

Research Article

Awareness and Knowledge of Chemotherapy Among Cancer Patients at Suresh Wagle Memorial Cancer Centre, Kathmandu

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Chemotherapy plays a crucial role in cancer treatment, targeting rapidly dividing abnormal and normal cells, which often leads to significant side effects. This study aimed to assess the awareness of chemotherapy among cancer patients at Suresh Wagle Memorial Cancer Centre, Tribhuvan University Teaching Hospital (TUTH), Kathmandu, Nepal. A descriptive cross-sectional design was employed, involving 103 cancer patients selected through nonprobability, purposive sampling. Data were collected via in-person interviews using a semistructured questionnaire. Statistical analysis, including chi-square tests, was conducted to explore associations between patients' knowledge of chemotherapy and biodemographic variables. The results indicated that nearly half of the respondents, 50 (48.5%), had moderate knowledge of chemotherapy, while a significant association was found between the cycle of chemotherapy and access to health information, with a *p* value of less than 0.05. The study highlights the need for regular patient education and counseling to enhance awareness and understanding of chemotherapy. The use of educational materials such as brochures, videos, and online resources is recommended to reinforce patients' knowledge and improve their overall quality of life during treatment.

Keywords: cancer patients; chemotherapy awareness; cross-sectional study; Kathmandu; patient education; TUTH

1. Introduction

Cancer remains one of the foremost causes of death and disability across the globe. According to the World Health Organization (WHO), cancer was responsible for approximately 10 million deaths in 2020, making it a leading global health challenge marked by rising morbidity and mortality rates [1]. Despite advances in medical research, cancer treatment remains complex, with various therapeutic approaches, including surgery, radiation therapy, endocrine therapy, gene therapy, and immunotherapy. However, chemotherapy continues to be one of the most widely used and effective treatments for cancer patients worldwide [2]. Chemotherapy is a systemic treatment involving the use of anticancer drugs that target and inhibit the rapid growth and

division of cancer cells. While chemotherapy is a vital component of cancer care, it is not without its challenges. The treatment impacts both the physical and psychological wellbeing of patients [3], with a range of side effects that vary depending on factors such as the type of drug used, dosage, frequency of administration, and whether chemotherapy is used in combination with other treatments. Short-term side effects commonly associated with chemotherapy include nausea, vomiting, diarrhea, weight loss, infertility, early menopause, and mouth sores (stomatitis) [4]. Meanwhile, long-term side effects can include hair loss (alopecia), myelosuppression, secondary cancers, anemia, neuropathy, and chronic fatigue [5].

The global prevalence of chemotherapy underscores its importance in cancer treatment. In 2018, 57.7% of cancer

patients, approximately 9.8 million out of 17 million diagnosed cases, underwent chemotherapy [6]. According to the American Cancer Society, around 650,000 patients in the United States receive chemotherapy annually [7]. In Nepal, the B. P. Koirala Memorial Cancer Centre (BPKMCH) reported in 2010 that 2419 patients received chemotherapy in the medical oncology ward, while 5008 received the treatment on a daycare basis [8, 9]. Furthermore, the Nepal Cancer Relief Society (NCRS) estimated in 2012 that around 60,000 individuals in Nepal were living with cancer, with 20,000 cancer-related deaths occurring annually [10]. More than half of these patients receive chemotherapy as part of their treatment.

Research into the awareness and knowledge of chemotherapy among cancer patients reveals varying levels of understanding. A cross-sectional study conducted at Bhaktapur Cancer Hospital between 2016 and 2017 found that 55.5% of 294 patients were receiving chemotherapy [11]. The concept of chemotherapy knowledge encompasses patients' understanding of treatment goals, duration, potential side effects, lifestyle modifications, and pregnancy prevention. Several factors can influence a patient's ability to acquire this knowledge, including their health literacy, demographic background, and the characteristics of their cancer. Patients with limited health literacy may struggle to understand key terms used in educational sessions, such as "metastasis," and may consequently have insufficient knowledge of their chemotherapy regimen [12, 13]. Inadequate understanding of chemotherapy is associated with increased hospital admissions, higher morbidity, and a poorer quality of life.

