

The Awareness Of Selected University Students About Nursing Care For Chemotherapy-Induced Peripheral Neuropathy

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Abstract

Cancer management is a radical event that is accompanied by severe side effects related to the cancer itself or/and therapeutic interventions. Particularly, chemotherapy-induced peripheral neuropathy is the most prevalent neurological complication of chemotherapy. So that awareness of nursing students will play a crucial role in managing this painful condition. **Objective:** This study aimed to assess the awareness of selected university students about nursing care for chemotherapy-induced peripheral neuropathy in Ismailia City. **Methods:** A cross-sectional design was utilized with convenient samples that were recruited (622 students). Utilizing a self-administered questionnaire to assess the participants' awareness about nursing care for chemotherapy-induced peripheral neuropathy. **Results:** The findings clarified that 52% were female and 38% had a mean age of 21. Most (58% of students) showed low levels of awareness. There was a statistically significant relationship found between the student's level of awareness about nursing care for chemotherapy-induced peripheral neuropathy and their demographic data ($p < 0.05$). **Conclusion:** Obviously, less than half of the participant students were aged between 20-22 years, more than half of them were female. Furthermore, most of the participant students had a low level of awareness, and there were related factors such as place of residence, academic level, and affiliations. **Recommendations:** Consequently, continuous competent health education for students should be made to improve their level of awareness and their near-future roles. Further research studies are necessary to identify their educational needs and the factors that influence the university students' level of awareness related to CIPN.

Keywords: Awareness, Chemotherapy-induced peripheral neuropathy, Nursing care, Students.

Introduction

Globally, the population of cancer survivors has increased to over 28 million people. ^[1] A large proportion of them endured treatment-related side effects such as chemotherapy-induced peripheral neuropathy (CIPN). ^[2] It is a frequent health issue that arises when cancer patients have neurotoxic chemotherapy. It is anticipated that 40% of cancer patients may have CIPN, depending on the length of exposure and the usage of typical chemotherapy regimens that include taxanes, plant alkaloids, platinum-based drugs, and bortezomib. ^[3] Numerous abnormalities of the motor, sensory, and autonomic nerves are involved in reduced vibratory and cutaneous feeling, reduced proprioception, numbness, tingling, and burning, as well as neuropathic pain. Weakness and muscular atrophy may result from injury to the motor neurons. Autonomic nerve damage can lead to changes in blood pressure, constipation, urinary retention, sexual dysfunction, and activities of daily living (ADL) difficulties as walking are common and minimizes quality of life (QOL). ^[4]

It is evident that nurses are evaluating and treating cancer patients' general pain without making the distinction between nociceptive and neuropathic pain, which has a detrimental impact on CIPN treatment and lowers the quality of life for patients. ^[5] Oncology nurses, however, are essential in evaluating CIPN clinical signs and patient-reported complaints. On the other hand, there are not enough evidence-based instruments and techniques to measure oncology nurses' performance in terms of CIPN evaluation and management, so it is still one of the many challenges oncology nurses faces. ^[6] Oncology nurses' literacy about CIPN is inadequate; one of the sources is that body system

assessments are not among the oncology nurse's educational courses, and until now there are no specified standard guidelines to assess and manage CIPN. ^[7] Consequently, knowledgeable undergraduate students can enhance patients' quality of life and improve their results as they are about to become a recent future oncology nurse.

Awareness is defined as one's perspective of the actions team members are performing within a specific context. ^[8] Improvement and upgrading undergraduate nurses' awareness about CIPN affects positively in the treatment and QoL of the patients. Clearly, early assessments in oncology patients can reduce patient's complaints and complications by providing targeted intervention and management. ^[9] In Egypt, unfortunately fewer education courses about oncology, no specialized for nurses' students, and only a few research studies were found concerning oncology nurses' knowledge and practices toward cancer pain. Therefore, the current study aimed at the awareness of selected university students about nursing care for chemotherapy-induced peripheral neuropathy at Suez Canal University in Ismailia City.

