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Original Research Article

Satisfaction of cancer patients receiving chemotherapy in day care units: a cross-sectional study

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ABSTRACT

Background: Chemotherapy remains a cornerstone of cancer treatment and more than half of all cancer patients undergo chemotherapy at some stage of their illness. It is widely delivered in outpatient day care settings. The study aimed at evaluating the satisfaction levels of cancer patients receiving chemotherapy in outpatient day care units and examining the association of satisfaction with selected socio-demographic and clinical variables.
Methods: A quantitative study with a cross-sectional research design was conducted among 500 cancer patients attending the day care chemotherapy unit of a tertiary care centre. Participants were selected using a non-probability convenience sampling technique. Self-structured tools, including socio-demographic ad clinical variables and a patient satisfaction rating scale, were used for data collection.
Results: The study revealed that the majority of patients (96%) were satisfied with the care they received at day care chemotherapy unit, while only a few (1%) reported dissatisfaction. Significant association was found between patient satisfaction and age (p=0.002), whereas other demographic and clinical variables showed no significant association.
Conclusions: The study indicates that the majority of cancer patients receiving chemotherapy in day care chemotherapy unit reported a high level of satisfaction with the services provided. As age was found to have a significant influence on satisfaction levels, suggesting that age-specific preferences and needs should be taken into account when planning and delivering care. These findings emphasize the importance of continuous quality assessment to ensure that patient-centered care remains a priority in oncology day care settings.

Keywords: Cancer, Chemotherapy, Day care chemotherapy unit, Satisfaction, Patient satisfaction

INTRODUCTION

Cancer is a group of diseases characterized by abnormal and uncontrolled cell growth with the potential to invade or spread to other parts of the body.[1] It begins when normal cellular functions and metabolism are altered, leading to unchecked proliferation of cells. These abnormal cells may form a tumour, which can be either benign or malignant. Malignant tumours replace healthy cells, interfere with normal physiological functions, and deprive body tissues of nutrients. Owing to its complex and often hidden nature, cancer is often referred to as an "iceberg disease".[2,3]

Worldwide, cancer ranks as the second leading cause of death after cardiovascular diseases, responsible for

approximately 10 million deaths in 2020.[4] Nearly 70% of these fatalities were reported in low- and middle-income countries, including India. India, currently transitioning epidemiologically from communicable to non-communicable diseases, faces a significant cancer burden.[5] According to the National Cancer Registry Programme Report, there were 13.9 lakh cancer cases, projected to rise to 15.7 lakh by 2025 (ICMR). In 2022, more than 9 lakh cancer-related deaths were reported, with a five-year disease prevalence exceeding 3.2 lakh.[6] These statistics highlight the urgent need for early detection, accurate diagnosis, and effective treatment to improve prognosis. Management of cancer requires a multimodal approach, including surgery, chemotherapy, radiotherapy, immunotherapy, and palliative care, particularly for advanced stages of the disease.[7]

Chemotherapy continues to serve as one of the fundamental approaches in cancer management and more than half of all cancer patients undergo chemotherapy at some stage of their illness. More In 2018, an estimated 63% of patients in low- and middle-income countries required chemotherapy, with this proportion expected to rise to 67% by 2040.[8,9] It is widely delivered in outpatient day care settings. Day care chemotherapy units are responsible for the administration of anticancer drugs in an outpatient setting, where patients receive their treatment during the day and return home the same day without the need for overnight hospitalization. This approach reduces hospital stay, minimizes costs, and allows patients to continue daily activities while receiving treatment.[10]

With the growing recognition of patient-centered care, healthcare systems have shifted focus from a "disease-centered" to a "patient-centered" approach, emphasizing not only treatment outcomes but also patient needs, preferences, and experiences. Patient satisfaction has therefore become a key outcome measure in healthcare, reflecting both the quality of services and the effectiveness of care delivery.[11,12] In cancer care, where patients often undergo prolonged and challenging treatment regimens, satisfaction with chemotherapy services in day care units is an essential determinant of overall care quality.[13] Assessing satisfaction helps identify gaps in service delivery, informs quality improvement initiatives, and enhances patient trust and adherence to treatment.