Studies from other regions highlight the physical and psychological effects of chemotherapy. In Bangalore, a study of 30 cancer patients undergoing chemotherapy revealed that 80% experienced hair loss, 76.7% reported fatigue, and 73.3% suffered from nausea and vomiting [14]. Pain, weakness, or numbness in the hands and feet affected 66% of the participants [15]. Psychological impacts, including mood disturbances and depression, were also prevalent, with 13.33% experiencing moderate depression and 3.34% suffering from severe depression [16]. In Nepal, a descriptive study at B. P. Koirala Memorial Cancer Hospital assessed the perceptions of chemotherapy side effects among 200 patients, of whom 62% were female, and 65% were between the ages of 40 and 64 [17]. The majority of these patients reported side effects such as fatigue, loss of appetite, nausea, constipation, and numbness in the limbs. In addition, anxiety and difficulties related to daily tasks were frequently observed.

The adverse side effects of chemotherapy, coupled with its significant impact on patients' physical and psychological health, underscore the importance of patient education. Ensuring that patients are well informed about the goals of chemotherapy, the potential side effects, and how to manage these side effects is essential for reducing anxiety, improving adherence to treatment, and enhancing their overall quality of life. Thus, this study aims to assess the level of awareness and knowledge about chemotherapy among cancer patients receiving treatment at Tribhuvan University Teaching

Hospital (TUTH) in Kathmandu, Nepal. Understanding patient knowledge can inform future educational interventions, ultimately improving cancer care outcomes in the region.

2. Methodology

The study employed a descriptive cross-sectional design, where data were collected from a defined population at a specific point in time. This approach was selected to assess the level of awareness about chemotherapy among cancer patients, as it is ideal for describing and understanding specific characteristics within a population without altering variables over time.

The research was conducted at the Suresh Wagle Memorial Cancer Centre, situated within the Tribhuvan University Teaching Hospital in Maharajgunj, Kathmandu, Nepal. This center, which has only been operational for a year, has already treated over 70,000 cancer patients. It was deliberately chosen as the research site due to its large patient flow and the high number of people receiving treatment despite its relatively recent establishment in 2021. Its large and diverse patient population offered a valuable opportunity to study awareness levels among patients undergoing chemotherapy. The target population for this study included cancer patients aged 18 and older who had completed at least one cycle of chemotherapy and were fully aware of their cancer diagnosis while attending TUTH. These patients were chosen to ensure they had relevant and personal experience with chemotherapy, which was crucial for assessing their awareness of the treatment and its side effects. A non-probability purposive sampling technique was employed for the study to select participants who fit these criteria. The sample size for the study was set at 103 patients receiving chemotherapy at Suresh Wagle Memorial Cancer Centre, based on previous research conducted at a tertiary care teaching hospital in Odisha [18]. Specifically, the sample size was determined using the following formula:

$$n = \frac{Z^2 \cdot p \cdot q}{d^2}, \quad (1)$$

where n is the required sample size, Z is the standard normal variant value at a 95% confidence level (1.96), p is the estimated prevalence of the required characteristic (58%), q is $100 - p$ (42%), and d is the allowable margin of error (10%). Using these parameters, the calculated sample size was 94. To account for potential nonresponses, an additional 10% was added, resulting in a final sample size of 103. In that study, 58% of the participants demonstrated an average level of knowledge regarding chemotherapy and its side effects. Using this prevalence rate ($p = 58\%$) and factoring in a 10% nonresponse rate, the final sample size for this study was calculated to be 103.

To ensure the reliability of the findings, inclusion and exclusion criteria were established. The study included patients who were diagnosed with any form of cancer, were receiving chemotherapy at TUTH, were above the age of 18, and had completed at least one cycle of chemotherapy.

Moreover, participants had to be aware of their cancer diagnosis, which was confirmed by asking their accompanying visitors. Patients who were unable to speak or who were unwilling to participate in the study were excluded.

A semistructured questionnaire was developed as the primary data collection tool. Initially prepared in English, it was later translated into Nepali to ensure that respondents could easily understand and answer the questions. The questionnaire was divided into three parts. The first part focused on sociodemographic variables such as age, sex, education level, duration of chemotherapy, and health education received from healthcare providers. The second part addressed the respondents' knowledge about chemotherapy, and the third part explored the association between the variables being studied. To maintain the validity of the questionnaire, a review of existing literature and consultations with experts were conducted. The language was kept simple and understandable to ensure respondents could easily comprehend and respond. For reliability, pretesting of the instrument was conducted with 10% of the total sample size at Bhaktapur Cancer Hospital, Nepal, before finalizing the questionnaire.

