.083 NS
	Private job	--	2	3	5	

	Business	--	1	1	2	
	Others	--	16	4	20	
Relation with the Patient	Parent	--	19	8	27	0.321 NS
	Sibling	--	0	1	1	
	Close Relative	--	--	--	--	
	Cousin	--	--	--	--	
Monthly Family Income	≤ Rs. 10000	--	17	7	24	0.574 NS
	Rs. 10001-Rs. 35,000	--	2	2	4	
	Rs. 35,001- Rs. 50,000	--	--	--	--	
	≥Rs. 50,001	--	--	--	--	
Previous Knowledge	Yes	--	9	3	12	0.687 NS
	No	--	10	6	16	
No. of Cycles of Chemotherapy	1 – 3 Cycles	--	4	2	6	0.890 NS
	4 – 6 Cycles	--	8	3	11	
	7 – 9 Cycles	--	2	2	4	
	≥10 Cycles	--	5	2	7	

NS non-significant

Table 5: Association between level of knowledge regarding chemotherapy induced side effects and its home care management among caregivers of paediatric patients with cancer residing in a paediatric cancer support centre with their selected demographic variables.

The results marked that age, gender, education, occupation, relation with the patient, monthly family income, previous knowledge and no. of cycles of chemotherapy taken by the patient were found to be non-significant with regard to knowledge level of caregivers of paediatric patients with cancer regarding chemotherapy induced side effects and its home care management.

5. Discussion

Section A: Description of frequency and percentage distribution of caregivers of paediatric patients with cancer according to demographic variables.

- The majority, 13 caregivers (46.43%) in both the home and support centre groups, were aged 31–40 years.
- Most caregivers in both the home and support centre groups were female, with 20 (71.43%) in the home group and 21 (75%) in the support centre.
- Most caregivers had a high school education, with 11 (39.29%) from the home group and in support centre group majority possessed education up to the higher secondary level with 9 (32.14%).
- Most caregivers in both groups were categorized under 'others', with 22(78.57%) in the home group and 20 (71.43%) in the paediatric cancer support centre.
- The majority were homemakers, comprising 15 (68.18%) from the home group and 17 (85%) from the paediatric cancer support centre under the 'Others' occupation category.
- In both groups, most caregivers were parents, with 25 (89.29%) in the home group and 27 (96.43%) in the paediatric cancer support centre.
- Most caregivers in both groups reported a monthly family income of ₹10,000 or less, comprising 17(60.71%) in the home group and 24(85.71%) in the paediatric cancer support centre.
- Most caregivers from both groups lacked prior knowledge about chemotherapy induced side effects and home-based management of it with 19 caregivers (67.86%) in the home group and 16(57.14%) in the paediatric cancer support centre group.
- In the home group, Majority of caregivers i.e., 7(77.78%) obtained information from healthcare providers while in the paediatric cancer support centre group, majority of caregivers with 6(50%) reported peers as their main source.
- The majority of caregivers in both the group reported 4–6 cycles of chemotherapy their children had undergone with 8 caregivers (28.57%) from home group, and 11(39.29%) were from the support centre. Also, 8 caregivers (28.57%) from the home group reported 1-3 cycles of chemotherapy cycles that their children had undergone.

Similar results were reported by Kaur R. et al. (2017) in a study assessing the impact of a structured teaching programme on improving parents' knowledge of home care for chemotherapy-related side effects. They found that 66.7% of mothers remained with their children during treatment, and 86.3% of parents had limited understanding of how to manage these side effects at home.[5]

The present findings are supported by a study carried out by Mohamed Ahmed Madkour A., Elzahraa Kamal Alsayed Ali F., and Abd Elmoniem Syan S. (2024), which evaluated how a health education program influenced the performance of home caregivers of children with cancer in managing chemotherapy-related side effects. Their results indicated that 38.7% of caregivers were between 31 and 35 years old, with a mean participant age of 31.24 ± 7.23 years, and that the entire group of caregivers was female.[6]

Section B: Frequency and Percentage distribution of knowledge level of caregivers of paediatric patients with cancer.