METHODS

A quantitative research approach with a cross-sectional design was adopted for the present study. The study was conducted in the day care units of the All-India Institute of Medical Sciences, Jodhpur, Rajasthan, India, from March 15 to June 30, 2023. The inclusion criteria comprised patients diagnosed with cancer, aged above 18 years, receiving chemotherapy, able to understand and communicate in Hindi, and willing to provide written informed consent.

The sample size was determined using the single population proportion formula commonly applied in cross-sectional studies.[14] Considering a 60% satisfaction rate reported in a previous study, with a 95% confidence level (Z=1.96) and a precision of 5% (d=0.05), the required sample size was computed as $n=Z^2\times p(1-p)/d^2=(1.962\times0.60\times0.40)/0.0025\approx369$.[15] To account for an anticipated 10% non-response rate, the final sample size was inflated to 410 participants. A total of 500 cancer patients receiving chemotherapy in day care units were recruited using a non-probability convenience sampling technique.

Data were collected using self-structured instruments, which included a socio-demographic and clinical profile sheet, and a patient satisfaction rating scale. The self-structured patient satisfaction rating scale consisted of 25 items categorized under six subdomains: communication, accessibility, nursing care, doctor care, hospital facilities and likelihood to recommend. The tool was developed based on literature review and experts guidance. It used a 7-point Likert scale ranging from 1 (very poor) to 7 (excellent). For scoring, overall patient satisfaction was categorized into three levels: satisfied (117-175), partially satisfied (71-116) and not satisfied (25-70). The scale demonstrated strong content validity, with a scale content validity index (S-CVI) of 0.96. Internal consistency reliability, measured using Cronbach's alpha, was reported as 0.79, indicating acceptable reliability. Data collection was carried out through face-to-face interviews.

A pilot study was conducted among 50 patients undergoing chemotherapy in day care units to assess the feasibility of the tools and procedures. Data collection for the pilot study was completed over two weeks, requiring an average of 5-10 minutes per patient. No major difficulties were encountered during the pilot study. These participants were excluded from the main study sample.

The data were analysed and interpreted in alignment with the study objectives. Data were categorized and processed using the statistical package for social sciences (SPSS) version 20. Quantitative analysis involved descriptive statistics such as mean, standard deviation, frequency, and percentage. For inferential statistics, the Fisher's exact test was applied to examine the association between patients' satisfaction and selected socio-demographic and clinical variables. A probability value (p value) of less than 0.05 was considered statistically significant.

Ethical approval was obtained from the Institutional Ethical Committee (Certificate reference number: AIIMS/IEC/2023/4312, dated 06/03/2023). All participants were fully informed about the objectives, procedures, confidentiality measures, and their right to withdraw from the study at any time without compromising their medical care. Written informed consent was obtained prior to enrolment.

RESULTS

Data presented in Table 1 depicts that most of the patients (49.40%) were aged between 41-60 years, more than half of the patients (56.60%) were female, most of the patients (43.40%) were non-literate and half of the patients (51.40%) were homemaker. More than half of the patients (55.40%) were having monthly income of less than 10,000 rupees. More than half of the patients (61%) were residing in rural area. Most common diagnosis were breast cancer (23%) and oral cavity cancer (22.40%). Nearly one third patients (34.60%) having second stage of cancer, followed by stage I (30.40%). Half of the patients (57.20%) had taken 1-3 cycles of chemotherapy. Nearly one third (34.20%) of patients had taken radiation therapy and 18.80% of patients were having comorbidities like diabetes, hypertension etc.

Table 2 depicts patient satisfaction across 6 subdomains. The analysis of patient satisfaction revealed that highest composite mean score recorded in the communication domain (4.84±0.75) followed closely by recommendation to others (4.78±0.60) and hospital facilities (4.74±0.67). Domains of nursing care (4.71±0.71) and doctor care (4.71±0.70) demonstrated almost identical satisfaction levels, while accessibility showed slightly lower score (4.70±0.73). At the item level, the most highly rated aspect was the explanation of follow-up time at discharge (5.53±0.93; rank 1), indicating strong patient appreciation for clear discharge guidance. Other highly rated items included clean and freshly prepared beds (4.83±0.54; rank 2), nursing officers' caring and friendly behaviour (4.79±0.62; rank 3), and willingness to recommend the hospital (4.78±0.60; rank 4). In contrast, the lowest satisfaction was reported for washroom maintenance (4.55±0.91; rank 25), followed by clarity of treatment instructions (4.63±0.80; rank 24) and explanation of procedures, investigations, and warning signs (4.64±0.81; rank 23). Overall, findings highlight that while communication and supportive facilities were strong contributors to patient satisfaction, aspects of hospital hygiene and detailed procedural explanations were identified as needing further improvement.