Data collection was carried out after receiving approval from the Institutional Review Committee (IRC) of TUTH. Participants were informed about the study purpose, and informed written consent was obtained from each respondent. Confidentiality was strictly maintained, with personal information analyzed using code numbers instead of names. Respondents were also informed of their right to refuse participation at any point. The researcher ensured that data collection did not disrupt the respondents' daily schedules by planning interviews at convenient times. Data were collected through face-to-face interviews, and after collection, the data were checked for completeness and accuracy. The collected data were classified, coded, and entered into the Statistical Package for Social Sciences (SPSS) software Version 20 for analysis. Descriptive statistics, such as frequency, percentage, mean, and standard deviation, were used to summarize the data, while inferential statistics, such as the chi-square test, were applied to measure associations between variables.

Ethical considerations were thoroughly addressed throughout the research process and followed the official permission from the matron of TUTH. Written consent was acquired from each participant after fully explaining the purpose and objectives of the study in understandable terms. Dignity and human rights were maintained, ensuring no participant was coerced into joining the study. The research process was free of discrimination based on age, ethnicity, or socioeconomic status. Anonymity was guaranteed by not collecting personally identifiable information, and all data were securely stored on a password-protected laptop. Confidentiality was further upheld by keeping all collected data private and ensuring that the information would be used solely for research purposes.

Finally, after data collection, the data were processed for analysis. It was checked for completeness, and any errors or inconsistencies that could distort the results were rectified. The data were coded and then transferred to SPSS

Version 20 for analysis. Descriptive statistics were employed to summarize the data, and inferential statistics, including the chi-square test, were used to find associations between knowledge scores and demographic variables. The findings were presented in tabular form for clarity and easy interpretation.

3. Results and Discussion

3.1. Results. This study aimed to assess the knowledge of chemotherapy among cancer patients and the association between their knowledge and sociodemographic variables. The responses from 103 cancer patients were analyzed to achieve the study objectives. The findings were presented in tabular forms.

Table 1 presents the demographic characteristics of the respondents. The majority, 49 (47.6%), were in the middle adulthood age group (40–65 years), while 20 (19.4%) were in the elder age group (above 65 years). More than half of the cancer patients, 63 (61.2%), were male. In addition, a significant proportion, 80 (77.7%), were married, and 32 (31.1%) had completed a basic level of education. In terms of occupation, most respondents, 50 (48.5%), were engaged in agriculture.

Table 2 provides details on the number of chemotherapy cycles received by respondents. The majority, 82 (79.6%), underwent 2–8 cycles of chemotherapy. Regarding the availability of adequate information about chemotherapy, 79 (76.7%) of the respondents reported receiving sufficient information, while 24 (23.2%) indicated that the information provided was inadequate.

Tables 3, 4, 5, 6, 7, and 8 present multiple tables summarizing the knowledge and awareness of chemotherapy-related aspects among respondents. Table 3 provides insights into respondents' knowledge about chemotherapy. A large majority, 98 (95.1%), recognized chemotherapy as cancer treatment using antineoplastic drugs. Regarding the purpose, 93 (90.3%) correctly stated that chemotherapy helps in managing symptoms and 66 (64.1%) knew it enhances the immune system. In terms of its advantages, 96 (93.2%) were aware that chemotherapy slows cancer cell growth, while 48 (46.6%) knew it could be combined with surgery and radiation. When it came to the method of administration, 96 (93.2%) knew about intravenous administration, and 33 (32%) identified topical creams as another method. In addition, 27 (26.2%) respondents were aware of the correct timing for blood investigations (10–14 days prior to chemotherapy).

Table 4 highlights the understanding of chemotherapy's side effects. The most frequently known side effect was hair loss, reported by 98 (95.1%) respondents, followed closely by nausea and vomiting, with 95 (92.2%) recognizing these effects. Other side effects such as constipation (65, 63.1%) and weight loss (74, 71.8%) were also noted. Most respondents (63, 61.2%) understood that side effects could last up to one week after chemotherapy. Regarding blood effects, 85 (84.2%) were aware of a decrease in red blood cells, while 42 (41.6%) knew about the impact on platelet count.

TABLE 1: Sociodemographic information of respondents, $n = 103$.