Materials and Methods

A cross-sectional research design was utilized in the current study on a nonprobability convenient sample of all available nursing students (622) that were from nursing branch of health technical institute, nursing institute and faculty of nursing at Suez Canal University in Ismailia city from the November 2019 to April 2020. Their willingness and approval to recruit in the current study is a requirement for participation post explanation its aim. The Epi-Calc tool was used to determine sample size, considering precision (5%), Population (2300) and confidence level (90%). Students recruited at the mentioned settings made up the final study sample size of (820) with dropout rate (20%).

Tools for data collection: A self-administrated online questionnaire was used in this current study, divided into two main parts. Part (I): It was developed by the researcher and concerned with demographic characteristics of the participant students as age, gender, academic year, marital status, and housing condition, affiliations, and receiving educational related courses. Part (II): It adapted by the researcher based on previous related studies and guidelines related Awareness level of the participant students about Awareness of selected university students about nursing care for chemotherapy-induced peripheral neuropathy: it included 10- items clarifying student's Awareness about nursing care for chemotherapy-induced peripheral neuropathy as definition, incidence & prevalence, clinical manifestations, risk factors & causes, diagnostic studies, prevention, assessment and treatment modalities. ^[10,11,12]

The questionnaire items' scores were designed based on a valid model answer, which each correct answer was given one grade, and the total awareness scores were classified as the following low level $\leq 50\%$, moderate level 50-75%, and high level $>75\%$. The collected data was coded, tabulated, and analyzed using IBM SPSS Statistics version 22. The normality test was evaluated by the Kolmogorov-Smirnov test, which clarified parametric data ≥ 0.05 . Data were presented in the form of frequencies and percentages using descriptive statistics. The significance of the analyzed results was estimated at the ≤ 0.05 level utilizing Mann Whitney and Kruskal Wallis test for abnormally distributed of quantitative variables of studied groups.

A Jury panel of five expertise in medical-surgical nursing and oncology medicine Suez Canal University revised the adapted tool to confirm its clarity, comprehensiveness, and applicability. The reliability of tool was evaluated by Cronbach's alpha test that clarified a highly internal consistency of the recruited tools (0.89). A pilot study was performed on sixty students (10%) before conducting of the study to assess its clarity, applicability, and feasibility. There were no changes, and the findings were included in the study. The author contacted the students via their what's-up group, explained the purpose of the study and encouraged them to participate in the current study though a submitted online link within 3-6 minutes. Furthermore, the shared link contained a section explaining the study aim and confirming that their participation was voluntary, and they have the right to withdraw at any time.

Results

Table 1. Frequency and distribution of the studied students related demographic characteristics. (n=622)

Demographic characteristics	No.	%
Age		
▪ 18-20 years	226	36
▪ 20-22	234	38
▪ ≥ 22 years	162	26
Mean\pmSD=21\pm1.89		

Gender		
▪ Male	296	48
▪ Female	326	52
Marital status		
▪ Single	452	72
▪ Engaged	123	20
▪ Other	47	8
Place of resident		
▪ Alone	11	2
▪ Family house	422	68
▪ University housing	189	30
Academic level		
▪ First	175	28
▪ Second	253	41
▪ Third	162	26
▪ Fourth	32	5
Receiving related educational courses		
▪ Yes	293	47
▪ No	329	53
SD: Standard deviation		

Table 1. shows that less than half (38%) of the participant students were aged between 20-22 years, more than half of them (52%) were female, and less than two-quarters (72%) of them were single. Furthermore, less than three-quarters (68%) of them had family housing as a place of residence, and less than half (41%) of them were in the second level. Lastly, about types of affiliations.