Table 3 illustrates the distribution of patient satisfaction levels among individuals receiving chemotherapy in day care units. Out of the total, a vast majority of 480 patients (96%) achieved scores between 117-175, indicating that they were satisfied with the services. A smaller group of 15 patients (3%) obtained scores in the range of 71-116, reflecting partial satisfaction. Only 5 patients (1%) scored between 25-70, signifying dissatisfaction. These results highlight that overall satisfaction was notably high, with only a minimal proportion reporting lower levels of satisfaction.

Association of level of patient satisfaction with selected demographic and clinical variables was also analysed. Results shows that there was a significant association of patient satisfaction with age of patient (p=0.002) whereas other demographic and clinical variables not significant.

Table 1: Frequency and percentage distribution of demographic and clinical variables, (n=500).

Demographic and clinical variables	N	Percentage (%)
Age (in years)		
18-40	92	18.40
41-60	247	49.40
60-80	156	31.20
More than 81	5	1.00
Gender		
Male	247	43.40
Female	283	56.60
Education level		
Illiterate	217	43.40
Primary school	194	38.80
Graduate	63	12.60
Post-graduate and above	26	5.20
Occupation		
Self-employed	113	22.60
Homemaker	257	51.40
Private job	28	5.60
Government job	23	4.60
Others	79	15.80
Family income (per month)		
≤10000 Rs	277	55.40
10001-20000 Rs	108	21.60
20001-40000 Rs	63	12.60
≥40001 Rs	52	10.60

Continued.

Demographic and clinical variables	N	Percentage (%)
Residential area		
Urban	195	39.00
Rural	305	61.00
Diagnosis		
Ca breast	115	23.00
Ca gall bladder	28	5.60
Ca oral cavity	112	22.40
Ca esophagus	49	9.80
Ca lungs	40	8.00
Ca ovary	44	8.80
Ca gastrointestinal	28	5.60
Ca cervix	47	9.40
Ca urinary bladder	11	2.20
Leukemia and lymphoma	21	4.20
Ca prostate	5	1.00
Stage of cancer		
I	152	30.40
II	173	34.60
III	121	24.20
IV	54	10.80
Chemotherapy cycle		
1-3 cycles	286	57.20
4-7 cycles	130	26.00
8-11 cycles	59	11.80
More than 11 cycles	25	5.00
Is radiation given		
Yes	171	34.20
No	329	65.80
History of DM/HTN/TB/others		
Yes	94	18.80
No	406	81.20

Table 2: Item wise ranking and mean score of patient satisfaction, (n=500).

Subdomains	Item	Mean±SD	Rank
Communication (Composite mean score±SD=4.84±0.75)	Greeted in a comfortable way	4.73±0.674	14
	HCWs answered all queries	4.75±0.632	10
	HCWs treated patients with respect	4.75±0.628	9
	Procedures, investigations, and warning signs explained clearly	4.64±0.812	23
	HCWs explained about follow-up time of discharge	5.53±0.927	1
	HCWs provided instructions on choice and benefits of treatment	4.63±0.799	24
Accessibility (Composite mean score±SD=4.70±0.73)	Bed provided on time	4.68±0.806	21
	Nursing officers were available on call	4.76±0.626	5
	Doctors spent adequate time during examination	4.67±0.752	21
Nursing care (Composite mean score±SD=4.71±0.71)	Privacy provided during procedures	4.68±0.711	19
	Nursing officers' behaviour was caring and friendly	4.79±0.618	3
	Consent obtained before procedures	4.70±0.768	17
	IV cannulation/chemoport insertion was uneventful	4.68±0.735	20
	Prescribed medications given on time	4.70±0.742	16
	Nursing officers showed care and understood concerns	4.69±0.684	18
	Nursing officers paid attention to patients' queries and wishes	4.73±0.684	15
Doctor care (Composite mean score±SD=4.71±0.70)	Doctors demonstrated professional skills	4.66±0.766	22
	Satisfied with doctors' behaviour and work	4.75±0.640	12

Continued.