Variables	Frequency	Percentage (%)
Age (years)		
Young adulthood (18–40)	34	33.0
Middle adulthood (40–65)	49	47.6
Elder (> 65)	20	19.4
Sex		
Male	63	61.2
Female	40	38.8
Marital status		
Married	80	77.7
Unmarried	14	13.6
Widow/widower	3	2.9
Divorced	4	3.9
Separated	2	1.9
Level of education		
Illiterate	25	24.3
Can read and write	17	16.5
Basic level (1–8)	32	31.1
Secondary level (9–12)	13	12.6
Bachelor and above	16	15.5
Occupation		
Service	15	14.6
Business	17	16.5
Agriculture	50	48.5
Retired	8	7.8
Unemployed	13	12.6

TABLE 2: Cycle of chemotherapy received by respondent and information related to chemotherapy (CT), $n = 103$.

Description	Frequency	Percentage (%)
Cycle of chemotherapy		
2–8 cycle	82	79.6
8–14 cycle	21	20.4

Similarly, the table focuses on respondents' understanding of how to manage the side effects of chemotherapy. Many were aware of various management strategies, with 73 (70.8%) knowing how to manage nausea and vomiting, and as illustrated in Table 5, 72 (69.9%) knowing about loss of appetite management. In addition, 87 (84.4%) identified management strategies for mouth sores and 59 (57.3%) knew how to manage diarrhea. Knowledge of managing oral dryness, infection prevention, and constipation were also reflected, though fewer respondents (63, 61.2%) were familiar with fatigue management techniques.

Oral problems and their management during chemotherapy were also surveyed. The majority, 69 (67%) respondents, knew about the occurrence of oral problems, and 60 (58.3%) were aware of oral hygiene practices. Knowledge on the use of mouthwash (85, 82.5%) and techniques to manage oral sores (69, 67%) was substantial (Table 6). However, the knowledge gap on managing infection through proper oral care and knowing what to avoid, like alcohol-containing mouthwashes, was evident, with fewer respondents familiar with these strategies.

Table 7 reveals that respondents had a sound understanding of dietary recommendations during chemotherapy. Nearly all (99, 96.1%) knew about dietary modifications, and many were aware of specific advice, such as consuming small, frequent meals (95, 92.2%), and increasing the intake of fresh and nonspicy foods. However, fewer respondents (57, 55.3%) knew about the need to avoid raw or unwashed foods during chemotherapy to reduce infection risks.

Table 8 provides insights into respondents' knowledge of infection prevention during chemotherapy. An overwhelming majority (100, 97.1%) understood the importance of avoiding contact with people who have colds or flu, and a similar number (98, 95.1%) knew about avoiding crowded places. Most respondents (91, 88.3%) were also aware of the need for proper food hygiene and avoidance of raw foods. Fewer respondents, however, knew how to manage fever (72, 69.9%).

The knowledge levels of respondents regarding chemotherapy and the factors that influence this knowledge are illustrated in Tables 9, 10, and 11. Table 9 reveals that respondents' knowledge is distributed into three categories: good, moderate, and poor. A substantial portion of the respondents (48.5%) exhibits moderate knowledge, while 38.8% demonstrate good knowledge, and only 12.6% have poor knowledge. This suggests that while most respondents have a moderate understanding of chemotherapy, there remains a small group with insufficient knowledge, indicating the need for targeted educational interventions.

Table 10 further explores the factors associated with knowledge levels. It examines the relationship between the chemotherapy cycle, education level, and health information related to chemotherapy. The chemotherapy cycle shows a statistically significant association with knowledge ($p = 0.010$), indicating that individuals who have undergone more cycles tend to have a higher level of knowledge about the treatment. Interestingly, the level of education does not exhibit a significant association with knowledge ($p = 0.793$), suggesting that formal education may not be a primary determinant of how well patients understand chemotherapy. On the other hand, the availability of health information related to chemotherapy has a significant impact ($p = 0.020$), demonstrating that those who receive adequate information are more knowledgeable.

Table 11 delves deeper into the associations between the cycle of chemotherapy, the availability of health information, and knowledge levels. Respondents who had undergone fewer chemotherapy cycles (2–8) generally exhibited better knowledge than those who had undergone more cycles (8–14), which may suggest that prolonged exposure to treatment leads to information fatigue or decreased retention. In addition, respondents who received adequate health information showed significantly better knowledge compared with those who did not, reinforcing the importance of providing clear and comprehensive information to patients.