In the present research the result illustrates that the greater proportion of caregivers in both groups had moderately adequate knowledge with 16 caregivers (57.14%) in the home group and 19 caregivers (67.86%) in the support centre group. In the home group, 11 caregivers (39.29%) had inadequate knowledge and only 1 caregiver (3.57%) had adequate knowledge. Whereas, in the paediatric cancer support centre group, 9 caregivers (32.14%) had adequate knowledge, and none had inadequate knowledge.

The findings are corroborated by a study carried out by Daniel JM et al. (2019) that assessed caregivers' awareness of chemotherapy's side effects in cancer patients. The study had a sample size of 100. The findings revealed that 12% of caregivers had poor knowledge, 66% had average knowledge, and 22% had good knowledge. The majority had a level of knowledge that could be considered average.[7]

Section C: Comparison of level of knowledge among caregivers of paediatric patients with cancer residing in their homes with those residing in a paediatric cancer support centre.

The analysis indicated a significant variation according to statistical analysis in the level of knowlegde regarding chemotherapy induced side effects and its home care management between caregivers of paediatric patients with cancer residing at home and those residing in a paediatric cancer support centre, $t(54) = 5.73$, $P < 0.001$. The mean knowledge score was 13.89 for the home group and 18.96 for the support centre group, with a mean difference of 5.07. These findings demonstrate that caregivers from paediatric cancer support centre had a significantly higher level of knowledge compared to those from home.

Section D: Association between level of knowledge regarding chemotherapy induced side effects and its home care management among caregivers of paediatric patients with cancer residing in their homes with their selected demographic variables.

The findings demonstrated that education was significantly associated ($P<0.05$) with knowledge of chemotherapy induced side effects and its home care management, other demographic characteristics, including age, gender, occupation, relationship with the patient, monthly family income, prior knowledge, and the number of chemotherapy cycles the patient had received, did not demonstrate a significant relationship with knowledge.

Similar outcomes were found in a study by Kumar A., Charan A., and Varghese B. (2020), which assessed the impact of an informational brochure on caregivers of children receiving chemotherapy in paediatric oncology units at selected hospitals in Lucknow, Uttar Pradesh. Their findings revealed a significant association between caregivers' knowledge scores and their level of education ($\chi^2 = 21.5$, $P = 0.006$).[8]

Section E: Association between level of knowledge regarding chemotherapy induced side effects and its home care management among caregivers of paediatric patients with cancer residing in a paediatric cancer support centre with their selected demographic variables.

The results affirmed that gender, age, occupation, education, relation with the patient, monthly family income, previous knowledge and no. of cycles of chemotherapy taken by the patient were found to be non-significant with regard to knowledge level of caregivers of paediatric patients with cancer residing in a paediatric cancer support centre regarding chemotherapy induced side effects and its home care management.

The results align with a study by Daniel JM et al. (2019) that assessed caregivers' knowledge of chemotherapy side effects in cancer patients. The outcome showed that demographic characteristics such as age, gender, education, employment, family income, and the number of chemotherapy cycles did not demonstrate an association with knowledge.[7]

6. Conclusion

The research was focused with the aim to assess the variation in knowledge levels regarding chemotherapy induced side effects and its home care management between caregivers of paediatric patients with cancer residing in their homes and in paediatric cancer support centre. A self-structured knowledge assessment tool was used to gather the data. Based on data analysis, the investigator concluded that among total 56 caregivers, most caregivers in both groups had moderately adequate knowledge with 57.14% of caregivers in the home group and 67.86% caregivers in the support centre group. The level of knowlegde regarding chemotherapy induced side effects and its home management among caregivers of paediatric patients with cancer residing in their homes Vs. those residing in a paediatric cancer support centre varied significantly. Demographic characteristics such as age, gender, occupation, relation with the patient, monthly family income, previous knowledge and no. of cycles of chemotherapy taken by the patient were non-significant with knowledge except education level in home group. In paediatric cancer support centre group, demographic characteristics such as age, gender, education, occupation, relation with the patient, monthly family income, previous knowledge and no. of cycles of chemotherapy taken by the patient were found to be non-significant with regard to knowledge level.

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