Subdomains	Item	Mean±SD	Rank
Hospital facilities (Composite mean score±SD=4.74±0.67)	Clean and freshly prepared bed provided	4.83±0.540	2
	Day care unit cleaned regularly	4.76±0.633	7
	Washrooms were well maintained and cleaned	4.55±0.910	25
	Hospital cleanliness rated positively	4.75±0.637	11
	Equipment (bed, locker, fan, light, etc.) worked properly	4.76±0.669	8
	Comfortable bed and position provided	4.76±0.632	6
Recommendation (Composite mean score±SD=4.78±0.598	Willingness to recommend treatment in this hospital	4.78±0.598	4

Table 3: Assessment of patient satisfaction receiving chemotherapy in day care units, (n=500).

Level of patient satisfaction	Score range	N	Percentage (%)
Satisfied	117-175	480	96
Partially satisfied	71-116	15	3
Not satisfied	25-70	5	1

DISSCUSSION

Patient satisfaction is considered a vital indicator of the quality of care in cancer treatment, particularly within day care units. It constitutes one of 2 essential components of care quality, which emphasize respecting and understanding patients' needs and delivering services accordingly. Satisfaction is largely determined by the gap between expected and perceived quality of care-when the perceived quality exceeds expectations, it reflects better service quality, whereas when it falls below expectations, it indicates poorer service quality. An efficiently designed healthcare delivery system not only enhances patient satisfaction but also contributes to improve overall QoL.[16]

The present study was conducted to assess the satisfaction of cancer patients undergoing chemotherapy in the day care chemotherapy unit of AIIMS Jodhpur. The findings revealed that the majority of patients (49.40%) were aged between 41-60 years, and more than half (56.60%) were female. These findings are comparable with a study by Samant et al which reported a median age of 68 years, with 54% female respondents and 45% male respondents. The distribution of cancer types in the present study showed that breast cancer (23%) and oral cavity cancer (22.40%) were most common, which aligns with national statistics reported by the ICMR-National Institute of Cancer Prevention and Research.[17]

In terms of satisfaction, study highlighted that 96% of patients were satisfied with services received, while only 1% expressed dissatisfaction. These findings are consistent with a study conducted by Patel et al in Central India, which also reported high level of satisfaction (93.2%) among women attending day care oncology units.[18] Similarly, Khairy et al found that 60% of cancer patients expressed satisfaction with health care services provided at day care units, while 40% dissatisfied.[15]

The present study also demonstrated a statistically significant association between patient satisfaction and age (p=0.002), while no significant association was found with other demographic or clinical variables. This suggests that age may influence patients' perceptions and expectations of health care, whereas other factors such as gender, type of cancer, or duration of treatment may not play a significant role.

The study contributes to the understanding of patient satisfaction among individuals receiving chemotherapy, which is an important determinant of treatment compliance, trust in health services, and overall health outcomes. It also underscores the need for continuous education and support for patients to enhance their chemotherapy experience. However, certain limitations should be acknowledged: the use of non-probability convenience sampling and the restriction to a single study setting limit the generalizability of the findings. Furthermore, due to the cross-sectional design, causal relationships between variables cannot be established, as exposure and outcomes were assessed simultaneously.

CONCLUSION

The study concludes that the majority of cancer patients receiving chemotherapy in day care chemotherapy unit were satisfied with the care provided. Patient satisfaction reflects not only the perceived needs and expectations of patients but also their overall experience with both medical and non-medical aspects of care. As a multidimensional concept, it highlights the importance of holistic patient-centered care in oncology. The findings emphasize the need for continuous quality improvement and patient education programs to further enhance satisfaction and ensure positive treatment experiences.