The findings from these tables emphasize the critical role that health information and chemotherapy cycles play in shaping patients' understanding of their treatment. While

TABLE 3: Knowledge on information related to chemotherapy, $n = 103$.

Description	Number	Percentage (%)
Meaning of chemotherapy		
Cancer treated by antineoplastic drugs	98	95.1
Purposes of chemotherapy*		
Eliminate the cancer cell and cure disease	85	82.5
Manage symptoms	93	90.3
Prevent the spread of cancer to other organ	87	84.5
Boost the immune system	66	64.1
Advantages of chemotherapy*		
Helps in shrinking the cell	87	84.5
Slow down the growth of cancer cell	96	93.2
Improve the quality of life	77	74.8
Can be used along with surgery and radiation	48	46.6
Administration of CT*		
Oral	47	45.6
I/V	96	93.2
Tropical creams	33	32.0
Intrathecal	40	38.8
Duration of CT*		
Monthly	58	57.4
Twice a week	15	14.9
Alternate day	28	27.7
Depends upon types of cancer	71	70.3
Blood investigation prior CT		
10–14 days prior to CT	27	26.2

*Multiple response.

TABLE 4: Knowledge on side effects of chemotherapy among respondents, $n = 103$.

Description	Number	Percentage (%)
Common side effects*		
Alopecia	98	95.1
Nausea/vomiting	95	92.2
Diarrhea	77	74.8
Constipation	65	63.1
Mouth sores	73	70.9
Bleeding	79	76.7
Infection	77	74.8
Decreased in appetite	79	76.7
Duration of chemotherapy side effects		
During the treatment only	30	29.1
For 1 week after the CT cycle	63	61.2
For months or years	8	7.8
Side effects are permanent and last the entire lifetime	2	1.9
Effects on blood*		
Decreased in red blood cell	85	84.2
Decreased in white blood cell	76	75.2
Decreased in platelets count	42	41.6
Increase in blood cell count	55	54.5

*Multiple response.

formal education may not be a key factor, receiving timely and adequate information about chemotherapy has a strong positive influence on knowledge levels. This highlights the need for healthcare providers to prioritize effective communication and education, particularly for those undergoing extensive chemotherapy. Providing more accessible and structured information could improve the knowledge base of patients, leading to better engagement and possibly improved outcomes in their treatment journey.

3.2. Discussion. The descriptive cross-sectional study conducted among 103 cancer patients at Suresh Wagle Memorial Cancer Centre aimed to assess their awareness and knowledge of chemotherapy. The study used purposive sampling and in-person interviews, with data presented through statistical analysis, particularly the chi-square test. The results indicate that 48.5% of the respondents had moderate knowledge, a lower percentage than a study by Choenyi et al. [19], which found that 63% of cancer patients

TABLE 5: Knowledge regarding management on side effects of chemotherapy, $n = 103$.

Description	Number	Percentage (%)
Management of nausea*		
Avoid eating food till nausea persists	72	69.9
Eat small frequent meals	87	84.5
Avoid spicy foods with strong odor	96	93.2
Take medicine as prescribed	85	82.5
Take ginger roots	37	35.9
Management of diarrhea*		
Eat small amount of low fiber food	57	55.3
Drink ORS	99	96.1
Clean skin around the anus	92	89.3
Take anti diarrheal medication	74	71.8
Management of hair fall*		
Gently brush and comb hair	72	69.9
Wear a wig	31	30.1
Avoid tight ponytail	65	63.1
Protect scalp from heat and cold	87	84.5
Management of stress*		
Talk about fears with friends and family	90	88.2
Do relaxation technique	72	70.6
Consult with psychiatrist	67	65.7
Perform regular exercise	67	65.7

*Multiple response.

TABLE 6: Knowledge regarding oral problems during chemotherapy and its management, $n = 103$.

Description	Number	Percentage (%)
Oral problems*		
Oral mucositis	69	67.0
Dryness of mouth	94	91.3
Alteration in taste	82	79.6
Gum bleeding	49	47.6
Management of oral ulcer*		
Administer medicine as ordered	85	82.5
Eat food rich in vitamin E and zinc	61	59.2
Avoid spicy and citrus food	84	81.6
Rinse with medicated solution	78	75.7
Management of dry mouth*		
Take sips of water	90	88.2
Chew sugarless chewing gum and candies	49	48.0
Avoid caffeine food	45	44.1
Apply lip balm	88	86.3

*Multiple response.

had satisfactory knowledge. The difference in findings may be attributed to sample size variation, as the present study involved 103 respondents, while Choenyi et al.'s study included only 60.

