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RESEARCH ARTICLE

LEARNING NEEDS REGARDING CHEMOTHERAPY AMONG PATIENTS DIAGNOSED WITH CANCER.

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Manuscript Info

Abstract

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Introduction:-

When diagnosed with cancer, patients want psychological support and information regarding cancer.⁶ Health professionals act as a major source of information during cancer diagnosis and treatment.⁴

Garcia MA et al (2018) conducted a study on the needs of cancer patients treated with intravenous chemotherapy for the first time. The result of the study concluded food as the theme notified by a most of the patients. The other needs were connected to better knowledge of the treatment and its impact on sexuality, adverse effects, information about physical activities, family relationship and psychological issues.³ Budgell MA et al (2014) conducted a study on cancer patients for their information needs and sources of information during cancer follow-up. The result showed that the most reliable source for information was health care professional. Clients favoured to obtain individualized written information from their health care giver. Irrespective of treatment completion, the patients were very keen to obtain information about cancer.⁵

The objectives of the current study were to assess learning needs regarding chemotherapy, and to assess association between learning needs and selected demographic and clinical variables of patients diagnosed with cancer. Learning needs was operationally defined as what patient needs to know about chemotherapy including its purpose, schedule, effects, side-effects, care during chemotherapy, nutrition, home care and follow-up. The conceptual framework for the present study is Rosenstock and Becker's Health Belief Model.¹

Methods:-

A quantitative approach was used to assess learning needs regarding chemotherapy among patients diagnosed with cancer.

The study was conducted in out-patient and in-patient oncology departments of AIIMS Rishikesh. The study included the patients diagnosed with cancer and who received chemotherapy from the hospital.

The sample size was calculated with Raosoft webpage (2004), with a 5% margin of error and 95% confidence level from a population size of 75. The calculated sample size was 63, due to time constraints, data was collected from 50 subjects. Purposive sampling strategy was used as a sampling technique. Inclusion criteria were (1) Patients of age 18 years or more, (2) patients who were diagnosed with cancer and received at least one cycle of chemotherapy, and (3) a patient who can speak and understand Hindi (a regional language in India). Exclusion criteria was (1) patients who were not willing to participate in study.

Permission was obtained from the Institutional Ethics Committee. Informed consent was taken from the participants of the study. The anonymity of subjects and confidentiality of information were maintained.

The structured questionnaires were used to collect demographic and clinical profile of patients diagnosed with cancer. Demographic profile along with the clinical variables of patients was collected from the participants by interview and review of medical records. Assessment of learning needs questionnaire was used to assess learning needs regarding chemotherapy. The patient had to rate the items from 1 to 5 according to the degree of explanation they need from nurses and other healthcare professionals. The rating scale of the questionnaire contained 34 items and were grouped as needs before, during and after chemotherapy. The learning needs questionnaire also contained three items to rank according to their priority. The internal consistency of the questionnaire was assessed by a test-retest method. The reliability coefficient for section 1 of the structured learning needs questionnaire was .93 and for section 2 was .88. The tools were checked for validity by experts in the field of Oncology.

The patients were asked to complete the questionnaire. SPSS Version 23 was used for data analysis.

Results:-

As per the learning needs, out of 50 participants, 25(50%) had moderate learning needs while 15(30%) had low learning needs and 10(20%) had high learning needs.

Table 1 depicts demographic profile of sample. Majority of the participants were in 43-54 age group and male participants were slightly higher in number. Most of the subjects were high school educated, married and belonged to the Hindu religion. Majority of them were unemployed and had a monthly income of less than ten thousand rupees. Most of them were in rural, nuclear families. Majority of them spent one to three Lac rupees on the treatment of cancer and the source was loaned or borrowed money from others.