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REFERENCES

1. Brown JS, Amend SR, Austin RH, Gatenby RA, Hammarlund EU, Pienta KJ. Updating the definition of cancer. Mol Cancer Res. 2023;21(11):1142-7.
2. National Cancer Institute. What is cancer? Bethesda (MD): National Institutes of Health. 2021. Available at: https://www.cancer.gov/about-cancer/understanding/what-is-cancer. Accessed on 25 January 2026.
3. Sharma K, Kumar S, Supriya, Gandhi T, Kaur T, Kumari V, et al. A cross-sectional study to assess the spectrum of physical ailments among gastrointestinal tract cancer patients undergoing chemotherapy. Int J Sci Healthc Res. 2020;5(2):151-6.
4. World Health Organization. Cancer. Geneva: World Health Organization. 2025. Available at: https://www.who.int/news-room/fact-sheets/detail/cancer. Accessed on 25 January 2026.
5. Upadhyay RP. An overview of the burden of non-communicable diseases in India. Iran J Public Health. 2012;41(3):1-8.
6. Sathishkumar K, Chaturvedi M, Das P, Stephen S, Mathur P. Cancer incidence estimates for 2022 and projection for 2025: Result from National Cancer Registry Programme, India. Indian J Med Res. 2022;156(4-5):598-607.
7. Mee T, Kirkby NF, Defourny N, Kirkby KJ, Burnet NG. The use of radiotherapy, surgery and chemotherapy in the curative treatment of cancer: results from the FORTY (Favourable Outcomes from RadioTherapY) project. Br J Radiol. 2023;96(1152):20230334.
8. Anand U, Dey A, Chandel AKS, Sanyal R, Mishra A, Pandey DK, et al. Cancer chemotherapy and beyond: Current status, drug candidates, associated risks and progress in targeted therapeutics. Genes Dis. 2022;10(4):1367-401.
9. Wilson BE, Jacob S, Yap ML, Ferlay J, Bray F, Barton MB. Estimates of global chemotherapy demands and corresponding physician workforce requirements for 2018 and 2040: a population-based study. Lancet Oncol. 2019;20(6):769-80.
10. Inpatient versus outpatient chemotherapy-benefits, risks, and costs. Cancer Ther Advisor. 2012. Available at: https://www.cancertherapyadvisor.com/features/inpatient-versus-outpatient-chemotherapy-benefits-risks-and-costs/. Accessed on 25 January 2026.
11. Yu C, Xian Y, Jing T, Bai M, Li X, Li J, et al. More patient-centered care, better healthcare: the association between patient-centered care and healthcare outcomes in inpatients. Front Public Health. 2023;11:1148277.
12. Choudhary V, Kumar A, Kumari V. Development of the clinical learning environment and supervision evaluation (CLESE) scale for nursing students of MM University Mullana, Ambala. Int J Nurs Sci. 2014;4(1):11-5.
13. Vastardi M, Govina O, Kalokairinou A, Tsamasiotis GK, Kalemikerakis I. Cancer patients' satisfaction with day care unit services have impact on their quality of life. Med Pharm Rep. 2025. Available at: https://medpharmareports.com/index.php/mpr/article/view/2846. Accessed on 25 January 2026.
14. Sharma SK, Mudgal SK, Thakur K, Gaur R. How to calculate sample size for observational and experimental nursing research studies? Natl J Physiol Pharm Pharmacol. 2020;10(1):1-8.
15. Khairy H, Abd El-Moneem H, Talaat A. Satisfaction of patients with cancer at day care units. Egypt J Health Care. 2022;13(4):843-55.
16. Ferreira DC, Vieira I, Pedro MI, Caldas P, Varela M. Patient satisfaction with healthcare services and the techniques used for its assessment: a systematic literature review and a bibliometric analysis. Healthcare (Basel). 2023;11(5):639.
17. ICMR-National Institute of Cancer Prevention and Research. Cancer India. Noida (UP): Ministry of Health and Family Welfare, Government of India. 2021. Available at: https://cancerindia.org.in. Accessed on 25 January 2026.
18. Patel PJ, Bansal S, Asati V, Patidar R, Kharbanda M, Mishra H, et al. 466P Identification of patient satisfaction predictors among women attending oncology daycare unit using validated survey questionnaire (PSS Tool): an institutional experience in central India. Ann Oncol. 2023;34(2):S1643-4.

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