The demographic analysis revealed that nearly half of the respondents (47.6%) were in the middle adulthood age group, and the majority (77.7%) was married. A significant portion (48.5%) was involved in agriculture, which aligns with a study by Gautam et al. [20], where a substantial number of respondents were also farmers, and the majority

TABLE 7: Knowledge on dietary management during chemotherapy, $n = 103$.

Description	Number	Percentage (%)
Dietary recommendations*	99	96.1
Eat only well cooked and boiled items	92	89.3
Eat fruits with thick peel	91	88.3
Have meals to one preference	95	92.2
Have soft bland diet	84	81.6
Milk should be boiled well	99	96.1
Ways to improve appetite		
Serve in attractive way	52	50.5
Restricted food*		
Smoking and alcohol	102	99.0
Raw foods	100	97.1
Greasy spicy food	97	94.2
Fried fatty foods	87	84.5

*Multiple response.

TABLE 8: Knowledge on infection prevention among respondents receiving chemotherapy, $n = 103$.

Description	Number	Percentage (%)
Infection prevention*		
Avoid crowd and people with flu	100	97.1
Eat well-cooked foods, boiled items	96	93.2
Consumed thick-peel fruits	93	90.3
Maintain personal hygiene	98	95.1
Management of fever*		
Apply cold sponging	90	87.4
Record temperature	97	94.2
Take rest	84	81.6
Drink fluids	78	75.7
Take medicine as prescribed	99	96.1

*Multiple response.

was in the middle-age range. The consistency of these demographic findings suggests that socioeconomic factors such as age and occupation play a significant role in shaping the patient population in cancer treatment centers, particularly in rural areas like Nepal.

In terms of awareness regarding chemotherapy, 95.1% of the respondents correctly identified chemotherapy as a treatment using antineoplastic drugs. This high level of awareness is comparable with a study conducted in India, where 88.63% of the patients provided the same response. Furthermore, the majority of respondents in this study identified common chemotherapy side effects such as hair loss (95.1%), decreased appetite (76.7%), and nausea/vomiting (92.2%). These results are in line with previous research by Chan and Ismail [21], who found similar rates for side effects such as nausea and hair loss among cancer patients. This consistency reinforces the importance of educating patients on the physical impacts of chemotherapy to manage expectations and improve treatment compliance.

Respondents also demonstrated a solid understanding of the purposes of chemotherapy. They recognized it as a treatment to eliminate cancer cells (82.5%), manage symptoms (90.3%), prevent cancer spread (84.5%), and boost the immune system (64.1%). These findings are consistent with the broader literature, including studies by

TABLE 9: Knowledge level of respondents regarding chemotherapy, $n = 103$.

Description	Score (%)	Frequency	Percentage (%)
Good knowledge	More than 80	40	38.8
Moderate knowledge	60 to 80	50	48.5
Poor knowledge	Less than 60	13	12.6

Note: (Bloom's cutoff points, 1956).

TABLE 10: Association level between education, cycle of chemotherapy, health information related to chemotherapy, and level of knowledge, $n = 103$.

Variables	χ^2 value	p value
Chemotherapy cycle	9.165	0.010
Level of education	4.657 ^a	0.793
Health information related to chemotherapy	7.845 ^a	0.020

^aStatistically significant association between variable and level of knowledge

p value < 0.05 = statistically significant (association).

p value > 0.05 = not significant (no association).

TABLE 11: Association between cycle of chemotherapy, health information related to chemotherapy, and level of knowledge, $n = 103$.

Demographic characteristics	Level of knowledge			Chi square value	p = value
	Good (> 80)	Moderate (60–80)	Poor (< 60)		
Cycle of CT					
2–8	30	45	7	9.165 ^a	0.010
8–14	10	5	6		
Adequate information related to CT					
Yes	33	40	6	7.845 ^a	0.020
No	7	10	7		

^aStatistically significant association between variable and level of knowledge

Fahrni et al. [22] and Smith et al. [23], who reported similar awareness levels among cancer patients regarding the goals of chemotherapy. This suggests that, in general, patients undergoing chemotherapy are well informed about its intended outcomes, which could positively influence their treatment adherence and psychological resilience.