Table 1:-Distribution of sample according to demographic variables (N=50)

Variables	f (%)
Age(in years)	
18-30	12 (24)
31-42	14 (28)
43-54	16 (32)
55-65	08 (16)
Mean age \pm SD = 41.72 \pm 12.37	
Gender	
Male	27 (54)
Female	23 (46)
Marital status	
Single	07 (14)
Married	42 (84)
Widowed	01 (02)
Education	
Illiterate	07 (14)
Primary	07 (14)
High School	13 (26)
Higher Secondary	02 (04)
Graduate	11 (22)
Post-graduate & above	10 (20)
Religion	
Hindu	43 (86)
Muslim	07 (14)
Present working status	
Unemployed	32 (64)
Employed	18 (36)
If employed (n=18), Self-employed	09 (18)

Private sector	05 (10)
Government sector	04 (08)
Monthly income (in INR)	
>10,000	36 (72)
10,001-20,000	05 (10)
20,001-30,000	03 (06)
30,001 & above	06 (12)
Type of family	
Nuclear	29 (58)
Joint	21 (42)
Type of habitat	
Rural	29 (58)
Urban	21 (42)
Expenditure on treatment of cancer	
≤ 1 Lac	13 (26)
1-3 Lac	25 (50)
>3 Lac	12 (24)
Source of money	
Out-of-pocket	15 (30)
Borrowing or loan	24 (48)
Out-of-pocket and borrowing or loan	11 (22)

Table 2 illustrates clinical variables of subjects. Among 50 participants, the majority of participants had breast cancer and most of them were in stage 4 of cancer. Most of them had no co-morbidities and were diagnosed with cancer for less than 1 year. Majority of the participants received chemotherapy only through intravenous route and half of the patients received information about chemotherapeutic drugs and its side effects. A significant number of patients received one to six cycles of chemotherapy and most of them had no surgical history.

Table 2:-Distribution of sample according to clinical variables (N=50)

Variable	f (%)
Type of cancer	
Haematological	09 (18)
Gastrointestinal	09 (18)
Respiratory	03 (06)
Head and Neck	05 (10)
Breast	13 (26)
Genitourinary	09 (18)
Musculoskeletal	02 (04)
Stage of cancer	
Stage 1	02 (04)
Stage 2	03 (06)
Stage 3	13 (26)
Stage 4	26 (52)
Not applicable*	06 (12)
Time since diagnosis	
≤1 year	39 (78)
1-3 years	10 (20)
> 3 years	01 (02)
Route of chemotherapy	
Only IV	47 (94)
IV and oral	03 (06)
Previous knowledge of chemotherapeutic drugs and side-effects	
Yes	25 (50)
No	25 (50)
Past history of surgical treatment	

Yes	23 (46)
No	27 (54)
Co-morbidities	
Yes	08 (16)
No	42 (84)
Number of chemotherapy cycles	
1 to 6	42 (84)
6 to 10	07 (14)
>10	01 (02)

(Not applicable* - Hematological malignancy)

Table 3 depicts various classes of patients according to their learning needs. The findings were based on the total score of section 1 of the Assessment of Learning Needs Questionnaire.

Table 3:-Level of learning needs of cancer patients (N=50)

Level of learning needs (Score)	f (%)	Mean ± SD
Low (34-79)	15 (30)	97.76 ± 31.09
Moderate (80-125)	25 (50)	
High (126-170)	10 (20)	

Out of 50 participants, 25(50%) had moderate learning needs while 15(30%) had low learning needs and 10(20%) had high learning needs. The mean ± SD was 97.76 ± 31.09. Hence, majority of the patients had a moderate level of needs to learn about chemotherapy.

Table 4 depicts the distribution of patients on the basis of assessment of learning needs regarding chemotherapy as per the categories of the tool.

Table 4:-Learning needs of patients as per categories of tool(N=50)

Categories	n*	Mean ± SD	Mean %
Before chemotherapy	16	43.18 ± 15.25	53.98
During chemotherapy	06	18.24 ± 6.17	60.8
After chemotherapy	12	36.34 ± 12.81	60.57

(*Number of items)

It was found that patients reported the major area of their learning need was 'during chemotherapy' with mean ± SD (18.24 ± 6.17) and mean percentage 60.8, followed by learning needs in area of 'after chemotherapy' with mean ± SD (36.34 ± 12.81) and mean percentage 60.57. The area perceived with least learning needs was 'before chemotherapy' with mean ± SD (43.18 ± 15.25) and mean percentage 53.98. Hence, it can be concluded that patients perceived more learning needs during chemotherapy.

Tables 5,6&7 summarize the data obtained through Section 2 of the Assessment of Learning Needs Questionnaire. According to the rank order of most difficult areas, 'side effects of chemotherapy' was the most difficult area, followed by understanding the action of chemotherapy in second place and nutrition in third place. The areas relationship with family members and or friends, 'dealing with your own feelings' and recreational and or work activities were in fourth, fifth and sixth place respectively.