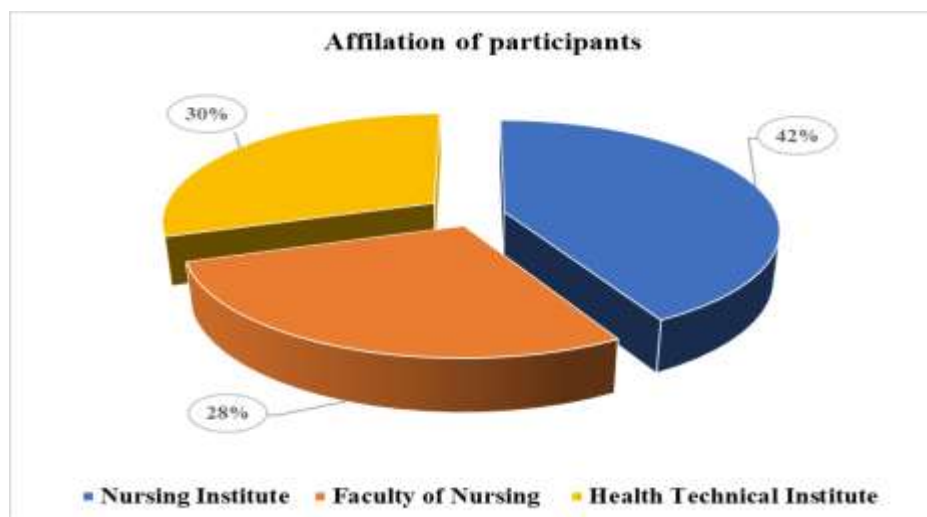


Figure 1. Frequency and distribution of the studied students related their affiliations. (n=622)

Figure No 1. clarifies that less than half of them (42%) were from nursing institute, while less than one-third (28%) were from the faculty of nursing.

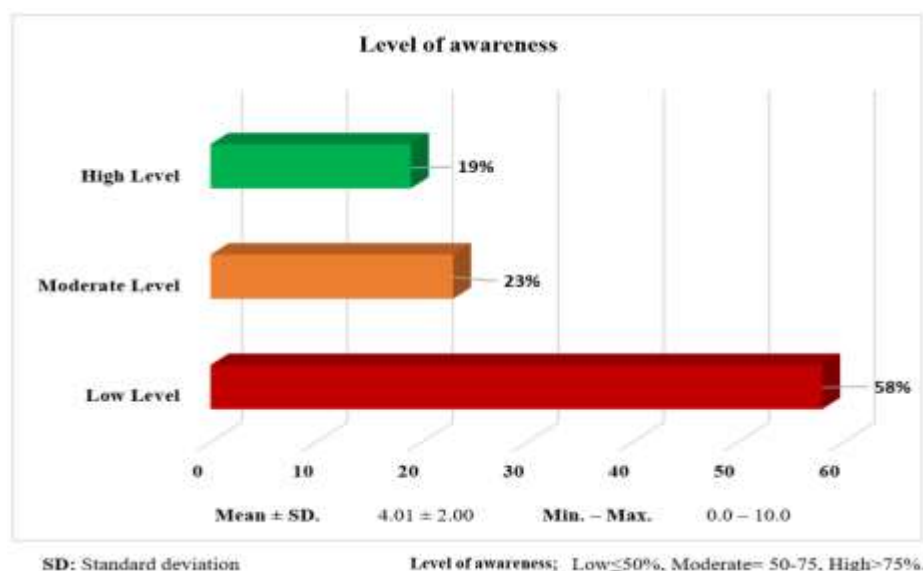


Figure 2. Level the studied nurses' awareness about nursing care for chemotherapy-induced peripheral neuropathy and their mean & standard deviation. (n=622)

Figure 2. explains that less than one-quarter (19%) of the studied nurses had a high level of awareness about nursing care for chemotherapy-induced peripheral neuropathy, while more than half of them had a low level and their Mean±SD (4.01±2.00) with Min-Max (0-10).

Table 2. The relationship between student's level of awareness about nursing care for chemotherapy-induced peripheral neuropathy and their affiliations. (n=622)

Affiliation name	n	Level of Awareness		Test	p
		Mean ± SD.	Median		
▪ Nursing Institute	261	57.20 ± 23.11	63.14	U= 13.22	0.51
▪ Faculty of Nursing	174	49.71 ± 20.91	59.57		
▪ Health Technical Institute	187	55.10 ± 19.50	61.13		

SD: Standard deviation H: Kruskal Wallis test U: Mann Whitney test *significant at p ≤ 0.05

Table No 2. shows that there was no statistically significant relationship detected between student's level of awareness about nursing care for chemotherapy-induced peripheral neuropathy and their affiliations (U= 13.22 & p value=0.51).