In terms of the advantages of chemotherapy, the majority of respondents understood that it helps in shrinking cancer cells (84.5%), slowing cancer growth (93.2%), improving quality of life (74.8%), and being used alongside surgery and radiation (46.6%). These results mirror the findings of Anderson et al. [24], Chan and Ismail, [21], and Shrestha et al. [25], who similarly reported high patient awareness of chemotherapy's ability to shrink tumors and improve quality of life. However, the lower awareness of chemotherapy's use in conjunction with other treatments such as surgery and radiation (46.6%) suggests a need for additional education in this area to ensure that patients have a comprehensive understanding of their treatment options.

The study also assessed respondents' knowledge of managing chemotherapy side effects. A significant proportion (82.5%) knew about using antiemetic drugs to manage nausea, a much higher rate than found in a study conducted in Sudan, where only 39% of the patients used antiemetics. This finding emphasizes the importance of educating patients about the availability of supportive medications that can alleviate common side effects of chemotherapy. In addition, respondents showed awareness of managing oral side effects, such as oral

mucositis (67%) and dry mouth (91.3%). These results were consistent with findings by Gurung and Pandey [8] in Nepal, although some discrepancies in the rates of oral side effects, such as a higher prevalence of dry mouth, may be due to differing sample characteristics or treatment protocols.

Notably, almost all respondents (99%) in this study identified smoking and alcohol as behaviors to avoid during chemotherapy. This finding is in line with a study conducted at BP Koirala Memorial Cancer Centre, where most patients were also aware of the risks associated with smoking and alcohol during cancer treatment. This suggests that public health messages regarding lifestyle modifications during chemotherapy have been well received, at least in this context. Self-care practices during chemotherapy were also explored, with respondents in this study reporting high rates of family support (88.2%) and antiemetic use (82.5%) to manage nausea and emotional distress. However, the use of wigs to manage hair loss was significantly lower in this study (30.1%) compared with the findings of Arunachalam et al. [26], where 77% of the patients used wigs. This disparity may be explained by cultural differences or economic factors that affect the availability or acceptability of wigs among cancer patients in Nepal.

Finally, the study found a significant association between the level of knowledge about chemotherapy and the cycle of chemotherapy ($p < 0.05$). Patients undergoing more cycles were more likely to have good knowledge and exhibit self-care behaviors. This finding is consistent with a study by Amin et al. [27] in Egypt, which also found that patients

receiving more than six cycles of chemotherapy had a better understanding of their treatment. The repetition of treatment cycles may provide more opportunities for patients to engage with healthcare providers and receive educational reinforcement, thereby increasing their knowledge and confidence in managing their care.

In summary, this study highlights the generally high level of awareness among cancer patients regarding chemotherapy, particularly in terms of its purposes and side effects. It also emphasizes the importance of continuous patient education, particularly regarding the management of side effects and the use of chemotherapy in conjunction with other treatments. The significant association between knowledge and the number of chemotherapy cycles underscores the value of ongoing communication between healthcare providers and patients throughout the treatment process.

4. Conclusion

The study aimed to assess the awareness and knowledge of chemotherapy among cancer patients at Suresh Wagle Memorial Cancer Centre in Kathmandu. The findings revealed that nearly half of the respondents had moderate knowledge of chemotherapy, with a significant portion demonstrating a good understanding of its purposes, side effects, and management practices. Factors such as the cycle of chemotherapy and access to health information were significantly associated with patients' level of knowledge, highlighting the importance of continuous patient education throughout treatment.

Despite the high level of awareness regarding key aspects like the purpose of chemotherapy and common side effects, gaps remain in understanding its use alongside other treatments, such as surgery and radiation, as well as certain self-care practices. Cultural and socioeconomic factors also appear to influence patients' approaches to managing chemotherapy side effects, such as the use of wigs for hair loss.

In conclusion, while the majority of cancer patients exhibit satisfactory knowledge of chemotherapy, there is a need for more targeted education efforts, particularly for those undergoing fewer chemotherapy cycles. Regular and structured patient education, focusing on the holistic aspects of chemotherapy management, can further enhance patients' understanding, thereby improving their treatment experience and outcomes.

Data Availability Statement

Data and materials are available from the corresponding author upon reasonable request.

Conflicts of Interest

The authors declare no conflicts of interest.

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