Table 5:-Rank wise distribution of patients as per most difficult areas in relation to chemotherapy

(N = 50)

Area	Rank frequency (%)						Average ranking	Rank order
	High		Moderate		Low			
	1	2	3	4	5	6		
Side effects of chemotherapy	23(46)	12(24)	07(14)	03(06)	04(08)	01(02)	4.88	1
Understanding the	07(14)	18(36)	10(20)	09(18)	05(10)	01(2)	4.2	2

action of chemotherapy								
Nutrition	11(22)	05(10)	11(22)	06(12)	12(24)	05(10)	3.64	3
Relationship with family members and or friends	07(14)	06(12)	09(18)	10(20)	07(14)	11(22)	3.26	4
Dealing with your own feelings	02(04)	07(14)	09(18)	14(28)	11(22)	07(14)	3.08	5
Recreational and or work activities	0(0)	03(6)	04(8)	08(16)	10(20)	25(50)	2	6

According to the rank order of most knowledgeable areas, nutrition was the most knowledgeable area, followed by a relationship with family members and or friends in second place and 'dealing with your own feelings' in third place. The areas recreational and or work activities, 'side-effects of chemotherapy' and understanding the action of chemotherapy were in fourth, fifth and sixth place respectively.

Table 6:-Rank wise distribution of patients as per most knowledgeable areas in relation to chemotherapy (N= 50)

Area	Rank frequency (%)						Average ranking	Rank order
	High		Moderate		Low			
	1	2	3	4	5	6		
Nutrition	17(34)	12(24)	05(10)	06(12)	03(06)	07(14)	4.26	1
Relationship with family members and or friends	11(22)	08(16)	15(30)	04(08)	07(14)	05(10)	3.94	2
Dealing with your own feelings	08(16)	09(18)	08(16)	11(22)	07(14)	07(14)	3.58	3
Recreational and or work activities	04(08)	09(18)	13(26)	09(18)	03(06)	12(24)	3.32	4
Side-effects of chemotherapy	09(18)	07(14)	06(12)	06(12)	12(24)	10(20)	3.3	5
Understanding the action of Chemotherapy	01(02)	05(10)	03(06)	14(28)	18(36)	09(18)	2.6	6

According to the rank order of most information wanted areas, 'Side-effects of chemotherapy' was the most information wanted area, followed by understanding the action of chemotherapy in second place and nutrition in third place. The areas 'relationship with family members and or friends' and dealing with their own feelings were in fourth place. 'Recreational and or work activities' was in fifth place.

Table 7:-Rank wise distribution of patients as per most information wanted areas in relation to chemotherapy (N= 50)

Area	Rank frequency (%)						Average ranking	Rank order
	High		Moderate		Low			
	1	2	3	4	5	6		
Side effects of chemotherapy	16(32)	22(44)	03(06)	04(08)	02(04)	03(06)	4.74	1
Understanding the action of chemotherapy	17(34)	11(22)	07(14)	05(10)	08(16)	02(04)	4.36	2
Nutrition	10(20)	08(16)	15(30)	08(16)	06(12)	03(06)	3.98	3
Relationship with family members and or friends	02(04)	03(06)	10(20)	13(26)	12(24)	10(20)	2.8	4

Dealing with your own feelings	01(02)	05(10)	10(20)	12(24)	11(22)	11(22)	2.8	4
Recreational and or work activities	04(08)	01(02)	05(10)	08(16)	11(22)	21(42)	2.32	5

Table 8 depicts the association between learning needs and demographic variables and the analysis concluded no significant association between learning needs and gender, education, working status, and habitat of subjects ($p > .05$).