Table 3. The relationship between student's level of awareness about nursing care for chemotherapy-induced peripheral neuropathy and their demographic characteristics. (n=622)

Demographic characteristics	n	Level of Awareness		Test.	P value.
		Mean ± SD.	Median		
Age					
▪ 18-20 years	226	60.19 ± 20.01	61.11	H= 6.12	0.60
▪ 20-22	234	58.99 ± 21.11	61.50		
▪ ≥22 years	234	51.54 ± 21.00	60.04		
Gender					
▪ Male	296	50.11 ± 21.00	49.10	U= 11.10	0.13
▪ Female	326	49.11 ± 21.70	50.12		
Marital status					
▪ Single	452	52.66 ± 20.11	61.00	H= 16.20	0.66
▪ Engaged	123	53.21 ± 31.10	60.53		
▪ Other	47	53.13 ± 32.87	55.14		

Place of residence					
▪ Alone	11	66.10 ± 21.17	60.20	H= 24.99	0.001*
▪ Family house	422	59.13 ± 13.01	55.40		
▪ University housing	189	51.11 ± 18.12	46.20		
Academic level					
▪ First	175	50.20 ± 20.19	55.10	H= 9.20*	0.01*
▪ Second	253	44.59 ± 20.81	42.30		
▪ Third	162	51.30 ± 18.10	59.27		
▪ Fourth	32	55.10 ± 13.74	57.10		
Affiliation of participants					
▪ Nursing Institute	261	54.44 ± 11.01	59.50	U= 18.18	0.05*
▪ Faculty of Nursing	174	52.24 ± 12.32	55.15		
▪ Health Technical Institute	187	56.30 ± 10.00	61.50		
Receiving related educational courses					
▪ Yes	293	48.64 ± 11.00	55.15	U= 23.01	0.59
▪ No	329	53.11 ± 12.00	61.50		
SD: Standard deviation H: Kruskal Wallis test U: Mann Whitney test *significant at p ≤ 0.05					

Table No 3. presents that there was statistically significant relationship were estimated between the participants student's level of awareness about nursing care for chemotherapy-induced peripheral neuropathy and their demographic characteristics (place of residence, academic level, and affiliation of participants).

Discussion

The current study's aim was to assess the awareness of selected university students about nursing care for chemotherapy-induced peripheral neuropathy at Suez Canal University in Ismailia City. Long-term cancer survival is rising with more effective targeted cancer treatments; however, chemotherapeutic medication side effects are still common. On the other hand, a frequent and difficult side effect of several commonly used antineoplastic drugs is chemotherapy-induced peripheral neuropathy (CIPN).^[13] Identification of recent future nursing students' levels of knowledge is crucial for assessing their required educational needs, which clearly impact both treatment efficacy and patient survival, as a goal of Egypt Health Vision 2030.

Regarding the participant students' demographic characteristics, the existing study displays that more than one-third (38%) of the studied students in the age range of 20–22 years, seen by the majority (52%), were female and single (72%). The maximum parentage of participating students was less than two-quarters (68%) who have a family house as their place of residence, followed by being in the second academic level (41%), and more than half (53%) did not receive related educational courses from CIPA. Ultimately, about one-third (42%) of them are from nursing institutes; less than one-third (30%; 28%) were from health technical institutes and the faculty of nursing consecutively at Suez Canal University.

These results are compatible in the same direction with Sari et al., they stated from their study conclusions that there were 396 studied participants, encompassing 47 males and 349 females. More than one-third (73%) of them were in the academic phase.^[14] This is disagreed with by Vijayan et al., and Zeb et al., they reported that half of the study participants (50%) were in the age group of below 20 years, and most (68%) of them were at nursing college.^[15,16] The researcher clarified that this is probably related to the fact that most nursing students in Egypt graduated from nursing institutes and the ratio of female gender to male.