Table 8:-Association between learning needs and demographic variables

Demographic variables	Low learning needs f (%)	Moderate learning needs f (%)	High learning needs f (%)	χ^2 ,df p value
Gender				
Female	07 (14)	12 (24)	04 (08)	.188, 2 .910*
Male	08 (16)	13 (26)	06 (12)	
Education				
Illiterate	02 (04)	04 (08)	01 (02)	17.659,10 .061*
Primary	02 (04)	01 (02)	04 (08)	
High school	01 (02)	10 (20)	02 (04)	
Higher secondary	02 (04)	-	-	
Graduate	05 (10)	04 (08)	02 (04)	
Post graduate & above	03(06)	06(12)	01(02)	
Working status				
Employed	04 (08)	09 (18)	05 (10)	1.418, 2 .492*
Unemployed	11 (22)	16 (32)	05 (10)	
Habitat				
Urban	06 (12)	10 (20)	05 (10)	.328, 2 .849*
Rural	09 (18)	15 (30)	05 (10)	

(* = Non significant at $p > .05$)

Table 9 depicts the association between learning needs and clinical variables and the analysis concluded no significant association between learning needs and stage of cancer, time since diagnosis, previous knowledge of chemotherapeutic drugs and side-effects, and number of chemotherapy cycles of subjects ($p > .05$).

Table 9:-Association between learning needs and clinical variables

Clinical variables	Low learning needs f (%)	Moderate learning needs f (%)	High learning needs f (%)	χ^2 ,df p value
Stage of cancer				
Stage 1,2 and 3	05 (10)	06 (12)	07 (14)	7.040, 4 .134*
Stage 4	08 (16)	15 (30)	03 (06)	
Not applicable ⁺	02 (04)	04 (08)	-	
Time since diagnosis				
≤1year	13 (26)	18 (36)	08 (16)	1.798, 4 .773*
1-3 years	02 (04)	06 (12)	02 (04)	
>3 years	-	01(02)	-	
Previous knowledge of chemotherapeutic drugs and side-effects				
Yes	09 (18)	14 (28)	02 (04)	4.560, 2 .102*
No	06 (12)	11 (22)	08 (16)	
Number of chemotherapy cycles				

≤6	11 (22)	22 (44)	09 (18)	3.198, 4 .525*
6-10	03 (06)	03 (06)	01 (02)	
>10	01 (02)	-	-	

(+ Hematological malignancy) (* Non significant at $p > .05$)

Discussion:-

Thirty two percent of the subjects were between the age group of 43 to 54. Fifty four percent of the subjects were males. Twenty six percent of the sample subjects had a high school education. Half of the subjects spent 1 to 3 Lac rupees for the treatment of cancer and the source of money was borrowed or loan. There is no significant association between learning needs and selected demographic variables. Twenty six percent of the participants had breast cancer. Most of the patients (94%) received chemotherapy through intravenous route only. Half of the patients (50%) had information about chemotherapeutic drugs and its side-effects. There is no significant association between learning needs and selected clinical variables. Out of 50 subjects, 50% of the subjects had moderate learning needs while 30% had low and 20% had high learning needs. 'Side-effects of chemotherapy' was the most difficult area ranked by 70% of subjects. Fifty eight percent of subjects ranked nutrition as the most knowledgeable area. Seventy six percent of subjects wanted information about the side-effects of chemotherapy. The findings of the study were consistent with results of previous studies (Choenyi N et al. 2016) on knowledge regarding the ill effects of chemotherapy and its home management.² In the literature, 37% of the subjects were in 49 to 64 age group and 50% of the sample were males. That study also concluded that 28% had secondary education and 42% of the subjects were living in an urban area. In the literature, 50% of the subjects had prior knowledge about chemotherapy. The findings of the current study are consistent with existing literature regarding the needs of cancer patients treated with intravenous chemotherapy for the first time. The study (Garcia MA et al. 2018) found that patients' needs were connected to better knowledge of the treatment and its impact on sexuality, adverse effects, information about physical activities, family relationship, and psychological issues.³

Conclusion:-

Results concluded that subjects had moderate learning needs in relation to chemotherapy and they perceived more needs during chemotherapy. The term cancer is painful for most of the patients and their family members. When they were advised for chemotherapy, they may have queries and abstract ideas regarding various aspects of the treatment. The provision of information depends on what the patient to know about chemotherapy. Health professionals who are in direct patient contact can assess the learning needs of patients regarding chemotherapy. It can help them to plan and implement patient-focused care for chemotherapy patients. It will enhance the quality of care, and promote adherence to a prescribed treatment plan and quality of life of patients.

The study is delimited to a single centre and small size population because of limited time. The study can be replicated with a large sample size for generalization of findings. Research can be conducted on learning needs and belief regarding chemotherapy in different types, and stages of cancer and also during different phases of chemotherapy.

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Conflicts of interest:-

There are no conflicts of interest.

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