Concerning students' awareness, the current study showed that less than two-thirds of them had a low level of awareness about nursing care for chemotherapy-induced peripheral neuropathy, less than one-third (23%) had a moderate level, and less than one-quarter (19%) of them had a high level of awareness about nursing care for CIPN with a Mean±SD (40.1±2.00) and a Max-Min (0.0-10.0). In the same line the current study findings mentioned that there was no statistically significant relationship detected between students' level of awareness about nursing care for chemotherapy-induced peripheral neuropathy and their affiliations.

It was clarified by the author that most of them did not receive related training courses about CIPN, neglected related topics in education courses, or had a low academic level to catch related courses because approximately all were in their second year. This concern was encouraged by Hedenstrom, et al., who clarified that approximately all

the studied nursing students had an inadequate level of knowledge about patients with cancer. ^[17] Also, in the same way by Al Qadire et al., they stressed that more than half of the participant students had a low level of knowledge about the management of chemotherapy-induced neutropenia. ^[12] Furthermore, there was disagreement with this study's outcome by Lisa et al., and Altre, & Chou they demonstrated in their study results that the majority of the participant students had an adequate level of knowledge regarding cancer. ^[18,19]

The current study itemized that there was statistically significant relationship were estimated between the participants student's level of awareness about nursing care for chemotherapy-induced peripheral neuropathy and their demographic characteristics (place of residence, academic level, and affiliation of participants), while in opposite direction there was no statistically significant relationship with (age, gender, marital status and receiving related educational courses) with significant p value ≤ 0.05 . Considering the author's background, this is interpreted as a reflection of level of awareness, multi-affiliations, and culture of the participants students. A low level of follow-up to education courses, neglected prerequisite to identify students learning needs, administrative support from the directors of course, as well as frequent developing a new course intended learning outcomes affecting level of knowledge related to certain topics.

This confirmed result was approved by Mohammed et al., and, in the same way, by Saranya et al. even though both studies are in different places, indicating that there was a significant positive relation between the total level of participant students' knowledge and their demographic data (academic level and their affiliations). ^[20,21] Though the results were inconsistent with the study's findings by Visovsky et al., and Latchman, they noticed that there was a non-significant relationship between the participant nursing students' awareness level and socio-demographic data ($p \leq 0.05$). ^[22,23] Once the data for the current study was gathered from a single university, it was limited in its ability to be generalized to all undergraduate nursing students in the Canal Area. Additionally, responses may have indicated what nurses thought they should know rather than what they had learned. Lastly, a few related research topics regarding assessing nursing students' knowledge of CIPN for discussion with the study's results and managed by utilizing similar research variables.

Conclusion and Recommendations

Based on the study findings, the researcher can conclude that less than half of the participant students were aged between 20-22 years, more than half of them were female. There was a low level of awareness among the participant students about chemotherapy-induced peripheral neuropathy (CIPN). There was a statistically significant positive relationship found between the students' level of awareness about nursing care for chemotherapy-induced peripheral neuropathy and their demographic data, such as place of residence, academic level, and affiliation of participants. Consequently, the provision of continuous, regular, and intermittent in-service educational courses encompasses knowledge about CIPN assessment and management to improve their future roles. There is a clear need to design a manual instructional scheme for CIPN. Further research studies are necessary to identify their educational needs and the factors that influence the university students' level of awareness related to CIPN.

Acknowledgment: The authors would like to appreciate all students who participated in the current study, as well as the affiliations of the study settings that facilitated data collection.

Abbreviations

CIPN	Chemotherapy-induced peripheral neuropathy
ADL	Activities of daily living
QOL	Quality of life

Conflicts of interest: No conflict interests.

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Consent for publication: Not applicable.

Author Contributions: The author finished the work and accepted the publication of manuscript.

Data availability: The author will make the data sets assembled and interpreted during this study available upon appropriate request.

Ethical approval and considerations: The research approved by the faculty of Nursing, Suez Canal University, Ismailia City and mentioned study setting post explaining the study aim and methodology. It also was clarified to students in a clear manner and provided online informed consent prior opening the study link. The researcher secured that the students' data would only be used for research purposes and kept confidential without interfering with their academic evaluation with the right to withdraw from the study at any time.

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